Avid® DS Nitris™ User Guides

version 8.4

Avid

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June 2007

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Section 1
Using Help

You can get comprehensive task-oriented, background, and reference information through your Avid DS Nitris Help system.

The following topics provide information that will help you to use Help:

- Accessing the Help System
- Understanding the Help System
- Finding Information Within Help

Avid DS Help

The following topics provide general information about the help system:

- Accessing the Help System
- Understanding the Help System
- Finding Information Within Help

Accessing the Help System

Avid DS Nitris comes with a comprehensive help system that contains information on all the interface elements, as well as task information. If you're looking for information on a particular interface element or property page parameter, or need help performing a task, the online help is the place to look.

The following topics explain how to use the Help system:

- "Accessing the Help System" on page 3
- "Understanding the Help System" on page 4
- "Finding Information Within Help" on page 6

There are two ways to access the Help system:

- From the Help menu
- From windows and dialog boxes—see "Getting Context-Sensitive Help" on page 4.

To open the Help system:

- Select **Help > Contents and Index** or press F1.

  The Help window opens, and the Help splash screen displays.

Related Topics

Getting Context-Sensitive Help

Getting Context-Sensitive Help

Help icon or button

Every view, property page, dialog box, and pop-up menu contains a Help icon or button which displays context-sensitive information when clicked.

Tooltips

Avid DS Nitris uses small pop-ups called *tooltips* to display the name of desktop elements when they have no text label.

Position the pointer over an interface element, such as an icon, and pause for a second. A tooltip with the name of the element appears.

Avid DS Nitris provides you with a quick way to get Help for many views, dialog boxes, and property pages. Within these context-sensitive topics, you can view specific information about items, such as options and individual buttons, and link to related topics.

To get help for a view, dialog box, or property page with a Help button:

- Click the Help button (either a question mark or a button labeled Help, or How To...).

  The context-sensitive Help topic is displayed.

Related Topics

Understanding the Help System

Understanding the Help System

The Help system uses the following main display areas:

- Help topics open in the right area of the Help window—see “Help Topics” on page 5.
- Buttons for controlling the Help display and for printing Help topics appear in the top area of the Help window—see “Top Area Buttons” on page 6.

- Navigation tools (Contents, Index, Search, and Favorites) open in the left area of the Help window—see "Finding Information Within Help" on page 6.

Once the Help window is open, it behaves in much the same way as most other windows. You can resize it and reposition it to suit your screen layout and workflow.

Help Topics

The information in the Help is displayed in the right area of the Help window. All topics have the following items above the main heading:

- Hierarchy links

  These links display the location of the currently displayed topic within its book and chapter, and let you jump to relevant higher-level topics, including the Main Topics page.

- Previous Topic and Next Topic buttons

  Use these buttons to browse through the topics in the order in which they appear in the Contents.

The Help system includes task-oriented procedures as well as background and reference information. At the bottom of many topics are links to related topics.

Showing and Hiding Additional Information

Some Help topics include a link labeled "More Information." Click this link or the turn-down arrow to see conceptual or background information related to the procedure. This information is displayed with a colored border on top and bottom.

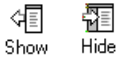
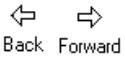
To return to the original display, click the link or arrow again.

Related Topics

Top Area Buttons

Top Area Buttons

The top area of the Help window contains four buttons that allow you to change the Help display and print Help topics. The following table describes these buttons.

Button	Illustration	Description
Hide/Show		Click the Hide button to hide the navigation area on the left and reduce the width of the Help window. The button changes to the Show button. Click the Show button to reveal the navigation area on the left and expand the width of the Help window. The button changes to the Hide button.
Back and Forward		These buttons work like the Back and Forward buttons in an Internet browser, such as Microsoft Internet Explorer. Use the buttons to move among recently visited topics.
Print		Click this button to print one or more topics.

Related Topics

Help Topics

Finding Information Within Help

The left area of the Help window displays the Help system's main navigation tools within a tabbed interface.

For more information, see the following topics:

- Using the Contents Tab
- Using the Index Tab

- Using the Search Tab
- Advanced Search Options

Using the Contents Tab

The Contents tab displays a complete hierarchical list of all topics in the Help system. You can expand and collapse the contents to view the logical organization of the Help system. Click on a topic to display the entry to the right.

Related Topics

Using the Index Tab

Using the Search Tab

Advanced Search Options

Using the Index Tab

The Index tab provides an alphabetized list of entries similar to the index of a printed book.

To find an index entry, type the first few letters of a keyword in the text box at the top of the tab. As you type, the index jumps to the range of entries that correspond to the letters you have typed.

To view the topic associated with an index entry, either click the index entry and then click **Display**, or double-click the entry.

Related Topics

Using the Contents Tab

Using the Search Tab

Advanced Search Options

Using the Search Tab

The Search tab lets you search the entire text of the Help system for one or more words and then lists the topics that include those words. The list of results is ranked, placing the topics that the Search feature considers most likely to be relevant at the top of the list.

Advanced Search Options

Advanced search options let you control how the Search feature operates. If the Search feature does not produce useful results for a particular topic, you can often find the specific information you need by modifying the search.

Search Syntax

The following syntax rules control search queries:

- Searches are not case-sensitive, so you can type your search in uppercase or lowercase characters.
- You can search for any combination of letters (a-z) and numbers (0-9).
- Punctuation marks, such as period, colon, semicolon, comma, and hyphen are ignored.
- Search for a literal phrase by using quotation marks.
- If you are searching for a filename with an extension, you should group the entire string in double quotes (“filename.ext"). Otherwise, the search will treat the period as an OR operator.

New in this Release...

This section describes enhancements in Avid DS Nitris v8.4 and v8.0.

New in Avid DS Nitris v8.4

New in Avid DS Nitris v8.0

New in Avid DS Nitris v8.4

The following new features are available in Avid DS Nitris v8.4.

Hardware/Platform Enhancements

Dual-Link Implementations

Dual-Boot Systems with Avid Symphony Nitris

Avid DS Assist Station

Avid MediaNet 5.0 Compatibility

Licensing

New HP xw8400 Workstation

Avid has qualified the HP xw8400 workstation with the NVIDIA® Quadro® FX 3500 graphics board to be used with the Avid Nitris.

Featuring quad-core Intel Core2 processors, the xw8400 workstation has doubled its processing power since the last-released Avid Nitris hardware platform.

Your Avid® DS Nitris™ DNA™ workstation comes pre-installed with the Microsoft Windows XP Professional x64 Edition operating system, Service Pack 2, approved Windows Security Updates and all required Avid DS drivers.

Dual-Link Implementations

- In addition to offering native 64-bit capability, the Avid DS Nitris v8.4 comes with an integrated dual-link HD SDI I/O card for capturing HD material from HD RGB sources (e.g., HDCAM-SR).

- The Dual-Link card is offered as an option for current users of the HP xw8200 who upgrade to the 64-bit version. It supports 8 channels of AES, or embedded audio.
- The Dual-Link card is also supported on the Avid DS Assist Station for realtime viewing of media—see Avid DS Assist Station.

Dual-Boot Systems with Avid Symphony Nitris

Avid DS Nitris v8.4 comes bundled with Avid Symphony Nitris dual-boot software, so you can easily configure your system to run Avid DS Nitris or Avid Symphony Nitris based on the project at hand. Refer to the documentation on the Avid DS Support Center web site, for instructions on configuring a dual-boot system.

Avid DS Assist Station

The Avid DS Assist Station now has the option to add HD-SDI and analog RGB monitoring output which allows you to connect a broadcast monitor to your station. This allows you to preview your media in realtime, from full resolution up to dual-link 10bit RGB (if using a Xena 2Ke card from AJA Video Systems).

The Xena 2Ke or LHe card can be purchased directly from your AJA reseller. Please refer to the Avid DS Assist Station system specifications on the Avid DS Support Center web site.

If you already have an Avid DS Assist Station license and you want to add this monitoring capability, please contact technical support to get an updated license.

Avid MediaNet 5.0 Compatibility

Avid DS Nitris v8.0 and v8.4 (32-bit only) are now supported on Avid MediaNet 5.0.

The number of streams and clients supported depends on your MediaNet 5.0 configuration. Refer to the storage table on the Avid DS Support Center web site.

Licensing

If you are upgrading from a version prior to Avid DS v8.0, then you should note that a new licensing scheme has been implemented for version 8.0 and above. Dongles are no longer required, but you will be required to obtain a new license key before installing the application.

You need a separate license for each of your Avid DS and Avid DS RP workstations. Refer to http://www.softimage.com/avidds to obtain your license.

Software Performance Enhancements

The following enhancements have been made to this version of Avid DS:

- Reliability of capture on shared storage has improved.
- There has been a data alias name change in the software that may invalidate some of your media caches. Simply reprocess any media that has a red highlight on your timeline ribbon.
- Customer Support tools—Version Info Extractor and DS Project Manager—have been updated. These updates are automatically installed with the Avid DS software.
- For a list of other software fixes, go to http://www.softimage.com/avidds.

New in Avid DS Nitris v8.0

The following new features are available in Avid DS Nitris v8 and subsequent QFEs.

Hardware/Platform Enhancements

New HP xw9300 Workstation

Avid has qualified the HP® xw9300 dual-core Opteron workstation with the NVIDIA® Quadro® FX 3450 graphics board to be used with the Avid Nitris DNA.

Featuring two dual-core AMD Opteron processors, the xw9300 workstation provides twice the CPU power for the fastest processing of HD-RGB and file-based 2K and 4K material.

64-bit Support

Avid DS Nitris now has a 64-bit version available for the xw8200 and xw9300 workstations. This gives you significantly more memory to facilitate HD-RGB and high-resolutions file-based 2K and 4K workflows; or make more complex and larger sequences on SD projects.

Dual-Link Implementations

- In addition to offering native 64-bit capability, the new Avid DS Nitris v8.0 comes with an integrated dual-link HD SDI I/O card for capturing HD material from HD RGB sources (e.g., HDCAM-SR).

The Dual-Link card is offered in all new Avid DS v8.0 systems (HP xw9300 or HP xw8200, 64-bits), or as an option for current users of the HP xw8200 who upgrade to the 64-bit version. It supports 8 channels of AES, or embedded audio.

- Alpha archive implementation for HD RGB hardware.
- Conversion from 10-bit 4:4:4 HD to 10-bit 4:2:2 HD.
- The HD-RGB workflow has been optimized for an ITU-709 (gamma 2.2) colorspace.
- Enable 10/16-bit depth for 4K sequences in 64-bit.
- Processing 4:4:4 material in 4:2:2 DNxHD 220 for proxy preview.
- Dual-Link driver detection and installation in the Avid Nitris DNA installer.
- Added support for HD RGB 10:10:10 in MXF.
- Added support for Dual-Link audio.
- Added support for Big/Little Endian DPX file.

Dual-Boot Systems with Avid Symphony Nitris

The new Avid DS Nitris v8.0 comes bundled with Avid Symphony Nitris dual boot software, so you can easily configure your system to run Avid DS Nitris or Avid Symphony Nitris based on the project at hand.

Avid VideoRAID Line Launched

Avid DS Nitris now supports the 10-drive RTR320X Avid VideoRAID disk arrays. The Avid VideoRAID line provides redundancy for media asset protection as well as performance for high-bandwidth workflows.

The Avid VideoRAID arrays provide guaranteed real-time access for multi-stream SD and HD workflows, supporting up to dual stream 1:1 10-bit HD. They support hardware parity RAID operation and provide continuous data protection and full performance, even in the event of a drive failure or during a drive rebuild. The arrays are available with 250GB or 500GB drives.

For Avid DS, you need a minimum of 20 drives.

For more information, check out the Avid VideoRAID product pages on Avid.com. Go to www.avid.com/products/videoRAID.

Avid DS Assist Station

Meet the latest addition to the Avid DS Nitris family! The Avid DS Assist Station is a new software application that can run on any standard system with a minimal specification of:

- Dual Intel Xeon or Opteron single core CPU or single dual core Intel or AMD CPUs
- 1 GB of memory
- A supported OGL card such as the Nvidia QuadroFX 3400 or FX3450 (sRefer to the Avid web site for a list of additional supported cards).

The new Avid DS Assist Station delivers the complete effect, editing and compositing toolsets that are found in the Avid DS Nitris configuration. The Avid DS Assist station is designed to work in a shared workgroup environment with Avid DS Nitris and, therefore, doesn't have any I/O capabilities of its own for signal-based video and audio.

You can, however, capture and output from file. Since it is also capable of full realtime playback and processing, you can use it offline for all your graphics and effects work. This is an extremely economical way to grade and finish features that are captured onto your central storage.

Processing of effects is done by the software whose capabilities are only limited by the underlying hardware and an adequate disk subsystem on the workstation where it is installed.

Avid DS (automatic SD to HD upgrade)

All Avid DS Equinox SD systems will automatically be upgraded to the full HD version.

New Licensing Scheme

A new licensing scheme has been implemented for this version of Avid DS. Dongles are no longer required, but you will be required to obtain a new license key before installing the application.

You need a separate license for each of your Avid DS and Avid DS RP workstations.

Support for Avid DMS Broker v5.0

If you are in an Avid workgroup, you MUST upgrade to version 5.0 of the Avid DMS Broker. Note that this option is not automatically selected. To install the broker, you need to run the DS Setup program. Under Main Workgroups Components, select Avid DMS Broker.

Avid Unity ISIS Support

Avid DS Nitris now supports Avid Unity ISIS 1.1, the latest advanced media network from Avid which delivers enterprise-level reliability, availability, and scalability.

Avid strongly recommends that you use the 64-bit version of Avid DS Nitris for best performance with ISIS.

Refer to the Avid DS Support Center web site for a list of supported configurations.

AVX Plug-in Effects

The AVX1.0 host has been enhanced to support optional inputs—input naming and 64-bit AVX 1.0 effects when run in 64-bit.

See http://www.avid.com/thirdparty/viewdeveloper.aspx?Type=1 for a list of supported third-party effects.

Panasonic AJ-HD1200A Deck Template Added

Panasonic AJ-HD1200A deck template added to the supported Machine Templates.

Software Performance Enhancements

Over 350 fixes have been made to this version of Avid DS! Here are some of the highlights.

Sub-Titling Tool

The Sub-titling tool is now a real-time effect.

Timeline Enhancements

Improvements in v8.0 include improved sequence loading and timeline performance for long form editing.

Timeline to MC

Provides the ability to quickly generate an AAF and MXF file of a timeline selection that can be later imported directly into Media Composer.

3:2 Contract and Expand Time Effects

A new option has been added in both the 3:2 Expand and 3:2 Contract time effects:

- New ***Mode*** dropdown list option
- Allow you to select the pull-down phase
- *Standard*: 5 options
- *Advanced*: 5 options

3:2 Expand

The **phase** selected represents the 3:2 pull-down cadence generated by the effect, with respect to the origin of the **created container.**

Available choices are:

Standard: AA BB BC CD DD
Standard: BB BC CD DD AA
Standard: BC CD DD AA BB
Standard: CD DD AA BB BC
Standard: DD AA BB BC CD
Advanced: AA BB BC CC DD
Advanced: BB BC CC DD AA
Advanced: BC CC DD AA BB
Advanced: CC DD AA BB BC
Advanced: DD AA BB BC CC

3:2 Contract

The **phase** selected represents the 3:2 pull-down cadence of the source material, on which the 3:2 pull-down is removed. The **phase** is specified with respect to the origin of the **source** material.

Note that the **phase** is automatically determined by positioning the play cursor on the frame (or first frame of two) containing 3:2 pull-down artifacts prior to apply the 3:2 Contract. In case of an incorrect play cursor position, this new option can be used to select the proper phase after the 3:2 Contract effect is applied.

Available choices are:

Standard: AA BB BC CD DD
Standard: BB BC CD DD AA
Standard: BC CD DD AA BB
Standard: CD DD AA BB BC
Standard: DD AA BB BC CD
Advanced: AA BB BC CC DD
Advanced: BB BC CC DD AA
Advanced: BC CC DD AA BB
Advanced: CC DD AA BB BC
Advanced: DD AA BB BC CC

Tiling of YUV Effects

YUV processing has been enhanced to take advantage of the hardware capabilities of your workstation. On the new xw9300 workstation, processing speed is doubled.

Optimizing File Sources

The Data Management menu has a new command called Optimize File Sources, which updates the size of the source model file. When you reload the project, the source model file will be much smaller.

DVE Translation

When translating an image (in either X or Y), the limit has been raised to 100,000 pixels so that the image no longer gets clipped.

Also, the DS world space in 64-bit has been extended to 12K x 12K.

Importing Subtitles

The Import Subtitles tool now generates Graphics On Black clips on a new track instead of creating Graphics timeline effects.

Expressions & Source Side Effects

Support for the Expressions feature has been enhanced and is now more robust and easier to use.

Several fixes and enhancements to Source Side effects have also been done.

Source Viewer

You can now successfully load a clip in the Source viewer and recapture it. This was a known problem in v7.5.

Viewing Locators

When viewing locators in the meta curve region of the animation editor, you can switch the display between the selected function curve and all function curves by pressing the button beside the meta curve region. When displaying the locators of selected function curves, the button appears pressed.

Other Features

Optimization and Performance Improvements

- Performance improvement when saving and exiting a sequence.
- Optimization when using DPX linked files.
- Performance optimization when stepping in or out of containers.
- Performance optimization when copy/pasting objects in the timeline.
- SSE2 - Optimize 10-bit alpha encoding/decoding to/from RGBA.
- 64-bit interactive cache size optimizing.
- User preferences option added to process or skip missing media or effects.
- Audio improvement: Apple QuickTime v7.0.4 is now support. You can get QuickTime v7.0.4 from http://www.apple.com/support/downloads/quicktime704.html.

New Formats Supported

The following is a list of new formats supported in this version of Avid DS Nitris.

If there is no HW support, then you will see a dot in the front of the format name in the New Sequence and New Project dialog boxes—see a format is not A dot is seen in from of the format name in the tilte bar and UI control(in new seq dlg and seq pref dlg) to indicate that there is no HW support

Format	Description
720p50	HD format. There is also support of additional cross-conversion to 1080i50.
DNxHD 36	Very low bit rate DNX-HD resolutions for HD offline editing are available in 1080psf projects.
DNX-TR (thin raster)	Support for MXF media (link, import, conform from MC). *720P 24/25/30 is not supported.*

Format	Description
DNxHD-TR for Avid DS	This light-weight Avid compression codec is now available for Avid DS when outputting material to file. Once outputted, you can post it online or burn it on a DVD. An advantage is that its size does not compromise the HD quality of the material.
DVCPRO HD	DVCPro-HD/P2 format media in MXF format captured on Adrenaline and Avid Xpress Pro systems may be relinked via the AFE conform process in Avid DS Nitris.
DV 100	When working 720p or 1080i formats, you can now output material to MXF and Gen files using the DV 100 compression codec. The file may be relinked and played back in real-time. *It cannot be captured or used to create sequences.*
DCI 2K	Film formats.
DCI 4K	DCI 2K is hardware supported at 24fps.
720p 23.98 fps	HD formats not HW supported.
720p 24fps	
720p 25fps	
720p 29.97fps	
720p 30fps	
Super 35mm 3 Perf (2K)	Film formats.
Super 35mm 3 Perf (4K)	

Non Hardware Support Formats Indicator

If the format you select is not hardware supported, it will have a dot in front of the name—see "New Project Dialog Box" in the Help.

DigiDesign ProTools Import/Export

- OMF audio export to Avid ProTools has been rewritten and now only exports the media effectively used in the timeline.

- AAF/MXF import: Avid DS Nitris can now conform AAF/MXF sequences from Avid ProTools v7.2.

Documentation & Support Services

The following topics provide general information about documentation and support services:

- Using the Product Documentation
- Contacting Avid Customer Support
- Avid Training Services

The Avid DS Nitris documentation describes the features and hardware of all models within the Avid DS family. Therefore, your system might not contain certain features and hardware that are covered in the documentation.

Chapter 1
Using Avid Support and Services

The following topics provide general information about documentation and support services:

- Using the Product Documentation
- Contacting Avid Customer Support
- Avid Training Services

Using the Product Documentation

The Avid DS Nitris documentation describes the features and hardware of all models within the Avid DS family. Therefore, your system might not contain certain features and hardware that are covered in the documentation.

Unless noted otherwise, the material in this document applies to the Windows XP operating system.

Follow these conventions for mouse or pen usage:

This Term	Means This with a Mouse	Means This with a Pen
Click	Quickly click and release the left mouse button. Always use the left mouse button unless otherwise stated.	Tap the tablet once with the tip of the pen, or touch the pen to the tablet with enough pressure to click.
Double-click	Click the left mouse button twice rapidly.	Quickly tap the tablet twice in the same screen pixel or press the F5 key to go from single to double-click.
Right-click	Quickly click and release the right mouse button.	Press the top portion of the switch on the side of the pen or press the F6 key to go from left to right-click.
Drag	Click and hold the left mouse button or the wheel while you move the mouse.	Press the pen to the tablet while moving the pen.

This Term	Means This with a Mouse	Means This with a Pen
Alt+*key,* Ctrl+*key,* Shift+*key, etc.*	Press and hold the first key while you press the second key. For example, “Press Alt+F1” means to press and hold the Alt key while you press the F1 key.	

Avid DS Online Library

The Online Library contains the Avid DS Nitris documentation in a single PDF file. This allows you to easily search through the file and print sections that you require.

If the online library was installed on your system, you can access it from the Help menu in Avid DS Nitris. You can also access it directly from the Avid DS Software and Drivers DVD, or download the most up-to-date PDF from the Avid DS Support Center web site at http://www.softimage.com/avidds.

The PDF versions of Avid DS documentation require Adobe Reader 4.0 or later. If you need to install Adobe Reader, you can download a free installer from Adobe's web page at www.adobe.com.

To access the Online Library:

- In Avid DS Nitris, select **Help** > **Online Library**,

  or

- Insert the Avid DS Software and Drivers DVD into your drive, and select **Online Library** from the main menu.

How to Order Documentation

To order additional copies of the printed documentation from within the United States, call Avid Sales at 800-949-AVID (800-949-2843). If you are placing an order from outside the United States, contact your local Avid representative.

You can also download printable PDF versions of the documentation from the Avid DS Support Center web site at http://www.softimage.com/avidds.

Contacting Avid Customer Support

Avid DS Customer Support offers assistance by phone, email, and the web. You are invited to send your support requests to any of these channels. For urgent issues taht require immediate assistance, use your local phone support channel.

If you are having trouble using your system:

1. Retry the action, carefully following the instructions given for that task in this guide. It is especially important to check each step of your workflow.

Check the Avid DS Support Center at http://www.softimage.com/avidds for the latest information that might have become available.

E-mail Support

The e-mail address for Avid DS Customer Support is: **dssupport@avid.com**. You can use it for sending bug reports, usability questions, and avidds.cab audit reports for system analysis. All e-mails are logged in the support database and assigned a case number. Send one support request per e-mail.

It is mandatory that you include your SID number in the body of your e-mail message for verification of your maintenance contract and case logging. Otherwise, response will be delayed.

Web Support

The Avid DS Support Center at http://www.softimage.com/avidds provides quick access to a wide range of resources from the Avid DS team—online documentation, tutorials, known limitiations and other late-breaking information.

All software and driver updates can be downloaded from the Avid Download Center http://www.avid.com/support/downloadcenter/index.asp.

Upload Utility

For troubleshooting purposes, you can upload your files for Avid Customer Support personnel to examine. You can upload a project's archive, media files, or other necessary data. Simply zip the files that you need to upload and use a short name (for easy retrieval), such as archive.zip or Case274877.zip.

To upload your files:

1. Go to the Avid web site at http://www.softimage.com/avidds.
2. Select **Support and Upload Tool** from the left menu.

Avid Community Forum

Although the Avid DS community forum is frequently monitored by Avid employees, it is not part of the official support channels.

The forum has proven to be quite useful for users, and there is a constant stream of new subscribers.

To subscribe, join the Avid community forums on the Avid web site at http://www.avid.com. Select **Support > Forums**.

Avid Training Services

Avid makes lifelong learning, career advancement, and personal development easy and convenient. Avid understands that the knowledge you need to differentiate yourself is always changing, and Avid continually updates course content and offers new training delivery methods that accommodate your pressured and competitive work environment.

To learn about Avid's new online learning environment, Avid Learning Excellerator (ALEX), visit http://learn.avid.com.

For information on courses/schedules, training centers, certifications, courseware, and books, visit www.avid.com/training or call Avid Sales at 800-949-AVID (800-949-2843).

Best Practices

This section provides information about capturing media, conforming sequences created on other systems, and outputting material.

- Assistant Editing
- Conforming HD Sequences
- Using Digital Intermediates for Film-based Projects
- Conforming HDV Media
- Conforming in an Avid Interplay Environment

Chapter 1
Assistant Editing

This chapter describes how to set up the Avid DS Assist station in a shared workgroup environment:

- Using the Avid DS Assist Station

Using the Avid DS Assist Station

Avid DS Assist Station offers the full software feature set of Avid DS Nitris in a software-only application that can be used to off-load tasks from the heavy-duty editing stations—tasks such as conform checks, rotoscoping, graphics, effects, and compositing.

The Avid DS Assist Station is designed to work in a shared workgroup environment with Avid DS Nitris, so it doesn't have any I/O capabilities of its own for signal-based video and audio. You can, however, capture and output from file.

The Avid DS Assist Station is capable of full realtime playback and processing, so you can use it offline for all your graphics and effects work. This is an extremely economical way to grade and finish features that are captured onto your central storage.

Processing of effects is all done by the software. These capabilities are only limited by the underlying hardware and an adequate disk subsystem on the workstation where it is installed.

System Requirements

The Avid DS Assist Station can be run on any standard desktop system with minimal specifications of:

- Dual Intel Xeon or Opteron single core CPU or single dual core Intel or AMD CPUs
- 1 GB of memory
- A supported OGL card such as the Nvidia QuadroFX 3400 or FX3450 (Refer to the Avid web site for a list of other supported cards).

The Avid DS Assist Station is available in both 32-bit and 64-bit. The only difference is that the 64-bit version offers better overall performance. Projects and media from both versions can be used on either Avid DS Nitris 32-bit or 64-bit workstations.

For storage, the Avid DS Assist Station can connect to Avid Unity ISIS or Avid Unity MediaNetwork. However, if you plan on using DNxHD media on Avid Unity ISIS, you must use the Avid DS Assist Station 64-bit version.

The Avid DS Assist Station can also use a local storage drive for work that does not require large amounts of storage. e.g. creating graphics or titles.

Subtopics

- Scenario: Sharing Projects and Media with an Avid DS Assist Station

Scenario: Sharing Projects and Media with an Avid DS Assist Station

The Avid DS Assist Station is designed to work in a shared workgroup environment with Avid DS Nitris.

Since it doesn't have any I/O capabilities of its own for signal-based video and audio, the media needs to be captured by a Nitris workstation and stored in a shared folder that can be accessed by the Avid DS Assist Station.

You can, however, capture and output from file which is useful for importing graphics and images for compositing and effects work.

Projects cannot be opened simultaneously. As with all Avid DS projects, you must first close the project on one workstation before being able to open it on another.

To work with projects on an Avid DS Assist Station, follow this basic workflow:

☑	Step	Refer to
☐	Install the Avid DS Assist station on a workstation that will be used by an assistant editor.	"Installing Avid DS Software Components" in the Help.
☐	Start Avid DS Assist Station, and open a project from the workgroup where it was created.	"Opening an Existing Project" in the Help.
☐	Check the storage configuration. You will need to add a storage area to your configuration that is also used by other workstations in the workgroup. *If you're conforming a sequence from Avid Media Composer, and will be using media created by Media Composer, then you need to configure your storage to point to the folder where that media is located.*	"Configuring the Media Indexing Service on your Workstation" in the Help. "Configuring Storages for MXF Files" in the Help.
☐	Open a sequence that you need to edit.	"Opening Sequences" in the Help
☐	Do the necessary edits to the sequence.	

☑	Step	Refer to
☐	Process effects that require processing. *The processed media caches are saved to the common storage where any other workstations in the workgroup can also see them.*	"Processing Effects" see the Help.
☐	Save the sequence and close the project.	

Chapter 2
Conforming HD Sequences

This chapter describes typical scenarios for conforming HD projects.

- Conforming HD
- Scenario: Conforming HD Sequences from SD Downconvert Sources
- Scenario: Conforming HD Projects with DNxHD Media
- Scenario: Transferring MXF Media from Avid DS Nitris to an Avid Editing System

Conforming HD

Conforming is the process of bringing a project from an offline environment into Avid DS Nitris, so that you can continue and finish the editing process. This section describes how to work specifically with HD sequences. It will explain how to load an Avid File Exchange (AFE) file into Avid DS Nitris and recreate a sequence on which you can apply further edits and effects.

In this information, the general term "Avid editing system" refers to Avid applications other than Avid DS Nitris, such as Symphony™, Media Composer®, Film Composer®, Avid Xpress®, and NewsCutter®.

Subtopics

Converting HD Formats

Converting HD Formats

When down-converting HD sequences, you must make sure that the aspect ratio is respected. Maintaining the proper aspect ratio ensures that all effects, especially those that rely on X,Y locations are preserved during the down-conversion and eventually, the conforming process.

HD uses the aspect ratio of 16:9. Avid editing systems such as Media Composer or Symphony work with 4:3 or 16:9 aspect ratios. Avid DS Nitris also supports both these ratios. There are three ways 16:9 HD material can be down-converted for offline editing sessions.

- 16:9 Anamorphic
- 16:9 Letterbox
- 4:3 Centre Extraction

16:9 Anamorphic

The entire NTSC frame is used to store the 16:9 HD image that will appear to be stretched vertically when viewed in an Avid editing system. In your settings, select the Composer window to 16:9 Video to view the image in its correct ratio. You will need to select the 16:9 setting on your client monitor. Also, you will have to convert the 16:9 anamorphic images to a 4:3 aspect ratio on output to tape for client screening copies. You can use the Pan & Scan tool, an external device or order conversion as part of the dub process.

16:9 Anamorphic is the preferred format if you will be creating complex effects and composites in offline, because effects and repositions will translate correctly in the Avid DS Nitris online.

Related Topics

16:9 Letterbox

4:3 Centre Extraction

16:9 Letterbox

The 16:9 HD image is placed in the center of the 4:3 NTSC frame and black bars are added top & bottom of the image.

16:9 Letterbox is a common method for delivering HD material on an NTSC tape to offline. The black matte can be used to contain timecode and other "burnt in" information. This format is fine if the program contains cuts and occasional transition effects, but effects such as repositions and composites will not translate correctly in the HD conform. These problems may result in added expensive because the effects will have to be adjusted in the HD online.

Related Topics

16:9 Anamorphic

4:3 Centre Extraction

4:3 Centre Extraction

The center of the 16:9 HD image is extracted and recorded on the NTSC tape for offline.

4:3 Center Extraction is the least preferred option for offline because the editor does not see the entire frame that will be visible in the HD master. As a result, edit timings may not be correct when the sequence is conformed in HD because entrances and exits will not be the same in the 16:9 master. Also, the editor may not see undesirable action cut off in the 4:3 frame that will still be visible in the 16:9 HD online master. Effects such as repositions and composites will not translate correctly in the HD conform.

Related Topics

16:9 Anamorphic

16:9 Letterbox

Scenario: Conforming HD Sequences from SD Downconvert Sources

Postproduction house are often faced with this scenario. An editor has completed an HD project on an Avid editing system such as Media Composer and has passed it on to a colorist, for example, who must now complete and finish the project at high quality HD standards on Avid DS Nitris. Downconverting the HD sequence to SD avoids high production costs and also allows you to work more efficiently with a light-weight project.

To conform an HD project that was offlined on an Avid editing system, the offline sequence must be edited at the proper frame rate. The following table lists the required Avid editing project types for different HD formats and frame rates.

HD format Avid DS Nitris project type	Avid editing project type
1080i 50 fields/sec (25 fps)	25i PAL
1080i 60 fields/sec (30 fps) or 59.94 fields/sec (29.97 fps)	30i NTSC
1080PsF 23.97 fps	24p NTSC 23.976p NTSC [a]
1080PsF 24 fps	24p NTSC or 24p PAL
1080PsF 25 fps	25i PAL
1080PsF 30 fps or 29.97 fps	30i NTSC
720p 60 fps or 59.94 fps	30i NTSC

a. Requires Symphony 4.5 or later, Media Composer or Film Composer 11.5 or later, Media Composer Adrenaline 1.0 or later, Avid Xpress 5.5 or later, or Avid Xpress Pro 4.0 or later.

To conform an HD project from SD downconvert sources, follow this basic workflow:

☑	Step	Refer to
☐	Downconvert the HD source tapes to SD (standard-definition) tapes, using the 16:9 anamorphic aspect ratio. For 24p sources, make sure the conversion uses non-drop-frame timecode and 2:3 pull-down, with the A frame at :00 or any frame that ends in 0 or 5 (:05, :10, :15, and so on). *If you need to convert the timecode of a sequence (for example, from 30 fps to 24 fps, you can use the EDL Processor.*	"Conforming and Transferring Projects" in the Avid Media Composer Help.
	On an Avid editing system:	
☐	Create an offline project with the proper frame rate.	"Conforming Workflow" in the Avid Media Composer Help.
☐	Capture the SD source tapes using an offline resolution	
☐	Build the sequence.	
☐	Duplicate the finished sequence, copy the duplicate into a new bin, and decompose the duplicate. The Avid editing system creates new master clips that use only the media in the sequence, plus any handles you specify. These new clips are not linked to media, but are intended for recapture. *Except for grouped clips, you can delete the decomposed clips from the bin, because Avid DS Nitris recreates the clips during the conform process.*	"Using Decompose when Recapturing" in the Avid Media Composer Help.
☐	Export as an AFE file so that you can recreate the sequence or project on Avid DS Nitris. Depending on the version of your Avid editing system, you can also export through MediaLog™.	"Exporting Frames, Clips, and Sequences" in the Avid Media Composer Help.

☑	Step	Refer to
	On the Avid DS Nitris system:	
☐	Create a sequence with a frame rate that matches that of the source tapes.	"Create a Sequence and Master Clips from an Imported AFE File" in the Help.
☐	Import the AFE file.	"Importing AFE Files" in the Help.
☐	Open the AFE file from DS Explorer and drag the sequence or master clips to the timeline.	"Create a Sequence and Master Clips from an Imported AFE File" in the Help.
☐	If you are sharing media, then Avid DS will relink to the SD media. (This is the case ONLY for MXF files.) If you are not sharing media, then recapture the HD media from the source tapes into Avid DS Nitris.	"Sharing Media" in the Help.
☐	Depending on the number and types of effects, you may need to process or recreate effects. Refer to the AAF/AFE Conform Log as you review the sequence.	"AFE Effects Support Table" for a list of supported effects in the Help.
☐	Finish and output the project.	"Outputting Media" in the Help.

Scenario: Conforming HD Projects with DNxHD Media

To conform an HDTV project that was offlined on an Avid HD editing system with HD media, make sure the offline sequence is edited at the proper format and frame rate. Media Composer Adrenaline HD and Avid Xpress Pro HD support the HD project formats described in the following table. This table also lists their equivalents in Avid DS Nitris.

HD format Avid editing project type	HD format Avid DS Nitris project type
720p/59.94	720p 59.94 fps
1080p/25	1080PsF 25 fps
1080p/23.976	1080PsF 23.97 fps
1080i/50	1080i 50 fields/sec
1080i/59.94	1080i 59.94 fields/sec

For a list of shared DNxHD resolutions, see Avid DNxHD Compressions.

To conform an HD project from HD sources, follow this basic workflow:

☑	Step	Refer to
☐	On an Avid editing system, create an offline project with the proper frame rate.	"Conforming Workflow" in the Avid Media Composer Help. "Working with HD Media
☐	Capture the HD source tapes into the Avid editing system using an uncompressed DNxHD resolution.	"Video-based Television Workflow" in the Avid Media Composer Help.
☐	Build the sequence.	"Editing in HD" in the Avid Media Composer Help.

☑	Step	Refer to
☐	(Optional if sharing media) On the Avid editing system, duplicate the finished sequence, copy the duplicate into a new bin, and decompose the duplicate. The Avid editing system creates new master clips that use only the media in the sequence, plus any handles you specify. These new clips are not linked to media, but are intended for recapture. You can delete the decomposed clips from the bin, because Avid DS Nitris recreates the clips during the conform process.	"Conforming Workflow" in the Avid Media Composer Help.
☐	Export as an AFE file so that you can recreate the sequence or project on the Avid DS Nitris system. Depending on the version of your Avid editing system, you can also export through MediaLog.	"Exporting an AFE File from an Avid Editing System" in the Help. "Exporting AFE Files Using MediaLog" in the Help.
	On the Avid DS Nitris system:	
☐	Import the AFE file.	"Importing AFE Files" in the Help.
☐	Build your sequence from the imported clips.	"Create a Sequence and Master Clips from an Imported AFE File" in the Help.
☐	If sharing media, make sure the HD media is placed in the appropriate folders on your storage device.	"Sharing Media" and "Sharing MXF Media" in the Help. in the Help.
☐	Configure the storage areas so that Avid DS can index the media. If you are not sharing media, then recapture the HD material from source.	"Configuring Storages for MXF Files" in the Help.

☑	Step	Refer to
☐	Depending on the number and types of effects, you may need to process or recreate effects. Refer to the AAF/AFE Conform Log as you review the sequence.	"AFE Effects Support Table" for a list of supported effects in the Help.
☐	Finish and output the project.	"Outputting Media" in the Help.

Scenario: Transferring MXF Media from Avid DS Nitris to an Avid Editing System

You can share MXF master clips captured on Avid DS Nitris with other Avid editing systems. You can share MXF HD (DNxHD) media only with other systems that support MXF HD media.

To share MXF master clips created on Avid DS Nitris, follow this basic workflow:

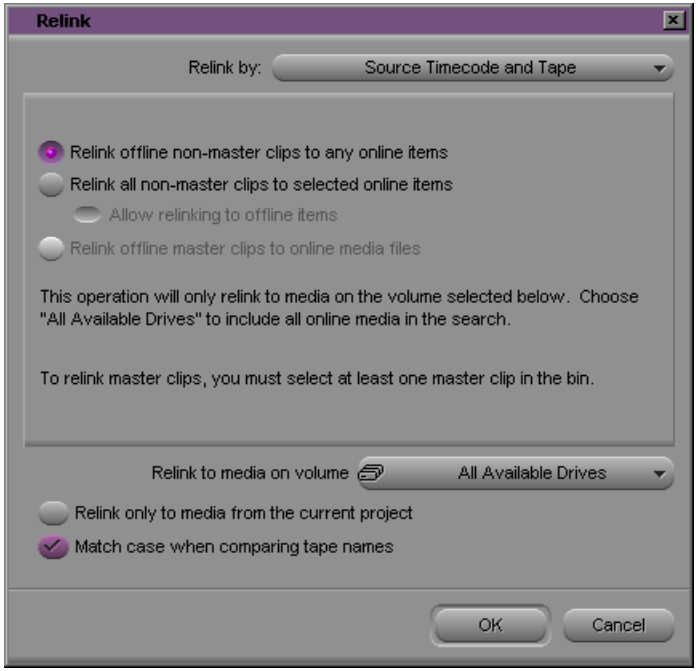
1. Make sure any storage devices or Avid Unity workspaces are configured correctly—see "Configuring Storages for MXF Files" in the Help.
2. On the Avid DS Nitris system:
   a. Create a project. In the New Sequence dialog box, select the proper capture settings: MXF storages (one for audio and one for video), desired compression, and so on. MXF storage can be shared (in an Avid Unity environment) or local (and later transferred).

If you are going to capture audio from a multi-stream file, make sure to select the option "Import audio into separate audio tracks" in the New Sequence dialog box.

   b. Capture and edit the media.
   c. Export an AAF file—see "Exporting AAF Files from Avid DS Nitris" in the Help.
3. If you are transferring media to the Avid editing system, rather than sharing in an Avid Unity environment, do one of the following:
   - If you are transferring media over a network, copy the MXF audio storage and the MXF video storage to the local drive.
   - If you are transferring media on a removable drive, connect the drive.
4. On the Avid editing system, open a project with a matching frame rate.
5. Import one or more AAF files.

   The Avid editing system creates a master clip for each AAF file.
6. Select the new master clips and select **Clip > Relink**.

   The Relink dialog box opens.



7. Deselect the option “Relink only to media from the current project,” accept the other defaults, and click **OK**.

   The master clips are relinked with the MXF media.

You can use the Media Tool to create master clips, but this method does not always work, for example, when a clip from Avid DS Nitris includes alpha.

Media Composer Macintosh systems, and other Macintosh-based Avid editors, cannot use MXF media created by Avid DS Nitris, due to a 31-character file name limit. This situation occurs when an Avid DS Nitris system creates a storage on a Unity volume to share with other Avid editing systems. This problem does not affect Windows systems.

Chapter 3
Using Digital Intermediates for Film-based Projects

This chapter describes how to work with film:

- The Digital Intermediate Process
- Setting up Storage and Media for Film Projects
- Opening a Film-based Project
- Conforming the Film Sequence from EDL and ALE
- Capturing DPX Files
- Editing in Film Proxy Mode
- Outputting Film Sequences

Checklists

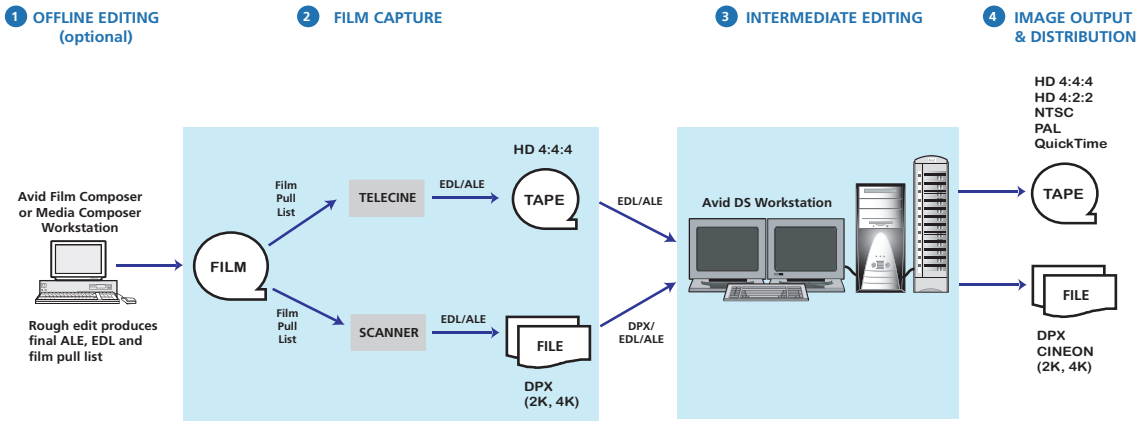
- Scenario: Using HDCAM-SR Tape for Film-Originated Projects
- Scenario: Using DPX Scans for Film-Originated Projects

The Digital Intermediate Process

The main stages of film production are image capture, offline editing, finishing, and image output and distribution.

Traditionally, the intermediate stage was done manually by the film lab. This involved the cutting and splicing of the film negatives, adding special optical effects, and then printing of the final copy for distribution.

Advances in technology now allow the intermediate stage to be handled digitally. It is a cleaner and more flexible alternative to the traditional approach. It provides an easy and cost-effective way to create masters at different resolutions and formats, and also allows more flexibility for screening at various stages.



Source material is normally shot on Super 35mm or Super 16mm 3-perf film. The film can either be scanned to 2K or 4K DPX files, or transferred through Telecine onto tape in a recommended digital HD format. (Note that, with the latest digital film cameras, material can also be shot directly in HD RGB 4:4:4.)

When the source material is in digitized form it is referred to as the *digital master*. This digital master in either 2K, 4K, or HD-RGB 4:4:4 format is of superior image quality that is preserved for a much longer term than the traditional tape format. This master can be offlined in an Avid Media Composer system or edited directly in Avid DS Nitris.

The *digital intermediate* workflow in Avid DS Nitris allows you to either capture the digital master into the Avid DS Nitris system, or in the case of DPX format, simply link to the files. The process is started by building a sequence directly in Avid DS Nitris; or by conforming a sequence via an EDL/ALE into Avid DS Nitris.

There is no need to worry about matching source timecode or tape names during the transfer since the common denominator is the KeyKode™ information on the original camera negative. Each frame of picture and sound carries with it one or more pieces of frame-based metadata (timecode, KeyKode, etc.), as well as overall metadata such as shoot date, camera roll, scene, take, etc.

In Avid DS Nitris, the film sequence can be digitally enhanced through the process of editing, visual effects, and color correction. Avid DS Nitris has comprehensive HD and SD finishing capabilities, with a range of film and video editing tools. The system's special effects and compositing engine handle special effects and last minute fixes easily and cost-efficiently. Here are some of the ways in which Avid DS Nitris expedites the workflow:

- An external video monitor can be used to view (in real-time) your sequence in the format and resolution closely matching your final distribution format.
- Your Nitris workstation will instantly let you play back (in real-time) any edits and effects applied to your sequence.
- Look-up tables (LUTs) can be applied to simulate the look of projected film.
- You can perform color correction on file-based media the same way as with traditional video.
- You can read timecode from, and output timecode to, media files. The timecode tracking display is based on the conventional time-oriented techniques of video postproduction.
- You can add a timecode view if you want to view the timecode of your sequence at a different frame rate. The timecode view can display multiple frame rates at a time.

Avid DS Nitris supports output mastering to tape for any of the original transfer formats; and in the case of a film out, it is possible to output a final series of DPX or Cineon images for a film recorder.

Important Considerations when Working on Film-based Projects

Before starting your project, here are some points to consider when working on a film-quality production.

- Know your original film format (e.g. Full Aperture, Cineon, Academy, Super 16mm/35mm).
- Know the quality at which your film master was scanned or transferred. The most popular is the 10-bit format and the most frequently used resolution is 2K.
- Know the frame rate (fps) at which your film master was scanned or transferred.
- Use a limit of 8 characters for your tape/reel names as some 3rd-party EDL converters truncate reel names over 8 characters long, and as a result will not create the proper associations between key numbers and timecodes.
- Ensure that you have storage that is large and fast enough for high throughput. (Typically, 2K data takes up over 1 TB per hour of footage.) Also, to get realtime playback of your media, the digitized media must reside on your local storage that is connected directly to your Avid DS Nitris workstation.
- If you are offlining your sequences on Avid Film Composer, set up your storage so that you can share the media footage with Avid DS Nitris. This is explained later in this section.

In Avid DS Nitris there are two ways to import film-originated media—by capturing from HDCAM-SR tape, or by linking to DPX files.

Topics

- Scenario: Using HDCAM-SR Tape for Film-Originated Projects
- Scenario: Using DPX Scans for Film-Originated Projects

Scenario: Using HDCAM-SR Tape for Film-Originated Projects

HD resolutions are now used more and more for film work, especially in 4:4:4 RGB color space. Although this method does not support resolutions as high as film-scanned DPX files (2K, 4K), HDCAM-SR does allow for fairly high quality resolution (upto 1920 x 1080 HD). Also, Telecines now perform high-quality transfer directly to HD in real-time, which is much faster and economical than a typical film scanner.

There are two possible workflows when using HDCAM tape. You can create your rough cut offline with an Avid Media Composer or Film Composer system and then finish online with Avid DS Nitris or—you can do all the editing from start to finish directly in Avid DS Nitris.

For either workflow, the film is first scanned through a telecine (one-light pass) to generate one or more dub tapes in HD, DVCAM, or SD format.

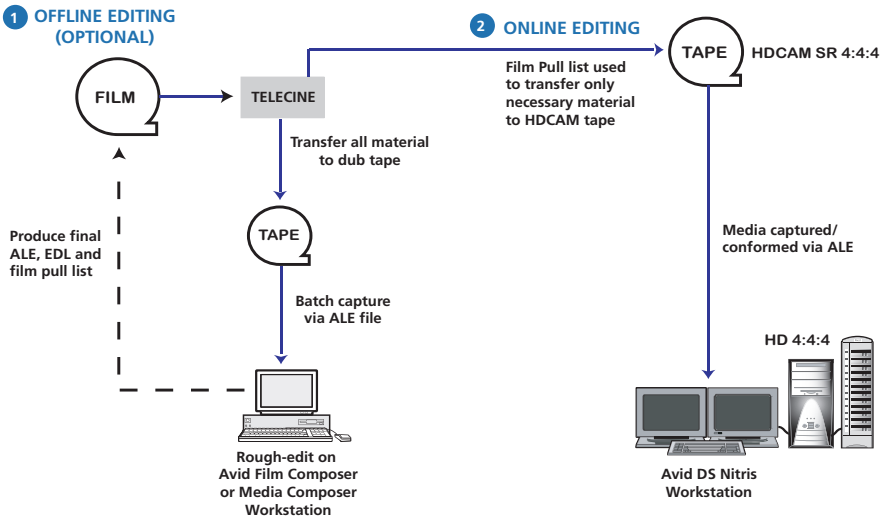
Topics

- Offline Film Workflow with Avid Media Composer or Film Composer
- Online Editing and Finishing in Avid DS Nitris

Offline Film Workflow with Avid Media Composer or Film Composer

In the workflow shown here, film is run through a Telecine to create work tapes that will be used for the offline edit on an Avid Media Composer Adrenaline HD or Film Composer.

If you have a Media Composer Adrenaline HD system, you can do your offline editing with an HD work tape. If you don't have an HD offline system, then you need to convert your master tape to a lower-quality SD work tape.



Avid Film Composer/Media Composer uses an ALE (also produced during the Telecine transfer) to capture source video from the dub tape. After the rough edit is done, the process ends with the production of an EDL of the sequence, an ALE, and a film pull list.

The film transfer facility uses the film pull list to do a final, high-quality pass through the telecine. This transfers only the necessary material to tape. This minimizes costs in the telecine room and also makes for a more efficient final online edit and finish in Avid DS Nitris.

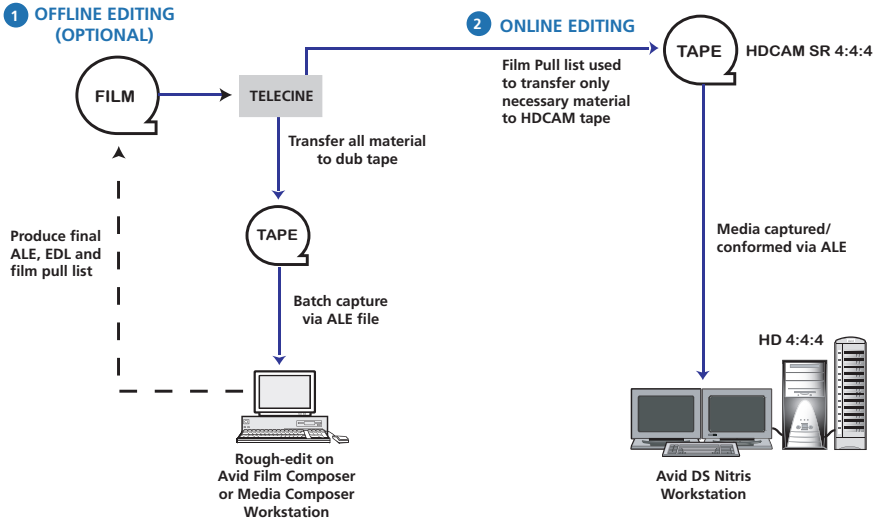
To offline your sequence on Avid Media Composer or Avid Film Composer, follow this basic workflow:

You should follow these steps in the order that they are listed. Each time you link to a topic within a Step, make sure you return to the checklist after you have completed that procedure. (When viewing this document online, use the Previous View button in your Help browser or Adobe Reader to return to the previous link).

☑	Step	Refer to this section
☐	Using Avid Film or Media Composer, import the film transfer files (FLEx, Evertz, Aaton, ALE) into the project bins, and log the necessary clips from the dub tape using the ALE file.	"Importing Shot Log Files" in the Media Composer Help. See also "Working in a Film Project" in the Media Composer Help.
☐	Batch capture the footage from the dub tapes.	"Batch Capturing from Logged Clips" in the Media Composer Help.
☐	Capture the audio directly in Avid Media Composer/Film Composer via file-based audio recorders using BWF.	"BWF Files" in the Media Composer Help.
☐	Create your sequence on the timeline, and synchronize the audio with video.	"Preparing to Edit" in the Media Composer Help.
☐	Once the rough edit is complete, generate a film pull list (cut list) of the final cut. *Avid FilmScribe generates many types of lists; Scan is the list type to facilitate a file-based or tape-based workflow.*	"Creating a Cut List with Previsualization Marker Information" in the Media Composer Help.
☐	Export your sequence to an EDL file.	
☐	Export your sequence to an ALE file if you need to associate your film information (metadata) with the tape information in the EDL	
☐	Rescan or retransfer the source material using the film pull list. Media footage will only be pulled once, regardless of how many times it was used in the final sequence.	
☐	You can now take the EDL and/or ALE into Avid DS Nitris to do your online editing.	"Online Editing and Finishing in Avid DS Nitris"

Online Editing and Finishing in Avid DS Nitris

Once you have transferred your film media onto the final HDCAM-SR tape, you can use the ALE to edit or conform the project into Avid DS Nitris.



For the final finishing, you will require:

- Your film transferred to tape.

  To ensure the highest quality of the master tape, transfer to HD format in 4:4:4, which offers the best uncompressed color quality currently available on video. The 4:4:4 refers to an encoding technique that holds onto all of the image's red, green, and blue color data for superior color fidelity, unlike the traditional 4:2:2 YUV mode, which discards half of the color data.

  It is recommended that the film be transferred as 16:9 anamorphic so that the conform process will not only be frame-accurate, but also pixel-accurate in the sense that the effects will match the same aspect ratio (titles, shapes, etc.).

- Audio tapes/data
- ALE file containing the tape-film source correspondences. An ALE file is provided along with the tapes to match the original Key Numbers on the film with the timecode on tape.

To edit and finish your film project in Avid DS Nitris, follow these steps:

You should follow these steps in the order that they are listed. Each time you link to a topic within a Step, make sure you return to the checklist after you have completed that procedure. (When viewing this document online, use the Previous View button in your Help browser or Adobe Reader to return to the previous link).

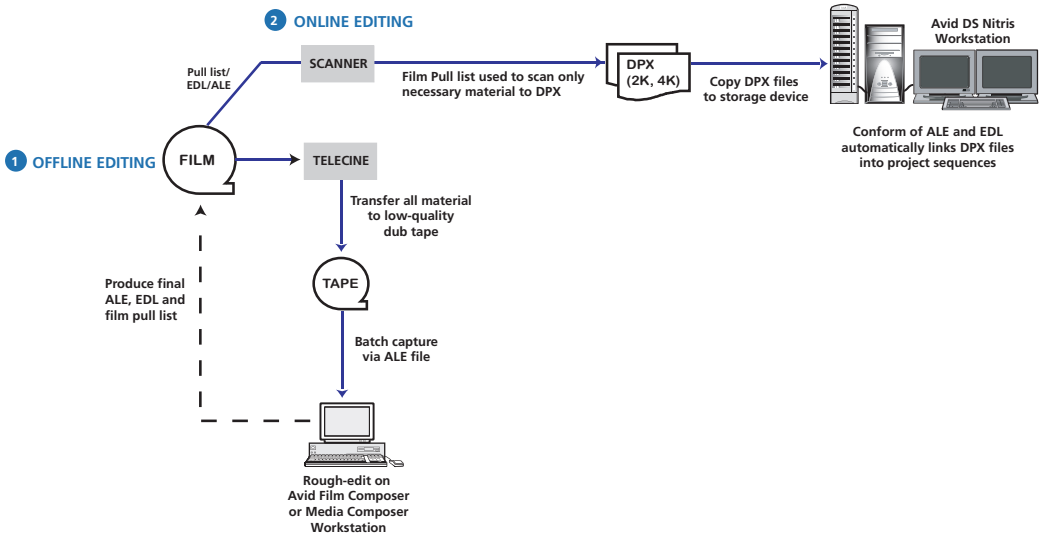
☑	Step	Refer to this section
☐	Determine where your media will be stored.	"Setting up Storage and Media for Film Projects"
☐	Ensure that your workgroup storage areas have been configured accordingly.	"Configuring your Storage Locations"
☐	In Avid DS Nitris, open a project and set the appropriate project preferences.	"Opening a Film-based Project"
☐	If you are conforming an offline project, use the EDL/ALE to import your sequence.	"Conforming the Film Sequence from EDL and ALE"
☐	Edit your sequence.	"Editing in Film Proxy Mode"
☐	Recapture the media in full resolution HD format with full 4:4:4 RGB color depth. (Avid DS Nitris can capture an HDCAM tape in either HD 4:4:4 RGB or HD 4:2:2 YCrCB.) *To capture HDCAM RGB 4:4:4, you require an Avid DS Nitris workstation equipped with the dual-link card.*	"Batch Capturing"
☐	Add special effects and do the necessary color correction.	Refer to the *Compositing & Graphics* section for relevant topics.
☐	Output your final sequence.	"Outputting Film Sequences"

Scenario: Using DPX Scans for Film-Originated Projects

To preserve your 2K or 4K film resolution, it is best to have your film scanned to DPX files. DPX (Digital Picture eXchange) is a bitmap file format used to store a single motion picture frame to a file.

During the scanning process, metadata is inserted into the DPX file such as KeyKode and timecode, as well as Tape Name if desired. DPX files played in a sequential manner can be viewed in real time in Avid DS Nitris under certain circumstances.

DPX files are unique in many ways. Their color space is RGB, they have more bit-depth, and they also have the possibility of using log space for representing a wider dynamic range on the negative. This allows for the use of Look-Up Tables in the import process. The film house where your film master was scanned will provide you with an LUT file to use when importing your DPX.



During the conform, the workstations need to know where to find the DPX frames, and whether there was a LUT applied to any set of frames. Once this has been done, the KeyKode to DPX file relationships allow the conform process.

From the Avid DS timeline, simply select “link to file” and the sequence will look to the DPX files. You can playback a single stream of 2K or 4K in real time in the viewer. Using the proxy mode, you can add effects in real time for multiple streams, and process and view the results in HD 4:2:2.

The optimal workflow when using DPX files is to create your rough cut offline with an Avid Media Composer or Film Composer system, and then finish online with Avid DS Nitris.

To scan your source material to DPX files, follow these steps:

Follow these steps in the order that they are listed. Each time you link to a topic within a Step, come back to the checklist after completing the procedure. (Use the Previous View button in your Adobe Reader to return to the previous link).

☑	Step	Refer to this section
☐	Offline your project in Avid Media Composer or Film Composer. *You can also start your project directly in Avid DS Nitris if you already have all the final DPX files.*	“Offline Film Workflow with Avid Media Composer or Film Composer”
☐	Determine where your media will be stored.	“Setting up Storage and Media for Film Projects”
☐	Copy your DPX files to your high-capacity storage.	“Placing your DPX Files on the Storage Device”
☐	Ensure that your workgroup storage areas have been configured accordingly.	“Configuring your Storage Locations”
☐	In Avid DS Nitris, open a project and set the appropriate project preferences.	“Opening a Film-based Project”
☐	If you are conforming an offline project, use the EDL/ALE to import your sequence.	“Conforming the Film Sequence from EDL and ALE”
☐	Link to your DPX files.	“Conforming Sequences that use DPX Files”

☑	Step	Refer to this section
☐	If you are using a shared storage, or if you cannot playback your media in realtime, then capture your DPX files into Avid DS Nitris.	"Capturing DPX Files"
☐	Edit your sequence.	"Editing in Film Proxy Mode"
☐	Add special effects and do the necessary color correction.	"Linearizing Film-Based Material", and also the *Compositing & Graphic* section for relevant topics.
☐	Output your final sequence.	"Outputting Film Sequences"

Setting up Storage and Media for Film Projects

Since film-based media is large and requires high bandwidth and fast disk access, you should place your digital master on a storage drive that is connected directly to your workstation. This allows you to view your sequence in realtime.

Before you begin, plan out your storage solutions carefully:

- For a complete list of storages supported for film-based media, refer to the Avid DS Support Center web site.
- "Planning your Storage Locations", provides different scenarios depending on whether you are building your project on a single system, or if you plan on using multiple systems where you may want to share media.

You can share and store file-based media for offline-to-online production between Avid systems. Sequences offlined in Avid Media Composer Adrenaline HD can be previewed directly in Avid DS Nitris using the real-time proxy resolution (film proxy mode).

Topics

- Configuring your Storage Locations
- Placing your DPX Files on the Storage Device

Placing your DPX Files on the Storage Device

Your DPX files should be placed onto a fast, high-capacity storage device connected to your workstation. This allows you to link to the master and still get realtime playback in Avid DS Nitris for any DPX files.

You can also place your master on a shared storage, such as Avid Unity, however you will have to capture the file into Avid DS Nitris to get realtime playback—see "Capturing DPX Files".

- Place your DPX files in an appropriate folder under the \VideoStorage folder on the storage device. For example,

  D:\VideoStorage\DPX\Commercial\...

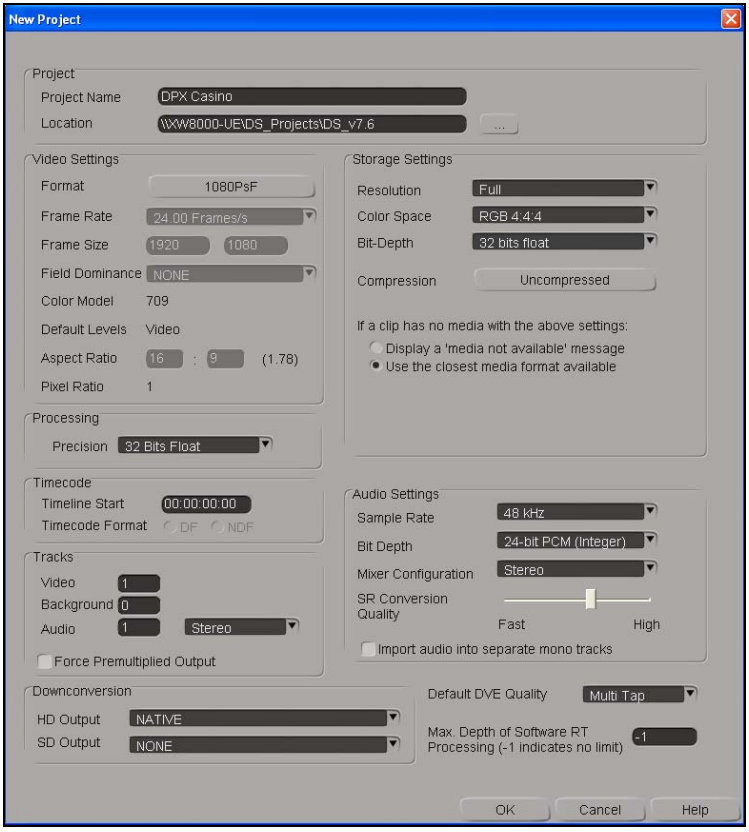
Opening a Film-based Project

Avid DS Nitris offers HD and 2K/4K digital intermediate capabilities, including a large number of preset sequence types for various film resolutions and aspect ratio.

To create a film-based project:

1. In the Open Project dialog box that displays when you start Avid DS Nitris, click the **New Project** button.
2. In the New Project dialog box, give your project a name.
3. There are a number of film resolutions and apertures that you can choose from. Select the film format at which your material was scanned or transferred. Click the **Help** button to see which film formats are available.

   When you select the format, the frame details are set automatically.



4. Set the **Processing Precision** to a bit-depth that will give you the best quality for your processed effects. To preserve the quality of the bit-depth of 10-bit material, choose 16-bit. For more information on bit depth, see "About Video Quality" and "About Bit Depth".

Although Avid DS Nitris can support higher bit depths during processing, the caches may be stored at a lower bit depth depending on your resolution and color space settings. Note that, using a higher precision bit depth generates smoother effects during processing, and still produces better quality output for lower bit depth outputs.

   Optionally, you could set the Precision bit depth to the same setting as the Storage bit-depth. Then, if you want to process a specific effect at a higher-quality bit depth, you can change the Precision bit depth within the Processing dialog box.

5. For the **Storage Settings**:
   - Set the **Resolution** for capturing/linking video media to **Full**.
   - Set the **Color Space** to RGB 4:4:4.
   - Set the **Bit Depth** to the format at which the film was scanned (typically 10-bit).
6. Select **Use the closest media available**, to allow Avid DS Nitris to display media of mixed resolutions and frame rates in your sequence.
7. For the **Audio Settings**, set the **Sample Rate** and **Bit Depth** at which you will output your audio media.
8. Leave the **Downconversion** settings at default.
9. Click **OK** to save project preferences.

   Avid DS Nitris displays the timeline where you can now begin working on a sequence.

Conforming the Film Sequence from EDL and ALE

Typically, the digital intermediate is created by conforming a sequence via an EDL into Avid DS Nitris. The EDL and/or ALE files are used to create the necessary source associations between the original tapes and final digital master. (The ALE file actually contains the film source to tape source correspondence.) Hence, there is no need to worry about matching source timecode or tape names during the transfer since the common denominator is the KeyKode™ information on the original camera negative.

When conforming your EDL, you have the choice of logging the events in the Avid Explorer, recreating the list of events on the timeline, or both. As the files are logged, the media files are automatically linked in Avid DS Nitris. You can capture the media at any time from either the Avid Explorer or the timeline.

During the capture process, the HDCAM tape frames or the DPX frames are transferred to the Avid DS Nitris' local storage. When the conform is complete, the clips point automatically point to the HD 4:4:4 media on your local storage.

Before conforming your EDL, you should check if there are any layers to be composited. Offline editors often create multiple EDLs because the convention is to put separate layers into separate EDLs. Any audio or video events in the list are automatically loaded onto the appropriate tracks.

During the conform process, you can set up the appropriate heads and tails values for each clip. This is important if you need additional material at the beginning and end of each clip to do minor changes during the final stage of the edit. You can also configure the audio channel patching for each tape.

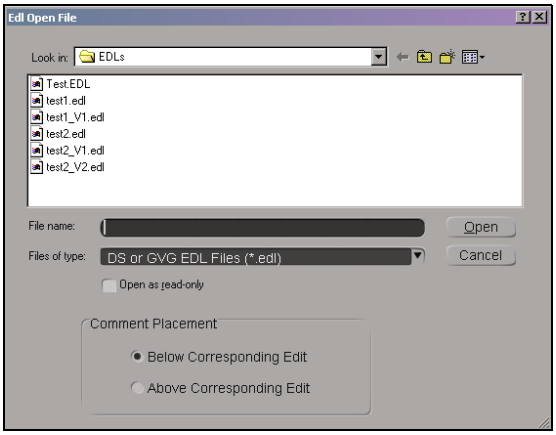
If you recreate your sequence on the timeline, you may want to process a rough cut and proof it against the original EDL. You can do this by reloading the rough cut onto a new video track, adding a fade or crop effect to the video track and processing it, and then playing the sequence to make sure that the cuts and transitions on the two tracks occur in sync.

If the proofing session is successful, you can then remove the video track you added and continue to add effects and finishing touches to the original sequence.

To open an EDL:

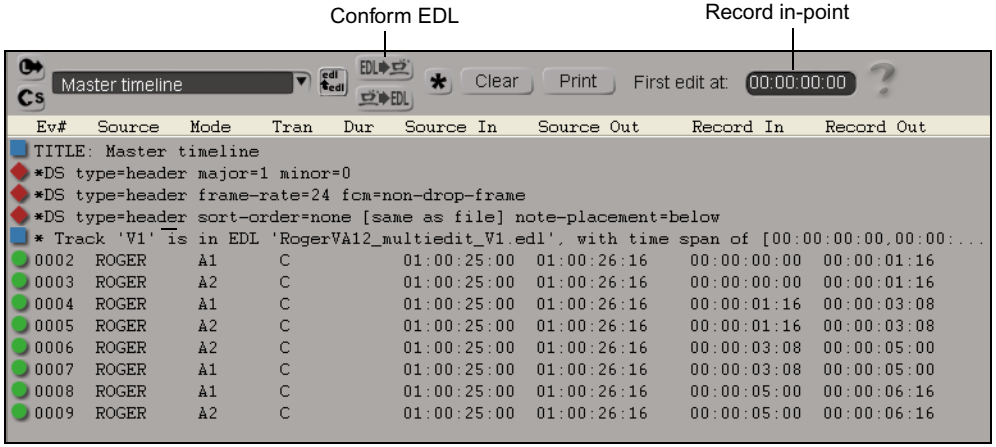
1. In the view switcher, click the **EDL** button.

2. In the EDL view, click the **Load EDL** button to load a new EDL.
3. In the Open dialog box, select an EDL. If you know the system from which the EDL was generated, select the appropriate file type.



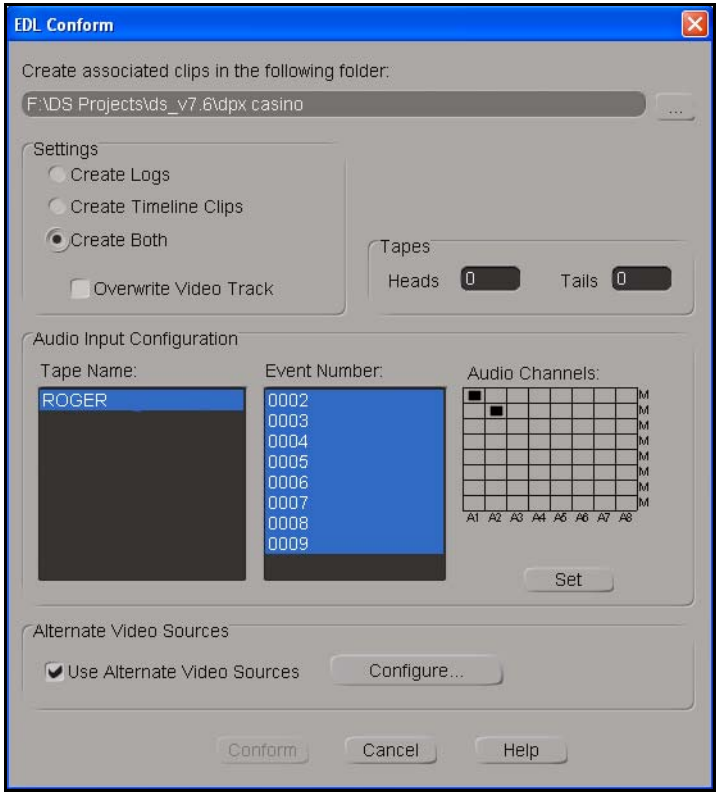
4. Click the **Open** button.

   The selected EDL is displayed in the EDL view. The EDL view lets you import an EDL file produced on any external system, and capture material based on the edits in that EDL. For more information about the EDL view, click the **Help** button or see EDL View.



If you selected the wrong file type, you are prompted to convert the file to the appropriate type.

5. Click the Conform EDL button.



6. In the EDL Conform dialog box, select whether you want to create Logs and/or Timeline Clips.
7. If your digital master is in DPX file format, select **Use Alternate Video Sources,** and see "Conforming Sequences that use DPX Files".

   If your master is in HDCAM-SR tape format, then continue with this procedure.
8. If all the necessary information is contained in your EDL, click the **Conform** button. The clips are logged in the Explorer or on the timeline for you to capture—see "Batch Capturing". After the clips are captured, they automatically point to the HD 4:4:4 media on your local storage.

Conforming Sequences that use DPX Files

Once you have loaded your EDL (as described in "Conforming the Film Sequence from EDL and ALE"), you can proceed with the following steps to link to your DPX files.

1. In the EDL Conform dialog, click on the **Configure** button.

   The Choose Alternate Video Sources dialog displays.

2. In the **Image Files Root Folder**, enter the path for your DPX files.

   Once the folder is selected, it is immediately scanned.

   This process scans each DPX file on the video storage, collecting the metadata that it contains, so that Avid DS Nitris can associate each DPX file to each "tape" frame referenced in the EDL.

   In addition, the appropriate correspondence is made between the DPX-tape frames so that the tape name, timecodes and/or key numbers are retained.

When trying to associate the EDL tape frames to the DPX frames, the following situations may occur:

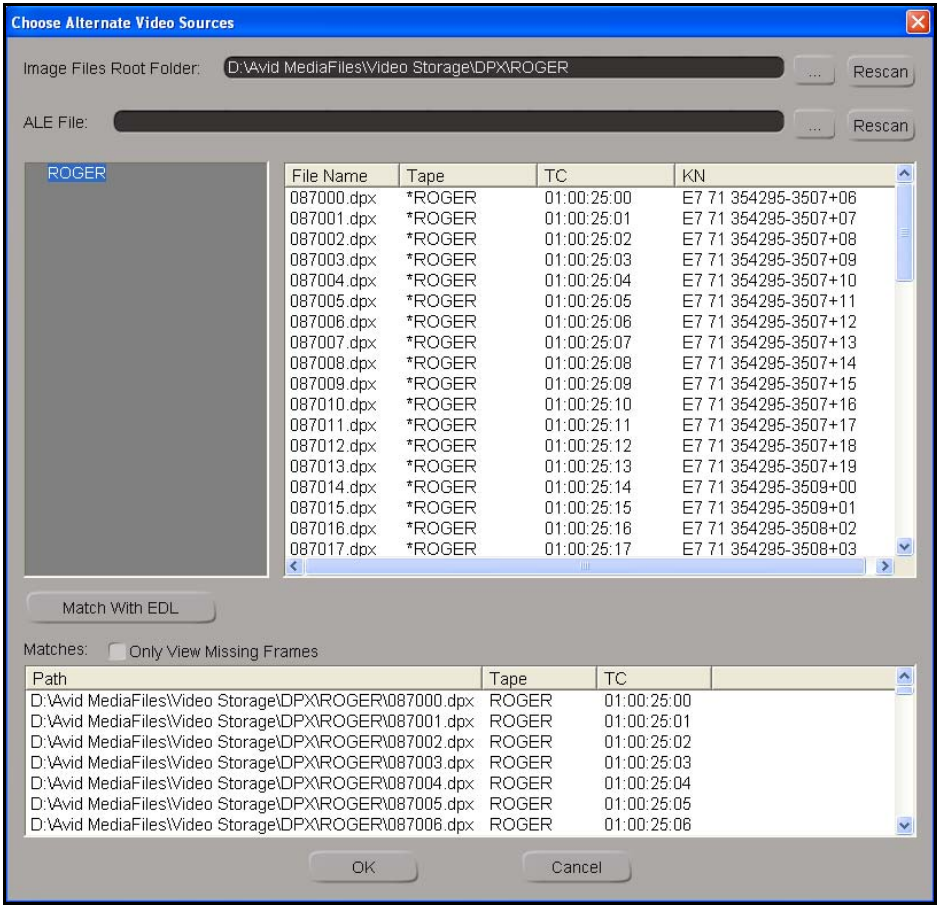
- *the DPX files contain the tape source information (i.e. tape name and timecode). In this case a direct association can be made between the DPX files and the EDL tapes.*
- *the DPX files only contain film source info (i.e. key number). In this case, you must also specify an ALE file to allow Avid DS Nitris to create the association between the DPX files and the EDL tapes, going through the ALE film sources.*
- *the DPX files only contain timecodes. In this case, the folder in which the DPX file is located is used as the EDL "tape name".*

   After the scan is complete, the source information associated to each image file is displayed.

   If at least one file has a reference to a film source, the ALE File field is activated.

3. If you are conforming DPX files from a filmhouse (i.e. digitized from a Telecine), then you will need the corresponding ALE file to associate the DPX frames to timecodes.

   Under **ALE File**, enter the path where the ALE file is located.



*In the example shown above, you will notice that there is an * before the name ROGER. This is to indicate that the folder name is being used as the tape name.*

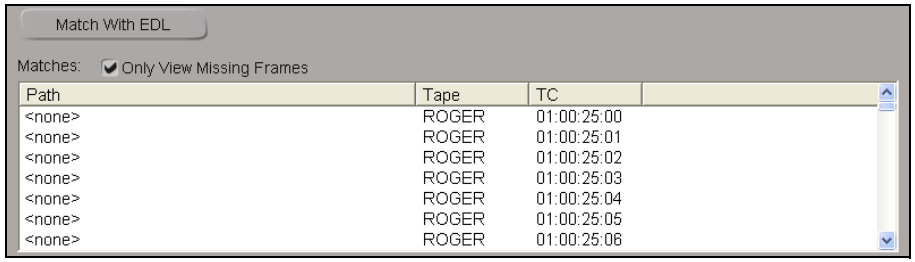
4. Click the **Match with EDL** button.

   The bottom view will display a mapping of DPX frames to tape and corresponding timecode.

5. To view any missing/unmatched DPX frames, select **Only View Missing Frames**.

If the bottom view is empty, then all frames in the EDL were found. If not, locate the necessary DPX files, place them in the same folder, and click **Match with EDL** again.

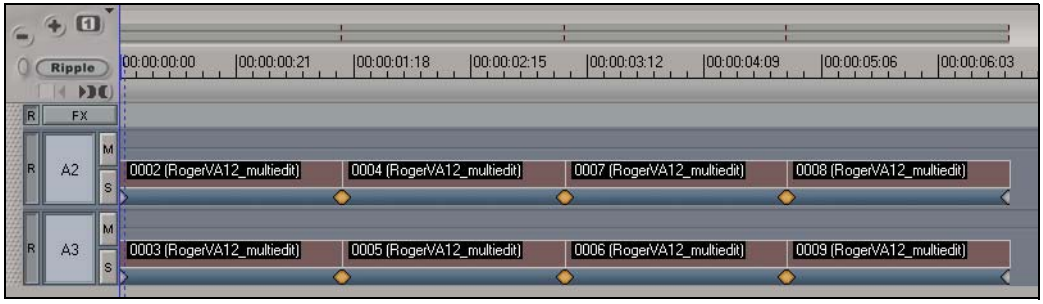
Shows missing frames



This process scans each DPX file, collecting the metadata that it contains, so that the software can associate each DPX file to each “tape” frame referenced in the EDL. In addition, the appropriate correspondence is made between the DPX tape frames so that the tape name, timecodes, and/or key numbers are retained.

6. Click **OK** to return to the Conform dialog.
7. Click the **Conform** button.

   The log files are created with the appropriate links to the DPX files.



Audio is ignored when digitizing DPX files from HDCAM-SR.

If your DPX files are on a storage device connected to your Avid DS Nitris workstation, you will get realtime playback simply by being linked to the files.

If your files are on a shared storage, such as Avid Unity, you will have to capture the file into Avid DS Nitris to get realtime playback—see “Capturing DPX Files”.

Capturing DPX Files

DPX (Digital Picture eXchange) is an industry-standard, SMPTE file format that is used to transfer film-originated images to a series of digital files (also called scanned image files). The Cineon image file format is a subset of the DPX format.

In Avid DS Nitris, the digital intermediate workflow allows you to either capture (import) or link to your DPX digital master and edit and add effects in realtime.

Instead of importing the digital master into Avid DS Nitris, you can link directly to the file on your local storage and still get real-time playback. Linking to the file also allows you to mix resolutions and frame rates of different clips on your timeline while keeping the original pixels.

If you have linked to the DPX files, they will be real-time for all HD and film formats if:

- *The DPX files are on your local videostorage, that is large and fast enough to support high throughput.*
- *The format of the DPX files exactly match the format of the current sequence.*
- *The current sequence storage bit-depth is set to 8 or 10.*
- *The data in the DPX files are correctly aligned. This should almost always be the case. If not, the FixDPX utility can fix any misaligned data DPX files—see "Aligning your DPX Files".*

If you cannot get realtime playback, you can capture (import) the files into Avid DS Nitris.

To import the DPX files:

1. In the Avid Explorer, navigate to the storage folder where you have your DPX files.
2. Select the DPX group folder or individual DPX files that you want to link/capture.

The scanned image files, which are consecutively numbered, are usually included by default in one or more Avid DS Nitris Group folders.

You can capture all the DPX files to a single clip. The tape name and timecode will be in encrypted in the header of each DPX file.

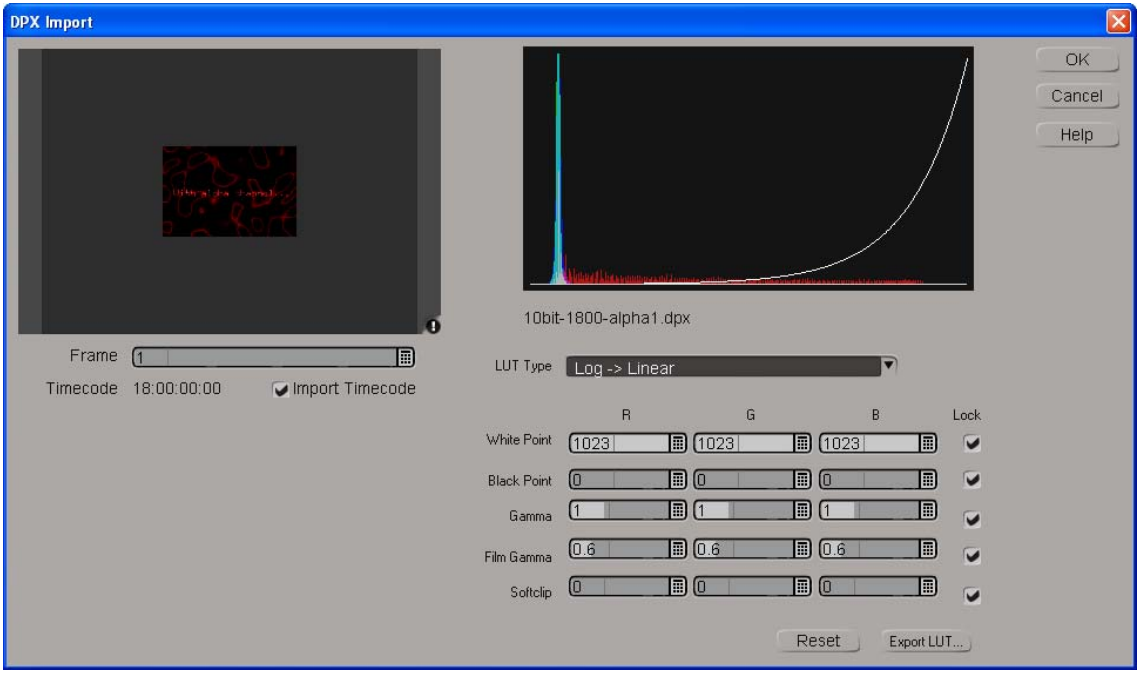
3. Right-click either on the group folder or the selected files, and select **Capture Settings**.
4. In the Capture Settings dialog box, select the settings that apply to the files to which you want to capture/link, including the following:
   - **Input Levels:** Graphics
   - **Pixel Ratio**: Auto

Since captured files are brought into Avid DS Nitris at their original resolutions, there is no need to convert them to the current sequence's resolution. This also means that the Media Conversion modes are not applicable if you link the file.

5. Close the Capture Settings dialog box.
6. Right-click the selected files and select either **Link** or **Capture**.

*If you selected a sequential list of still files of the same type (such as all .jpg or all .bmp), you are given the choice of combining the files into one master clip or capturing individual still frames. Choose **Yes** if you want to combine them.*

The DPX Import dialog box displays and the first file (first frame of the transfer) is displayed in the viewer.



DPX and Cineon files usually store pixel values using a log representation. To be able to apply effects or simply visualize these images, a linearization pass using a look-up table (LUT) is usually preferable. This look-up table can be applied at time of capture, or you could apply it later directly to the clips on the timeline.

You need to determine what LUT should be used. Your film house should provide you with the LUT for your digital master. You can import this LUT, or use a standard LUT provided by Avid DS Nitris. For more information on creating your own LUT, see “Linearizing Film-Based Material”.

7. To adjust the color values in the file, you can select one of the following for **LUT Type**:

   - If you do not want to apply an LUT at this time, select **Linear** and click the **Reset** button to ensure that Avid DS Nitris takes your color values exactly the way they are.

- If you want to apply a specific LUT that was provided with your DPX file, select **From file**. From the dialog box that opens, select the .lut file, and click **Open**. The name of the selected file will display in the box beneath.
- If you want to apply industry-standard LUT settings, select **Linear or Log -> Linear.** Avid DS Nitris will apply either a linear transformation or a log-to-linear transformation. You can then adjust these values and save them in your own LUT file.

    a. By default, R, G, and B values are locked, even if you adjust one. If you want to adjust an individual R, G, or B value, clear the box in the Lock column for the parameter.

    b. Type the new values or use the sliders. The result of the new values are shown in the viewer and the respective curve displays.

For a linear LUT, you can adjust only the White Point and the Black Point. For a log LUT, you can also adjust Gamma, Film Gamma, and Softclip.

To return to the default values, click the **Reset** button.

To save your values in a file, click the **Export LUT** button. A dialog box opens for you to name and save your file.

The inverse of your LUT is saved as well so that you can use it later when exporting your DPX file.

8. You can also choose to Import Timecode if you want to preserve the timecode from the digital master.

    When importing a DPX or Cineon file, 24-fps SMPTE timecode may be included in the clip information. If you import the timecode, the information is inserted in the header of each frame, and will be read and saved for later use in Avid DS Nitris.

9. When you are satisfied with your settings, click **OK**.

    As the material is linked/captured, the clip(s) appear in the target bin that you specified in the Capture Settings. For linked clips, the clip icons are underlined in red to indicate that no media has actually been captured.

10. Drag the master clips from the Avid Explorer to the timeline to build your sequence.

Aligning your DPX Files

If Avid DS Nitris gives you a message that your DPX files cannot be read, it may be due to misaligned sectors in the DPX files. This can easily be realigned using the FixDPX utility.

To align your DPX files:

If the sequence using the DPX files is currently open, exit Avid DS Nitris, or switch to another project.

1. Click the Start button and select **Programs > Avid Products > Avid DS > Tools > FixDPX**.
2. In the FixDPX dialog, click the **File...** button to browse for a specific file that you want to fix.

   If you want to fix several files, then click the **Folder...** button to select the folder name.
3. Click **Fix it!** to begin.

   The FixDPX utility will display a summary of the files that were or were not fixed.
4. Click **Done** to exit.

Editing in Film Proxy Mode

When editing the digital intermediate in film resolution sequences, you have a choice of displaying and processing either in full resolution or real-time proxy resolution. The proxy is a lower-sized resolution (actually HD resolution) that still provides excellent visual quality for editing and previewing your sequence in a video monitor.

With proxy resolution, the correct aspect ratio is preserved in the Avid DS viewer as well as in the external HD monitor. Even an SD monitor can be used when working with 23.97, 29.97 and 25-fps sequences. In addition, color space is automatically taken into account by Avid DS Nitris to make the use of these proxies as transparent as possible.

To work more quickly and efficiently, you can apply effects in the lower, real-time proxy resolution. In this mode, real-time effects do not need to be processed. If any effects do require processing, the resulting caches are also generated in real-time proxy resolution to save disk space.

If any effects were previously processed in full resolution, then Avid DS Nitris will use these caches instead of the proxy 4:2:2 caches.

When in a shared collaborative environment using an Avid Unity, the Avid DNxHD proxies can easily be shared between Media Composer Adrenaline HD and Avid DS Nitris systems. Avid DNxHD compression ratios are also available to you when you use proxy mode. For a description of these ratios, see “Avid DNxHD Compressions”.

When you are ready to output your final sequence, you can switch back to full resolution to process your effects. Processing in full resolution has the advantage of highly accurate processing using 4:4:4 RGB values.

When working in full resolution, the results of the processing can only be seen in the Avid DS Nitris viewer, as the external monitor is disabled.

To set your sequence preferences to work in proxy mode:

1. Select **File > Sequence Preferences**.
2. Set the Resolution to **Real-time Proxy** so that you can edit and add effects in real-time.

*Real-time proxy mode is only available on an Avid DS Nitris workstation. On other Avid DS systems, you can work in **Full** resolution. This still gives you real-time playback of your media in the viewer, but not the external monitor.*

3. On Avid DS Nitris workstation, you can change the **Compression** to one of the Avid DNxHD compression formats.

   This will save you space on your storage device while you are editing your sequence.

4. Set **Downconversion** of HD/SD output to the appropriate setting so that you can feed your output to an external monitor and view the results.

   In the Avid DS Nitris viewer, the real-time proxy mode compensates for change in aspect ratio. For the external monitor output, you have the flexibility to either see a cropped version of the frames, or a centered and padded version. Internally, Avid DS Nitris still holds the entire frame.

5. Click **OK** to set the preferences.
6. Perform the necessary edits, color correction, and addition of effects to your sequence.

You can toggle from Proxy to full resolution to create mattes or keys and view them at the final resolution. Use the button with the green dot above the viewer to switch modes.

7. Any effects that you apply to your sequence will have to be processed in full resolution.

Outputting Film Sequences

Avid DS Nitris supports output mastering of film-based projects to any of the original transfer formats.

When you've finalized all your edits, make sure that:

- your sequence preferences are set to the quality settings (resolution, compression, bit-depth) required for output.
- although the maximum bit depth for output is 10-bit, you should process your sequence at a resolution higher than 10-bit to get the best quality for your processed effects.

Topics

Outputting DPX Files

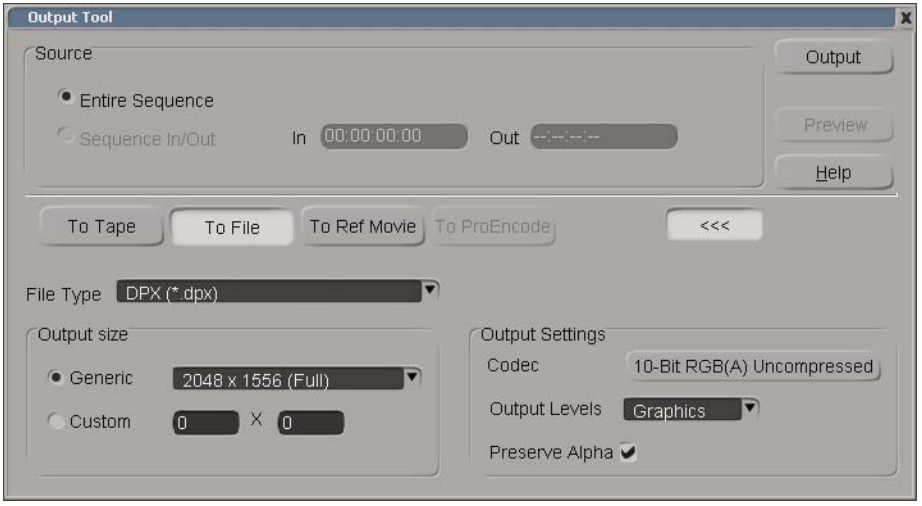
Outputting Film Sequences to Tape

Outputting DPX Files

In the case of a film out, it is possible to output a final series of DPX images for film recorder compatibility with the proper LUT (look up table).

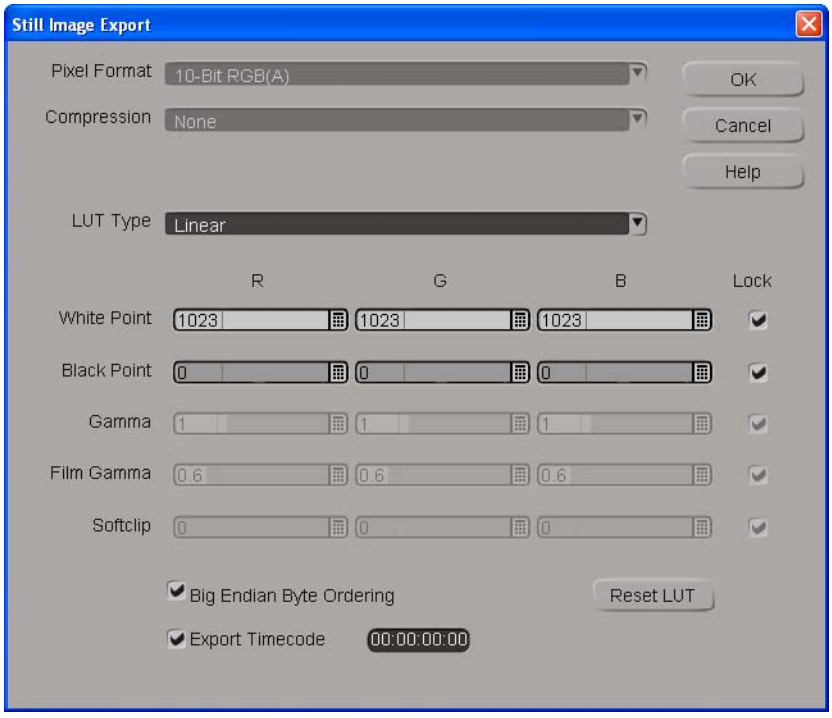
To output a sequence to file:

1. Select **View > Single-Instance Views > Output Tool**.



2. Select the material to output.
3. Click the **To File** button.
4. Select the file format to which you want to export (DPX or Cineon if it's the final for film mastering).

   The Still Image Export dialog box opens.



5. *For DPX or Cineon formats only.* If you want to apply an LUT to match the appropriate film settings, select **Linear**, **Lin>Log** or use a specific LUT file. If you don't want to apply a LUT, then set the **LUT Type** to **Linear** and click the **Reset** button.

If you are using a specific LUT file, the settings should be the opposite of what was used when you imported the file into Avid DS Nitris. Use the inverted LUT file that was automatically created when you originally saved your custom LUT file. Otherwise, click the ***Invert LUT*** *button.*

6. *For DPX or Cineon formats only.* If you want to save a timecode on each frame in the file, select **Export Timecode,** and set the appropriate timecode start time.
7. Click **OK** to save the settings.
8. Keep the frame size to the default.
9. For the Output Settings, select the appropriate **Codec** (if applicable).
10. Select the **Preserve Alpha** option if the sequence includes an alpha channel that you want to keep in the output file.

    This is useful if you plan to reuse the matte information in future compositing or graphics projects. Not all file formats support alpha channels.
11. Click the **Output** button to begin the export.
12. Select a folder in which to save your material, enter a name for the file, and click **Save**.

    The material is processed, if necessary, exported to file, and placed in the selected folder.
13. Close the Output Tool dialog box.

Outputting Film Sequences to Tape

The process for outputting a film sequence to tape is similar to the conventional output process.

Topics

Preparing for Output

Outputting to Tape

If you would like to use your final master for broadcast or to create tape copies for distribution, you need to first downconvert your film sequence to HD or SD—see “Downconverting a Film Sequence to HD or SD Format”.

Downconverting a Film Sequence to HD or SD Format

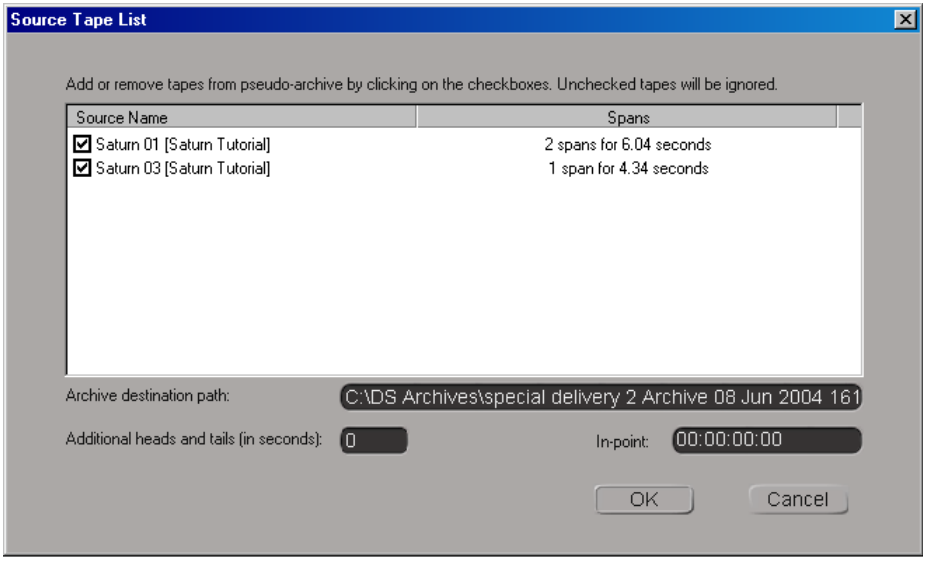
When working in real-time proxy resolution on Avid Nitris DNA workstations, the Output Tool lets you downconvert a film sequence into one of several high-definition (HD) or standard-definition (SD) formats.

To output to tape in SD or HD:

1. Select **View > Single-Instance Views > Output Tool**.
2. Select all/portions of the timeline that you want to output.
3. Click the **To Tape** button.
4. Set the appropriate tape and deck settings.

   For more information click the Help button.
5. Click the **Downconvert** button.
6. Select the required output formats.

   The options that are available depend on the current video format. For a list of the available formats, see "Downconverted Output Formats and Sync Sources".
7. Click the **Insert** button to begin the output process.



Chapter 4
Conforming HDV Media

This chapter describes how to do an offline edit with HDV media on an Avid editing system, such as Avid Media Composer, and how to finally conform an HDV sequence on an Avid DS workstation.

- What is HDV Media?
- Scenario: Conforming an HDV Sequence

What is HDV Media?

HDV is a low-cost prosumer format that allows you to record HD video onto standard DV videocassettes. This is achieved through the use of interframe compression, where a given frame in the video stream can be composed of information from adjacent frames. Frames are grouped into a sequence called a “Group of Pictures,” or GOP. Long-GOP (also known as IPB encoding) refers to the structure of HDV media.

A GOP contains several different types of compressed frames:

- I frames, which are compressed frames that do not depend on any frames around them. I frames anchor the beginning of the GOP.
- P (predictive) frames and B (bidirectional) frames, which depend on the frames around them.

Interframe compression is more efficient than frame-based schemes (such as DV 25), allowing high-bandwidth HD images to be contained on media designed for standard definition (SD). However, HDV is more difficult to edit since frames are not independent of one another. Avid provides a workflow that allows you to edit natively with HDV-compressed video without requiring a transcode to frame-based media, and without limiting where you make your cuts.

The Avid editing system uses a technique called long-GOP splicing when encoding an HDV MPEG-2 sequence for export. For more information, see “Long-GOP Splicing for HDV Encoding”.

HDV uses MPEG-2 video encoding and MPEG-1 audio encoding. 1080i records at about 25Mbps and 720p records at about 19Mbps. Sony provides HDV cameras that record at 1080i/59.94 and 1080i/50. JVC cameras record at 720p/29.97 and 720p/23.976.

In the 1080i formats, the data rate of the video is reduced before compression by horizontally resizing the video display (raster) from 1920 x 1080 pixels to 1440 x 1080 pixels. In contrast, 720p HDV uses the standard raster size of 1280 x 720. A special resolution, DNxHD-TR (for Thin Raster), improves the performance of 1080i HDV editing. This resolution matches the 1080i HDV raster size, reducing artifacts that would come from repeated compressions when rendering effects and graphics.

Long-GOP Splicing for HDV Encoding

The Avid editing system uses a technique called long-GOP splicing when encoding an HDV MPEG-2 sequence for export. When you export to an HDV device, the application uses splicing to reconstruct only the edited sections of the media, such as cut points, transitions, and segments that contain effects. Other areas of the sequence are copied intact. The result is faster encoding at higher quality.

Scenario: Conforming an HDV Sequence

After HD material is captured and edited on Avid editing system, it can be exported to an Avid DS Nitris workstation for the post-production finishing. The following is a basic workflow for conforming an HDV sequence.

☑	Step	Refer to
	On an Avid editing system:	
☐	Create an offline project with the proper frame rate. Select one of the following Avid project types depending on the format in which your HDV camera records: • 1080i/59.94 HDV • 1080i/50 HDV • 720p/29.97 HDV	"Conforming Workflow" in the Avid Media Composer Help.
☐	Capture HDV media.	"Capturing and Importing HDV" in the Avid Media Composer Help.
☐	Build the sequence.	"Conforming Workflow" in the Avid Media Composer Help.
☐	Transcode the media. This step will create new metadata and media. Select a video format that is valid for Avid DS Nitris: • DNxHD-TR 145 • DNxHD 220 • DNxHD 145 *When offlining your project, transcoding to DNXHD-TR may lead to much better performance.*	"Using the Transcode Command" in the Avid Media Composer Help.

☑	Step	Refer to
☐	Export as an AFE file so that you can recreate the newly transcoded sequence on Avid DS Nitris. If you are sharing media, be sure to save it on a workspace that can be accessed by the Avid DS Nitris workstation. Depending on the version of your Avid editing system, you can also export your sequence through Avid MediaLog.	"Exporting Frames, Clips, and Sequences" in the Avid Media Composer Help.
	On the Avid DS Nitris system:	
☐	Create a sequence with a frame rate that matches that of the source tapes and is compatible with the AFE format.	"Create a Sequence and Master Clips from an Imported AFE File" in the Help.
☐	Import the AFE file.	"Importing AFE Files" in the Help.
☐	Open the AFE file from the DS Explorer and drag the sequence or master clips to the timeline. *Avid DS will relink to the HDV media. (This is the case ONLY for MXF files.)*	"Create a Sequence and Master Clips from an Imported AFE File" in the Help. Also refer to "Sharing Media" in the Help.
☐	Depending on the number and types of effects, you may need to process or recreate effects.	"AFE Effects Support Table" for a list of supported effects. Also refer to the AAF/AFE Conform Log as you review the sequence.
☐	Finish and output the project.	"Outputting Media" in the Help.

Chapter 5

Conforming in an Avid Interplay Environment

A workgroup that contains different Avid hardware and software applications is better managed by integrating it into the Avid Interplay environment.

Avid Interplay Access is the component that allows you to manage, search, and browse captured material, AFE sequences, and AAF files in a shared storage environment. It must be installed on the Avid DS or the Avid DS Assist workstation. You can choose to install it on the Avid editing system or use the Interplay Window, which is a built-in lighter version of the Avid Interplay Access that allows you to work with clips and sequences in a shared storage environment. For more information on the Interplay Window, see "Working with the Interplay Window" in Avid Media Composer Help.

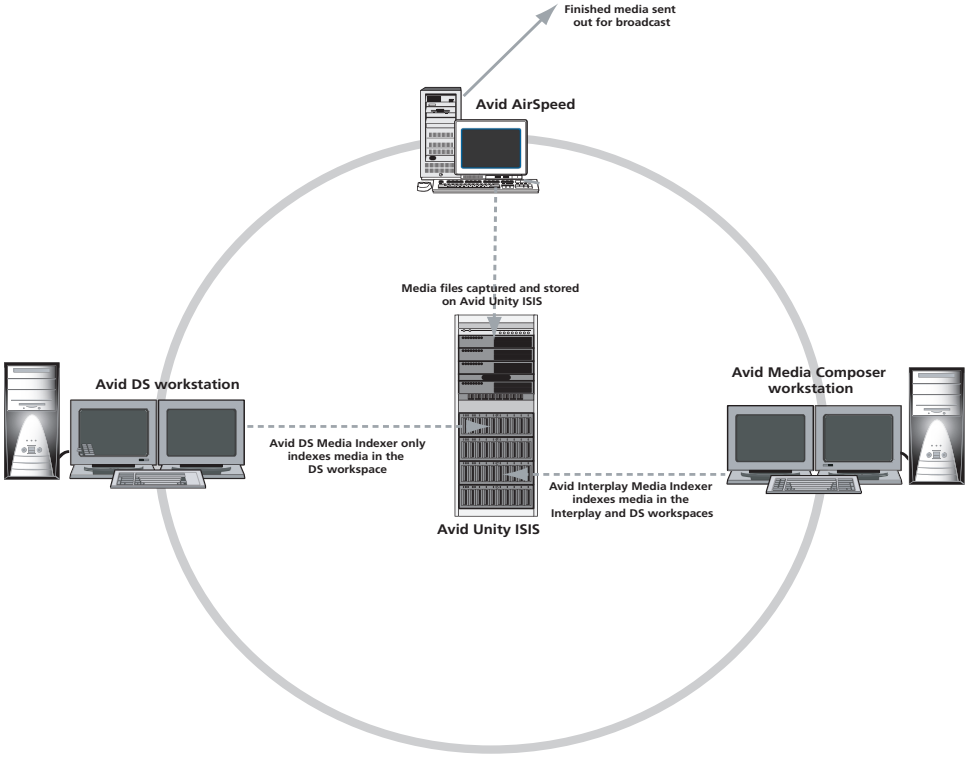
This chapter provides a basic workflow for transferring and conforming media when Avid DS participates in an Avid Interplay workgroup environment.

- Scenario: Conforming Projects with Avid DS in an Interplay Environment

Scenario: Conforming Projects with Avid DS in an Interplay Environment

A typical scenario that would warrant the use of Avid DS in an Interplay environment is when media is captured by Avid AirSpeed, offlined and edited on an Avid editing system such as Avid Media Composer, and then finished on Avid DS. The finished sequence is finally sent to Avid AirSpeed for broadcast or playback. This last step requires the Avid Interplay Transfer application. The Avid Interplay Transfer server must be running on the Avid Unity ISIS, while the Avid Interplay Transfer client must be running on Avid Media Composer.

This workflow assumes that the Avid Interplay database is set up properly and that Avid Unity ISIS has been configured with the necessary workspaces. It also assumes that all required media has been captured or ingested from Avid AirSpeed, and stored on Avid Unity ISIS so that it is available for offline editing and finishing.



You should follow these steps in the order that they are listed. Each time you link to a topic within a Step, make sure you return to the checklist after you have completed that procedure. (Use the Previous View button in your Adobe Reader to return to the previous link).

☑	Step	Refer to
☐	Configure Avid DS in an Avid Interplay Environment.	"Setting up Avid DS in an Interplay Environment"
	On the Avid Media Composer system:	
☐	Offline edit your project.	"Conforming Workflow" in the Avid Media Composer Help.
☐	Consolidate the sequence to the Avid DS workspace on the Avid Unity ISIS.	"Consolidating a Sequence to an Avid DS Workspace"
☐	Export the AFE sequence to Avid DS	"Exporting the Finished Sequence to Avid DS"
	On the Avid DS system:	
☐	Import the AFE sequence and finish.	"Opening the AFE and Finishing the Sequence"
☐	Export the AAF sequence to Avid Media Composer.	"Exporting the AAF Sequence back to the Avid Editing System"
	On the Avid Media Composer system:	
☐	Import the AAF sequence.	"Importing the AAF in the Avid Editing System"
☐	Send the finished sequence to Avid AirSpeed for broadcast.	"Sending Media to Avid AirSpeed"

Subtopics

Setting up Avid DS in an Interplay Environment

Setting up Avid DS in an Interplay Environment

For successful conforming and transfer of media between the different workstations, the administrator configuring the hardware and software components in the Interplay environment must follow these steps.

Each time you link to a topic within a Step, make sure you return to the checklist after you have completed that procedure. (Use the Previous View button in your Adobe Reader to return to the previous link).

☑	Step	Refer to
☐	On the Avid Unity ISIS system, create a dedicated Avid DS workspace. This will ensure that the DS media indexer only indexes files that are pertinent to Avid DS. This includes media consolidated from other Avid Editors as well as media captured and processed with Avid DS.	"Managing Workspaces" in the Avid Unity ISIS Help.
☐	Connect to the Avid Unity ISIS system.	"Connecting to the Avid Unity ISIS Media Network" in the Avid Unity ISIS Help.
☐	Mount the workspace that you created.	"Mounting and Unmounting Workspaces" in the Avid Unity ISIS Help.
☐	In the dedicated Avid DS workspace, organize your Create one for each of the following media types: • DS generic audio • DS generic video • MXF audio (purgeable) — Read Only • MXF video (purgeable) — Read Only • MXF audio (non-purgeable) • MXF video (non-purgeable) Name each folder appropriately, e.g. DS_gen_video. *The NON-purgeable folders do not need to be on the dedicated DS workspace. As long as they are indexed by the DS indexer, they can be stored on another workspace.*	"Sharing MXF Media"

☑	Step	Refer to
☐	Make sure that the Interplay Media Indexer has been properly configured. It must be set up to index the following: • //Avid MediaFiles folder in the DS workspace • MXF audio (non-purgeable) • MXF video (non-purgeable)	"Configuring a Media Indexer to Monitor Shared Storage" in the *Avid Interplay Software Installation and Configuration Guide*.
☐	On Avid AirSpeed, define the destination for the captured media.	"Send Tab" in the Avid AirSpeed Help.
☐	Install Avid Interplay Access on the Avid DS workstation.	*Avid Interplay Engine and Avid Interplay Installation Guide.*
☐	Install Avid Interplay Access on the Avid Media Composer workstation.	*Avid Interplay Engine and Avid Interplay Installation Guide.*
☐	Make sure that Avid Interplay Transfer server is running on a dedicated Transfer server machine.	*Avid Interplay Transfer Setup and User's Guide*.
☐	Make sure that Avid Interplay Transfer client is installed and running on Avid Media Composer.	*Avid Interplay Transfer Setup and User's Guide*.
☐	Connect the Avid editing system and the Avid DS workstation to the Interplay database.	"Connecting to the Interplay Database" in the Avid Interplay Access Help.
☐	On Avid DS, make sure the DS Indexer has been properly configured. It must be set up to index the following: • //Avid MediaFiles folder in the DS workspace • DS generic audio folder • DS generic video folder • DS MXF audio folder • DS MXF video folder	"Configuring the Avid DS Media Indexer in an Interplay Environment".

Subtopics

Configuring the Avid DS Media Indexer in an Interplay Environment

Related Topics

Purging Media

Configuring the Avid DS Media Indexer in an Interplay Environment

The storage areas that hold your Avid DS media must be configured within your Avid DS workstation's media indexing service. This service will index only the Avid DS storage areas rather than the entire Avid Unity ISIS storage.

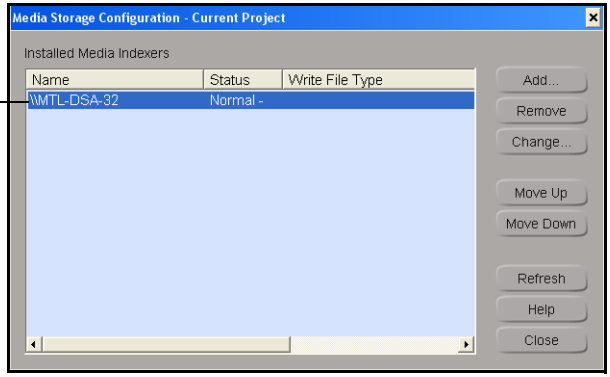
By default, the media indexer sets any new storage areas to automatically have full read/write access by any user on the network. To restrict access to your media, you can change the share permissions through Windows—see "Sharing Folders and Setting Permissions".

To configure your media indexing service:

1. In Avid DS Nitris, select **Data Management > Configure Storages**.

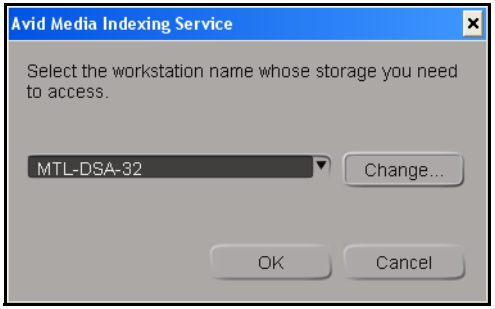
   The Media Storage Configuration - Current Project dialog box displays the media indexing services that are configured for your workstation.

Your workstation's media indexing service is indicated by the computer name



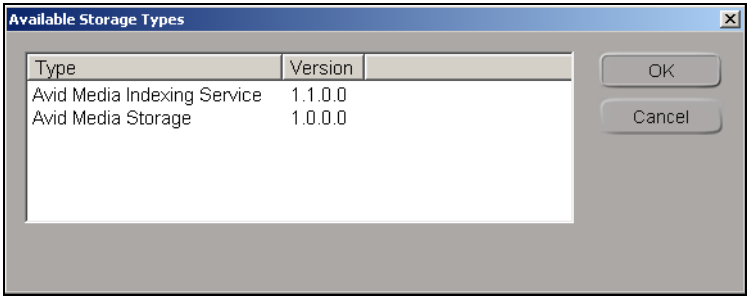
2. Select your workstation's media indexing service, and click the **Change** button.

The Media Indexing Service dialog box displays.



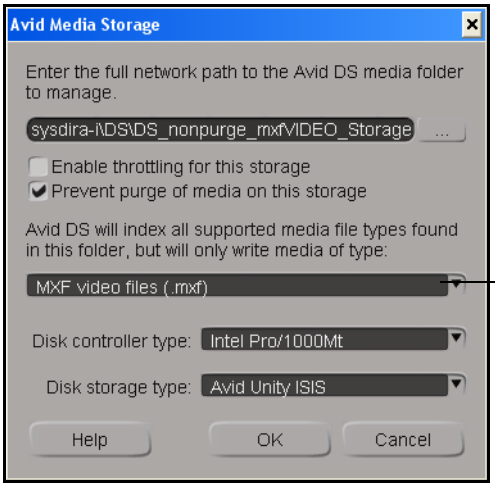
3. Leave the workstation name as it is and click the **Change** button.
4. To add a new storage, click the **Add** button.

   If you need to modify or delete a storage, click the **Help** button for instructions.
5. The Available Storage Types dialog box, select **Avid Media Storage** and click **OK**.



   You will need to add each of the folders that were created on the DS workspace on the Avid Unity ISIS for the different media types: generic audio, generic video, MXF audio, MXF video, and non-purgeable MXF audio and video.
6. Use the Browse (...) button to locate each folder.

   For example, *Unity**allocation**workspace**folder_name*.
   Do NOT use a drive letter.



7. Select the media type that you will store in this folder.

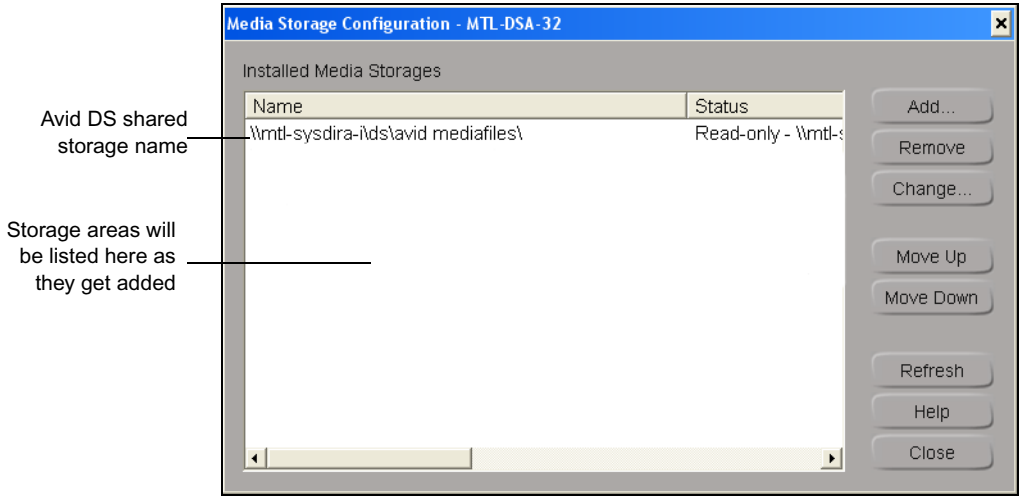
   You will need to repeat steps 7 to 10 for each of the folders until you specify the information for the last media storage.

For this storage folder	Select these options
DS generic audio	Avid DS generic audio (.wav)
DS generic video	Avid DS generic video (.gen)
MXF audio (purgeable) — Read Only	MXF audio files (.mxf)
MXF video (purgeable) — Read Only	MXF video files (.mxf)
MXF audio (non-purgeable)	• MXF audio files (.mxf) • Prevent purge of media on this storage
MXF video (non-purgeable)	• MXF video files (.mxf) • Prevent purge of media on this storage

When you select **Prevent purge of media on this storage**, then the media will not be purged when media from other Avid DS projects are purged.

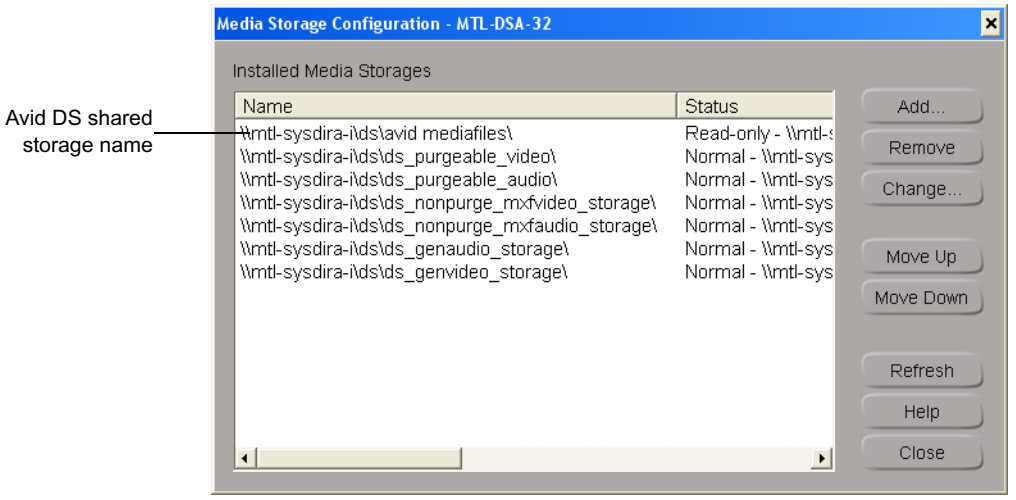
8. From the **Disk Controller Type** list, select the card that is installed in your workstation.
9. From the **Disk Storage Type** list, select **Avid Unity ISIS**.
10. Click **OK**.

    The storage area is added to the Media Storage Configuration list.



Each storage area is uniquely identified by the workstation name and folder on which the media resides. These storages are accessed and indexed in the order in which they are listed. Use the Move Up or Move Down buttons to change the order of priority.

11. Click **Close** and then **OK** to return to the Media Storage Configuration - Workstation dialog box.



12. Click the **Close** button to save the configuration for the media indexing service.

The first time that you configure your storage, the media indexer will need to index the media on your storage device. This may take a while depending on the amount of media that is already on your storage.

Consolidating a Sequence to an Avid DS Workspace

After you've done the offline editing on the Avid editing system, you must consolidate the sequence. This step copies only the portions of media files edited into the sequence and creates new master clips for each clip in the sequence. The file name extension .new is attached to the master clips, along with incremental numbering beginning with .01. The sequence is not renamed but is automatically relinked to the new media files.

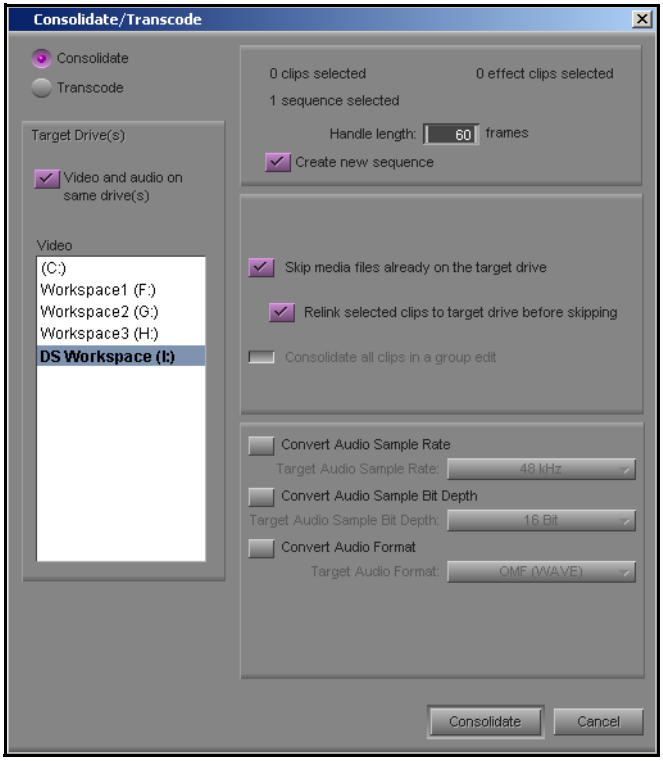
Consolidating the finished sequence will also gather any dispersed media and transfer it from the main Avid Unity worskpace to the Avid DS workspace.

To consolidate the sequence:

1. On the Avid editing system, open the bin and select the finished sequence.
2. From the Clip menu, select **Consolidate/Transcode**.

The Consolidate/Transcode window opens.

3. Do the following:
   - Select the **Consolidate** option
   - Select **Video and audio on the same drives**
   - Select the DS Workspace.



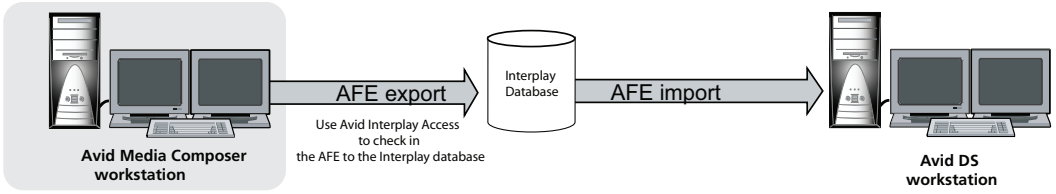
4. Click **Consolidate**.

   A progress bar is displayed showing the status of the process.

Exporting the Finished Sequence to Avid DS

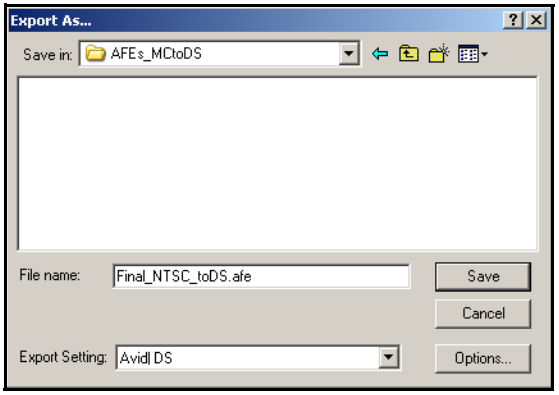
Avid DS cannot directly open projects from Media Composer or other Avid editing systems. To use the sequence in Avid DS, you must export it in an intermediate file format known as AFE.

AFE files are based on the AAF (Advanced Authoring Format) technology and are designed especially for sharing information among Avid applications. AFE files let you transfer one or more bins, their contents, and information about the contents, including master clips, subclips, and sequences.



To export the sequence as an AFE:

1. Select the finished sequence.
2. From the File menu, select **Export**.
3. In the Export window, navigate to the location where you want to save the AFE.
4. Select **Avid DS** for the Export Setting.



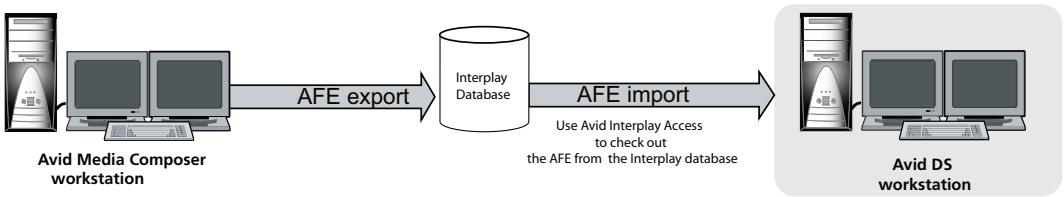
5. Click **Save**.

6. Go to **File > Export** and select the AFE in the Export dialog box.
7. Launch Avid Interplay Access and drag the AFE to the appropriate destination folder.
8. Click **OK**. You can enter a comment for the file.

   The AFE is now checked in to the Access database.

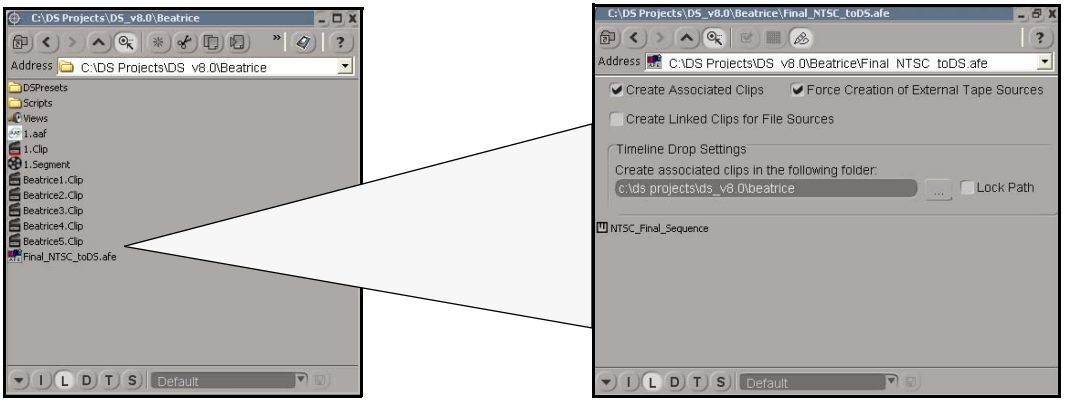
Opening the AFE and Finishing the Sequence

After you have exported your AFE and media to a location where it can be accessed by Avid DS, you can import the AFE into your project.

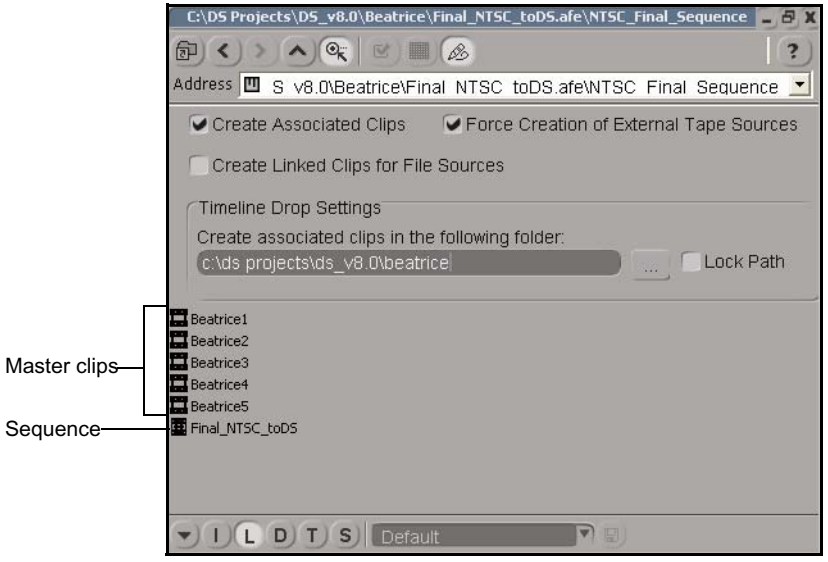


To import the AFE sequence:

1. Open an Avid DS project with the proper frame rate.
2. Launch Avid Interplay Access and navigate to the location of the AFE file.
3. Right-click the file and select **Check out**.
4. Click **OK**.
5. Drag the file from the Avid Interplay Access to the DS Explorer.
6. In the DS Explorer, double-click the AFE to open the bin.



7. Double-click the bin to display its contents.



The contents will include master clips, subclips, and sequences.

For a description of Avid editing system icons, see "AAF/AFE List".

8. Drag the sequence to the first track of the timeline.

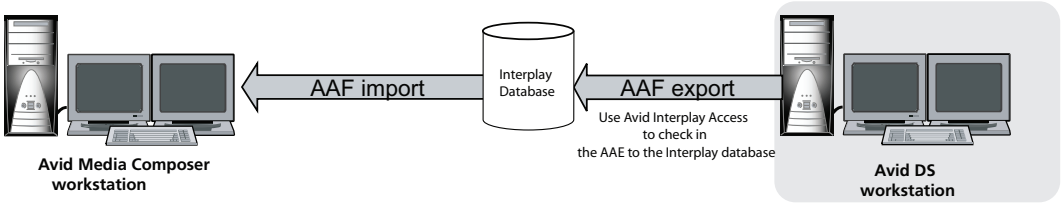
   Avid DS creates master clips in your project folder, and the sequence automatically links to the media on your storage device. All cuts, edits, and effects applied in the Avid editing system are visible on the timeline.

9. You can now finish the sequence in Avid DS.

Exporting the AAF Sequence back to the Avid Editing System

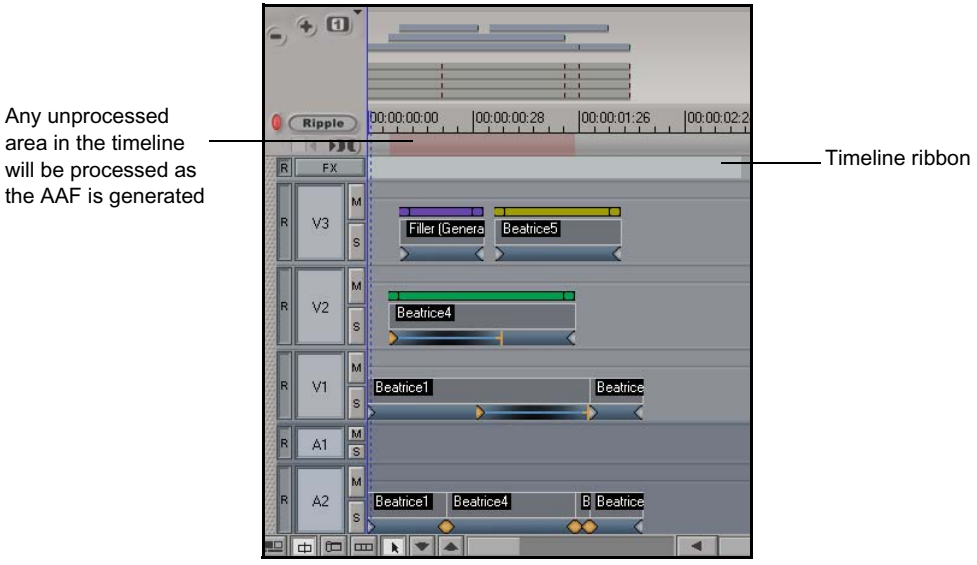
Once you have finished the sequence, you must export the sequence to the Avid Media Composer using the Timeline to MC feature. It allows you to quickly generate an AAF and MXF file of a timeline selection that can be later imported directly into Avid Media Composer.

All effects applied in Avid DS will automatically be processed during the export.



To export a Avid DS sequence to the Avid editing system:

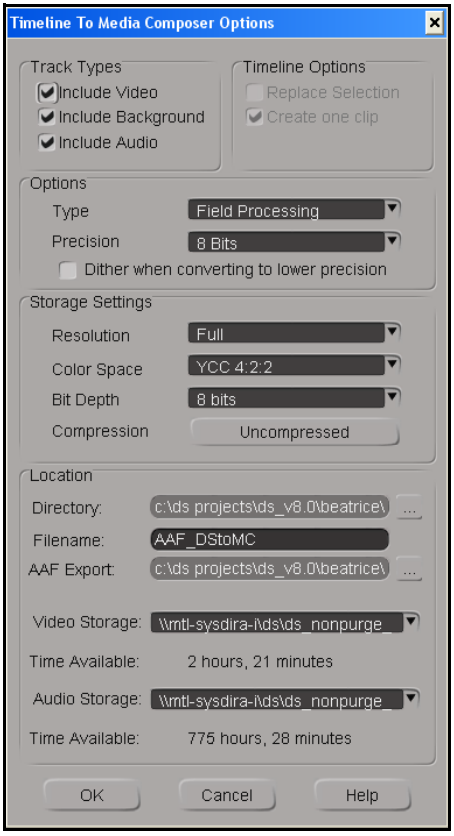
1. Select the timeline ribbon of the entire timeline. This way, all video and audio tracks including any timeline and track effects are included.



2. From the NLE toolbar, select **Generate > Timeline to MC**.

When you export the sequence, the processed media will be stored in the non-purgeable MXF storage folder. You must have your MXF storage correctly configured to access this option—see "Configuring Storages for MXF Files".

The Timeline to Media Composer Options window is displayed.



3. In the Locations box, do the following:
   - **Directory**: Browse to the directory where the AAF will be export to and stored.

     If you save it to your project, then it will be archived when archiving your project.
   - **Filename**: Enter a name for the AAF

- **AAF Export**: Browse to the location where you want the AAF to be exported to and stored.
- Make sure that the **Video Storage** and **Audio Storage** are pointing to the correct path on the Avid Unity ISIS.

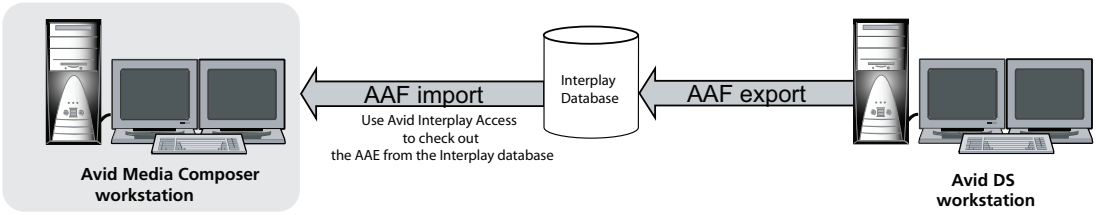
For more information on the options, see “Timeline to MC”.

4. Click **OK**.

   The AAF is displayed in the DS Explorer.
5. Launch Avid Interplay Access.
6. Check in the AAF file by dragging it from the DS Explorer to the designated folder on Avid Interplay Access
7. Click **OK**. You can enter a comment for the file.

Importing the AAF in the Avid Editing System

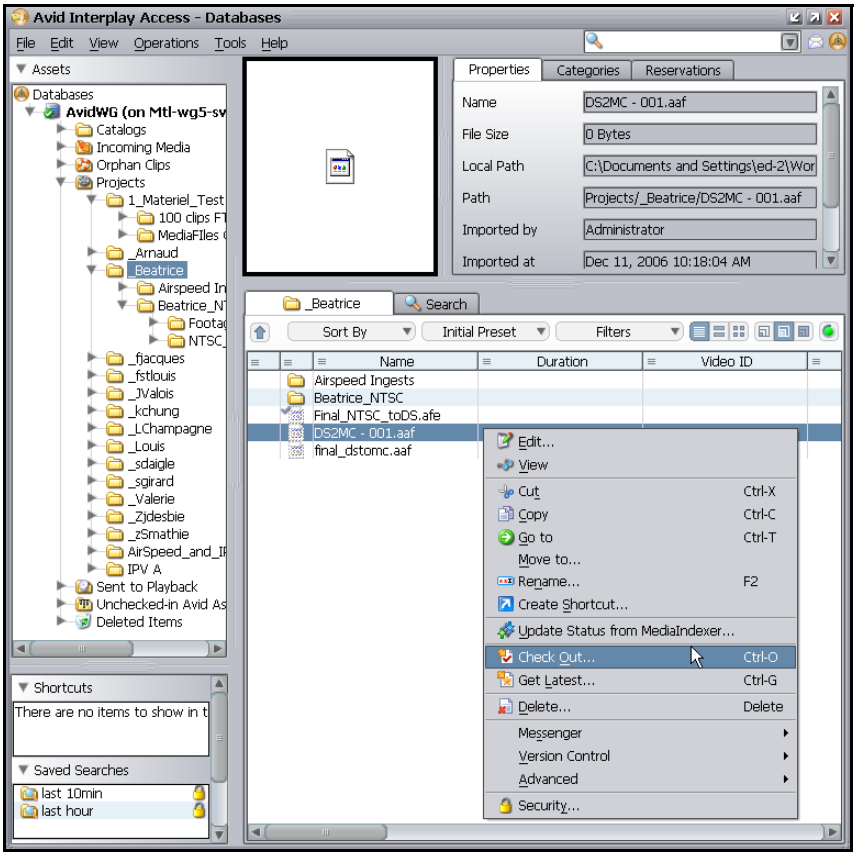
Now you must import the AAF back to Avid Media Composer so that you can send it to Avid Airspeed.



To import the AAF:

1. On the Avid Media Composer workstation, launch Avid Interplay Access and navigate to the folder where you checked in the AAF file.
2. Right-click the file, and select **Check Out**.

3. Click **OK**.



4. Drag the file from Avid Interplay Access to the bin in Avid Media Composer.

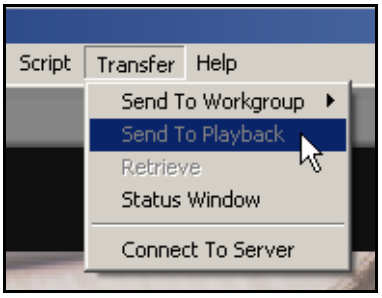
   You are now ready to send the media for broadcast.

Sending Media to Avid AirSpeed

When sequences are completed and ready for broadcast, they can be sent to Avid AirSpeed for broadcast.

To send finished sequence to Avid AirSpeed:

1. On the Avid Media Composer, select the finished sequence.
2. Go to **Transfer > Send to Playback**.



3. Choose the Avid Airspeed device where you want to send the media.

   The sequence and associated media files are sent to the Avid Airpseed device ready for broadcast. A copy of these are also stored on the Avid Unity ISIS.

Getting Started

This section includes information to help you get started with Avid DS Nitris.

- Prerequisites
- Starting a Project
- Working on the Desktop
- Capturing Material
- Getting Ready to Edit
- Creating a First Cut
- Refining the Edit
- Applying Effects
- Working with Effects
- Processing
- Adding Graphics and 2D Titles
- Compositing
- Outputting a Sequence
- Conforming

Prerequisites

The Avid DS Nitris system lets you create broadcast-quality output, incorporating every possible production element—from full-speed, high-resolution footage, to multimedia artwork and animation, to computer-generated effects and titling.

The Avid DS Nitris documentation describes the features and hardware of all models. Therefore, your system might not contain certain features and hardware that are covered in the documentation.

The Getting Started Guide consists of 13 chapters of the basic information you'll need to get working in Avid DS Nitris. The following table lists the approximate amount of time needed to complete each chapter.

Chapter	Time to complete
Chapter 1: Starting a Projectt	15 minutes
Chapter 2: Working on the Desktop	30 minutes
Chapter 3: Capturing Materiall	60 minutes
Chapter 4: Getting Ready to Edit	30 minutes
Chapter 5: Creating a First Cut	45 minutes
Chapter 6: Refining the Edit	30 minutes
Chapter 7: Applying Effects	90 minutes
Chapter 8: Working with Effects	30 minutes
Chapter 9: Processing	15 minutes
Chapter 10: Adding Graphics and 2D Titles	30 minutes

Chapter	Time to complete
Chapter 11: Compositing	60 minutes
Chapter 12: Outputting a Sequence	20 minutes
Chapter 13: Conforming	45 minutes

Before you begin...

Before using the Avid DS Nitris Getting Started Guide, your Avid DS Nitris system should be properly configured with the appropriate hardware. You should also have a working knowledge of your computer and its operating system. You must know how to use the mouse or pen, standard menus and commands, as well as how to open, save, and close files. If you need to review these techniques, refer to Windows online help.

Subtopics

Installing the DivX Codec and QuickTime

Installing the DivX Codec and QuickTime

Before you can view or capture the media files for this guide, you will need to install the DivX codec and Apple QuickTime (if you do not already have them).

- **DivX codec**: Install the free standard codec from: **www.divx.com/divx/**
- **QuickTime**: Install the latest version of QuickTime from **www.apple.com/quicktime/**

Using the Avid DS Training Edition

If you are using the software-only Avid DS Training Edition, you should know that although it functions just like the software running on Avid DS Nitris systems, there are some notable exceptions:

- A license or hardware key (dongle) is not needed to run the Avid DS Training Edition.
- You won’t be able to output to tape or file, nor export OMF, EDL, or AAF files.
- There are no indexing services.
- Any archives created within Avid DS Training Edition can only be used on other Avid DS Training Editions.
- Archiving is limited to project data (media cannot be included).
- Remote processing is not available.

- Captured and processed media, sequences, clips, and presets use a different format than the standard Avid DS Nitris software.

Accessing the Media

The media files that you'll be using in this guide were installed along with the Avid DS Nitris software. You can find the media in the C:\Program Files\Avid\DS_v*X*\Media_GetStarted folder. In addition, you'll need a videotape with some material on it to practice capturing material from tape and outputting to tape.

Logging on to Your Workstation

Before you start Avid DS Nitris, you must log on to your workstation with your Windows user name and password. Since many users can work on the same workstation at different times, Windows gives you security and a unique user profile, so as not to conflict with the settings of other users.

Your Avid DS Nitris environment can be customized. If you set any personal or project preferences while logged on, Avid DS Nitris saves them to your user profile. The next time you log on to that workstation, it recalls your previous settings.

To log on to your workstation:

1. When the Welcome to Windows dialog box is displayed, press Ctrl+Alt+Delete.
2. In the Log On to Windows dialog box, enter your user name and password.
3. Click **OK**.

   Once you have logged on to Windows, you can access your applications and files.

Avid DS button

To start Avid DS Nitris, do one of the following:

- Double-click the **Avid DS v*X*** icon on the Windows desktop.

- Select **Start > Programs > Avid Products > Avid DS v*X*> Avid DS v*X***.

  The Open Project dialog box displays.

Later on, when you have created a project, here's how you can exit Avid DS Nitris. For now, do not exit Avid DS Nitris.

To exit Avid DS Nitris, do one of the following:

- Select **File > Exit**.
- Click the X (close) button at the top-right corner of the title bar.
- Press Alt+F4.

  When you exit Avid DS Nitris, any changes that you made to the desktop layout or user preferences are saved with your user profile and recalled the next time you log on to the workstation.

Accessing the Help System

Avid DS Nitris comes with a comprehensive help system that contains information on all the interface elements, as well as task information. If you're looking for information on a particular interface element or property page parameter, or need help performing a task, the online help is the place to look.

The following topics explain how to use the Help system:

- "Understanding the Help System" on page 117
- "Finding Information Within Help" on page 119
- "Printing Help Topics" on page 122

There are two ways to access the Help system:

- From the Help menu
- From windows and dialog boxes—see "Getting Context-Sensitive Help" on page 117.

To open the Help system:

- Select **Help > Contents and Index** or press F1.

  The Help window opens, and the Help splash screen displays.

Related Topics

Getting Context-Sensitive Help

Getting Context-Sensitive Help

Help icon or button

Every view, property page, dialog box, and pop-up menu contains a Help icon or button which displays context-sensitive information when clicked.

Tooltips

Avid DS Nitris uses small pop-ups called *tooltips* to display the name of desktop elements when they have no text label.

Position the pointer over an interface element, such as an icon, and pause for a second. A tooltip with the name of the element appears.

Avid DS Nitris provides you with a quick way to get Help for many views, dialog boxes, and property pages. Within these context-sensitive topics, you can view specific information about items, such as options and individual buttons, and link to related topics.

To get help for a view, dialog box, or property page with a Help button:

- Click the Help button (either a question mark or a button labeled Help, or How To...).

  The context-sensitive Help topic is displayed.

Related Topics

Understanding the Help System

Understanding the Help System

The Help system uses the following main display areas:

- Help topics open in the right area of the Help window—see “Help Topics” on page 118.
- Buttons for controlling the Help display and for printing Help topics appear in the top area of the Help window—see “Top Area Buttons” on page 118.
- Navigation tools (Contents, Index, Search, and Favorites) open in the left area of the Help window—see “Finding Information Within Help” on page 119.

Once the Help window is open, it behaves in much the same way as most other windows. You can resize it and reposition it to suit your screen layout and workflow.

Help Topics

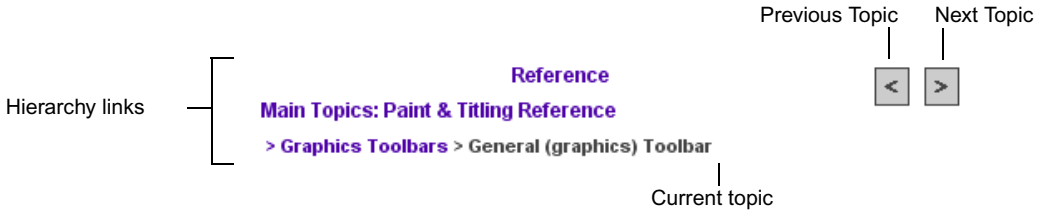
The information in the Help is displayed in the right area of the Help window. All topics have the following items above the main heading:

- Hierarchy links

  These links display the location of the currently displayed topic within its book and chapter, and let you jump to relevant higher-level topics, including the Main Topics page.

- Previous Topic and Next Topic buttons

  Use these buttons to browse through the topics in the order in which they appear in the Contents.



The Help system includes task-oriented procedures as well as background and reference information. At the bottom of many topics are links to related topics.

Showing and Hiding Additional Information

Some Help topics include a link labeled “More Information.” Click this link or the turn-down arrow to see conceptual or background information related to the procedure. This information is displayed with a colored border on top and bottom.

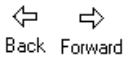
To return to the original display, click the link or arrow again.

Related Topics

Top Area Buttons

Top Area Buttons

The top area of the Help window contains four buttons that allow you to change the Help display and print Help topics. The following table describes these buttons.

Button	Illustration	Description
Hide/Show		Click the Hide button to hide the navigation area on the left and reduce the width of the Help window. The button changes to the Show button. Click the Show button to reveal the navigation area on the left and expand the width of the Help window. The button changes to the Hide button.
Back and Forward		These buttons work like the Back and Forward buttons in an Internet browser, such as Microsoft Internet Explorer. Use the buttons to move among recently visited topics.
Print		Click this button to print one or more topics—see "Printing Help Topics" on page 122.

Related Topics

Help Topics

Finding Information Within Help

The left area of the Help window displays the Help system's main navigation tools within a tabbed interface.

For more information, see the following topics:

- Using the Contents Tab
- Using the Index Tab
- Using the Search Tab
- Advanced Search Options
- Using the Favorites Tab

Using the Contents Tab

The Contents tab displays a complete hierarchical list of all topics in the Help system. You can expand and collapse the contents to view the logical organization of the Help system. Click on a topic to display the entry to the right.

Related Topics

Using the Index Tab

Using the Search Tab

Advanced Search Options

Using the Favorites Tab

Using the Index Tab

The Index tab provides an alphabetized list of entries similar to the index of a printed book.

To find an index entry, type the first few letters of a keyword in the text box at the top of the tab. As you type, the index jumps to the range of entries that correspond to the letters you have typed.

To view the topic associated with an index entry, either click the index entry and then click **Display**, or double-click the entry.

Related Topics

Using the Contents Tab

Using the Search Tab

Advanced Search Options

Using the Favorites Tab

Using the Search Tab

The Search tab lets you search the entire text of the Help system for one or more words and then lists the topics that include those words. The list of results is ranked, placing the topics that the Search feature considers most likely to be relevant at the top of the list.

Advanced Search Options

Advanced search options let you control how the Search feature operates. If the Search feature does not produce useful results for a particular topic, you can often find the specific information you need by modifying the search.

Search Syntax

The following syntax rules control search queries:

- Searches are not case-sensitive, so you can type your search in uppercase or lowercase characters.

- You can search for any combination of letters (a-z) and numbers (0-9).
- Punctuation marks, such as period, colon, semicolon, comma, and hyphen are ignored.
- Search for a literal phrase by using quotation marks.
- If you are searching for a filename with an extension, you should group the entire string in double quotes (“filename.ext"). Otherwise, the search will treat the period as an OR operator.
- You can use wildcards such as ? or *.
- You can use Boolean operators of AND, OR, and NOT.

Searching Within Previous Search Results

To narrow down a search that has produced too many results, select **Search previous results** to limit a search to the results of the previous search.

Including Similar Words in Searches

By default, searches include words similar to those you have typed. For example, if you type “light,” the search will also look for occurrences of the word “lights.” You can narrow a search by deselecting this option.

Searching Topic Titles Only

To limit your search to the words in topic titles only, select **Search titles only**.

Related Topics

Using the Contents Tab

Using the Index Tab

Using the Favorites Tab

Using the Favorites Tab

The Favorites tab allows you to keep a list of topics you want to access frequently.

To add the currently displayed topic to your list:

- Click **Add**.

  The topic name appears in the Topics list.

To display a favorite topic, do one of the following:

- In the Topics list, click the name of the topic, and then click **Display**.
- In the Topics list, double-click the name of the topic.

The topic appears in the right area of the Help window.

To remove a topic from the list of favorites:

- In the Topics list, click the name of the topic, and then click **Remove**.

Related Topics

Using the Contents Tab

Using the Index Tab

Using the Search Tab

Printing Help Topics

The Help system gives you the option of printing either the currently displayed topic or all of the topics within the current chapter.

Print button

To print the currently displayed topic:

1. In the top button area, click Print.
2. In the Print Topics dialog box, select **Print the selected topic**, and then click **OK**.
3. In the Print dialog box, select any print options you want, and then click **Print**.

The printed version of the topic shows only the text that is currently displayed on screen. If the topic includes additional information and you want that information to appear in the printed version, make sure that the additional information appears onscreen.

To print all topics in the current chapter:

1. In the top button area, click **Print**.
2. In the Print Topics dialog box, select **Print the selected heading and all subtopics**, and then click **OK**.
3. In the Print dialog box, select any print options you want, and then click **Print**.

Topics that you print from the Help have limited page layout and formatting features. For a higher quality version of the information, print from the PDF version of the manuals included on the Avid DS Nitris Software and Drivers DVD.

Finding Other Resources

The Help is your one-stop source for answers to your questions. There are web links to the Avid DS community forums, training resources, Customer Service, and the Knowledge Center.

We're always looking for ways to provide you with better information. The Support Center web site has a feedback form, where you can send us requests for more information.

Contacting Avid Customer Support

Avid DS Customer Support offers assistance by phone, email, and the web. You are invited to send your support requests to any of these channels. For urgent issues that require immediate assistance, use your local phone support channel.

If you are having trouble using your system:

1. Retry the action, carefully following the instructions given for that task in this guide. It is especially important to check each step of your workflow.
2. Check the Avid DS Support Center at http://www.softimage.com/avidds for the latest information that might have become available.

E-mail Support

The e-mail address for Avid DS Customer Support is: **dssupport@avid.com**. You can use it for sending bug reports, usability questions, and avidds.cab audit reports for system analysis. All e-mails are logged in the support database and assigned a case number. Send one support request per e-mail.

It is mandatory that you include your SID number in the body of your email message for verification of your maintenance contract and case logging. Otherwise, response will be delayed.

Web Support

The Avid DS Support Center at http://www.softimage.com/avidds provides quick access to a wide range of resources from the Avid DS team—online documentation, tutorials, known limitations and other late-breaking information.

All software and driver updates can be downloaded from the Avid Download Center http://www.avid.com/support/downloadcenter/index.asp.

Upload Utility

For troubleshooting purposes, you can upload your files for Avid Customer Support personnel to examine. You can upload a project's archive, media files, or other necessary data. Simply zip the files that you need to upload and use a short name (for easy retrieval), such as archive.zip or Case274877.zip.

To upload your files:

1. Go to the Avid web site at http://www.softimage.com/avidds.
2. Select **Support and Upload Tool** from the left menu.

Avid Community Forum

Although the Avid DS community forum is frequently monitored by Avid employees, it is not part of the official support channels.

The forum has proven to be quite useful for users, and there is a constant stream of new subscribers.

To subscribe, join the Avid community forums on the Avid web site at http://www.avid.com. Select **Support > Forums**.

Avid Training Services

Avid makes lifelong learning, career advancement, and personal development easy and convenient. Avid understands that the knowledge that you need to differentiate yourself is always changing, and Avid continually updates course content and offers new training delivery methods that accommodate your pressured and competitive work environment.

To learn more about Avid's new online learning environment, Avid Learning Excellerator (ALEX), visit http://learn.avid.com.

For information on courses/schedules, training centers, certifications, courseware, and books, visit www.avid.com/training or call Avid Sales at 800-949-AVID (800-949-2843).

Chapter 2
Starting a Project

This chapter introduces you to the Avid DS Nitris post-production process. You will learn how to create a project in Avid DS Nitris.

This chapter takes approximately 15 minutes to complete.

- The Digital Post-Production Process
- Working with Project Files and Media
- Creating a New Project

The Digital Post-Production Process

The Avid DS Nitris system is a digital post-production environment. Once you've acquired your footage in a digital format and put it on a storage device, Avid DS Nitris gives you complete, random access to the media with instant retrieval of clips and sequences. You also have quick, nonlinear access to any part of your sequence, as well as the ability to apply a wide variety of digital effects at any stage of your production.

You can use the different tools and techniques available in Avid DS Nitris to complete your projects. You can build a production from start to finish, or you can import sequences "offlined" on other systems and proceed with your finishing tasks in Avid DS Nitris.

After a project is complete, you can archive the media and files, making space for your next project. If you need to go back and re-edit a project, you can restore it at any time.

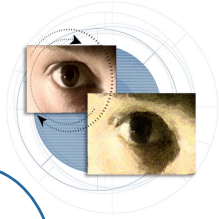
The following illustration gives you an overview of the Avid DS Nitris production cycle.

2 "Offline" edit

Create a rough cut of clips and decide on timing of cuts and transitions.

If offlined externally, load *AAF, AFE, OMF files or EDLs, and digitize material from file, tape, or audio.

Redigitize source material in full, uncompressed resolution from file or tape.



1 Capture material

Digitize source material at low resolution directly from file or tape.

3 Fine-tune edit

Fine-tune timing of cuts, transitions, and other effects.

4 Apply effects

- Create composites.
- Add 2D and 3D effects.
- Mix and sweeten audio.
- Add titles and graphics.
- Perform dust/scratch removal and color correction.

7 Archive the project

- Archive project and/or media to tape.
- Project and media can be restored at any time.

Repeat if necessary

5 Process

Process all effects applied to clips and create new media files (source media remains untouched).

6 Output media

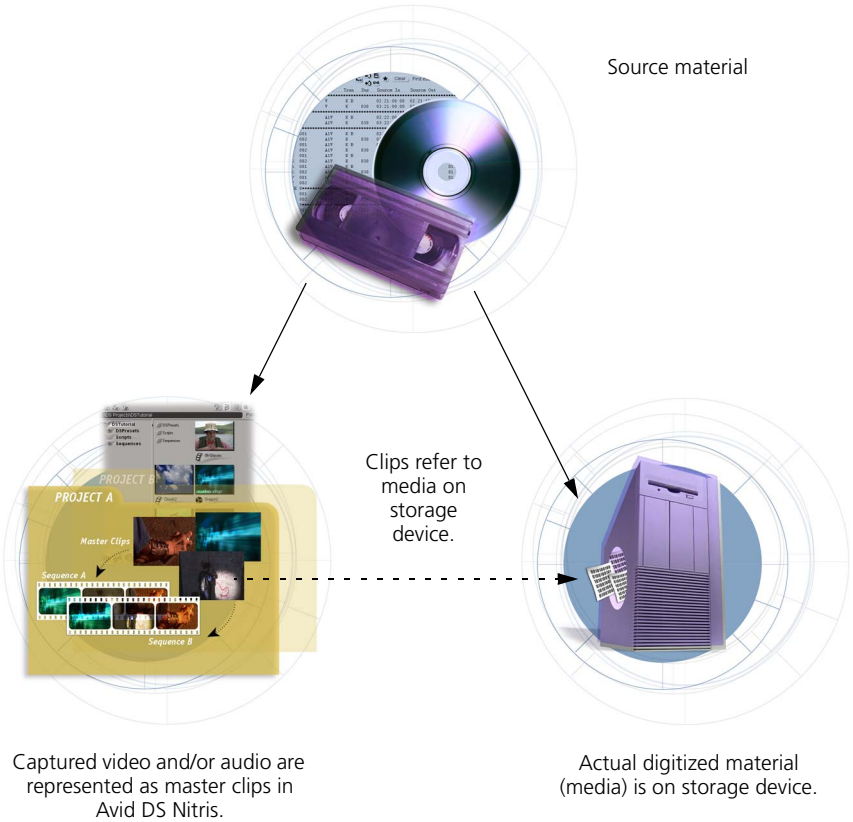
Output sequence to tape or file, such as .avi.

*AAF: Advanced Authoring Format, AFE: Avid File Exchange, OMF: Open Media Framework, and EDL: Edit Decision List.

Working with Project Files and Media

It is important to understand how Avid DS Nitris handles your data, so that you can work efficiently when using large sizes of digitized video and audio files.

When you capture material, the digitized media is placed on an external storage device, and the project files representing this media are stored in the DS Projects folder on your workstation's local disk drive. The project files point Avid DS Nitris to the location of the corresponding digitized media on the storage device.

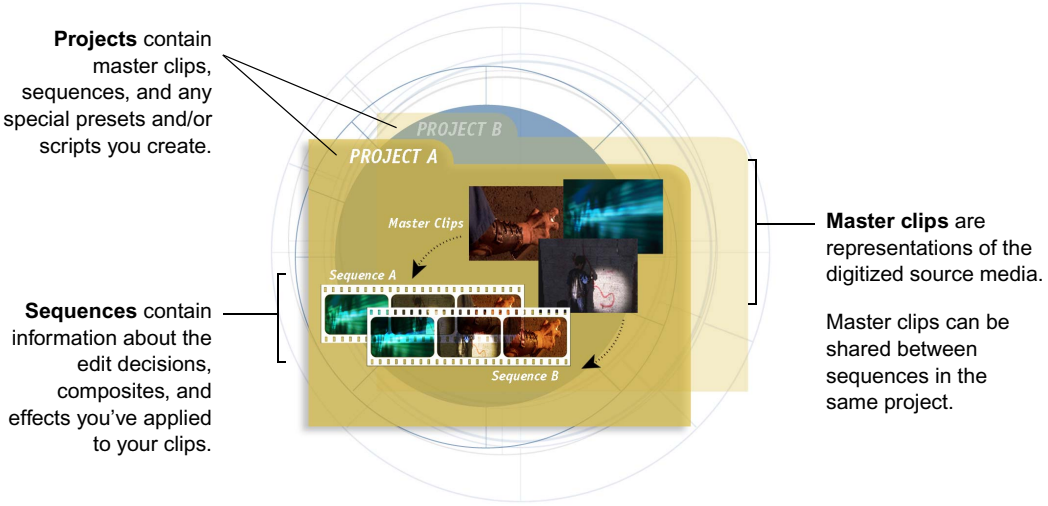


Subtopics

What is a Project?

What is a Project?

A project contains all the clips and sequences required for your work in Avid DS Nitris. In Avid Explorer, which is a file browser similar to Windows Explorer, a project is represented as a folder that can contain many subfolders to organize all the elements related to your project.



A project also links and tracks master clips and sequences with their associated media, making file management easier.

When you place clips on the timeline to build your sequence, they maintain pointers to the source media on the storage device. Any edits or effects that you apply to the clips are noted in the sequence when you save it. Clips, sequences, and presets (a customized set of properties saved for reuse on other projects) are all considered project files, and must be stored in the project folder. That way, you can easily archive, restore, and/or purge all files related to a project.

When you archive a project, a copy of the media is saved to tape or disk and the project files are saved in the DS Archives folder on your local workstation. With the archived project files and associated media, you can reconstruct everything in your project when necessary.

Creating a New Project

As soon as you start Avid DS Nitris, you are prompted to open or create a project and sequence. When you create a project, you define the format for each sequence that you create in that particular project.

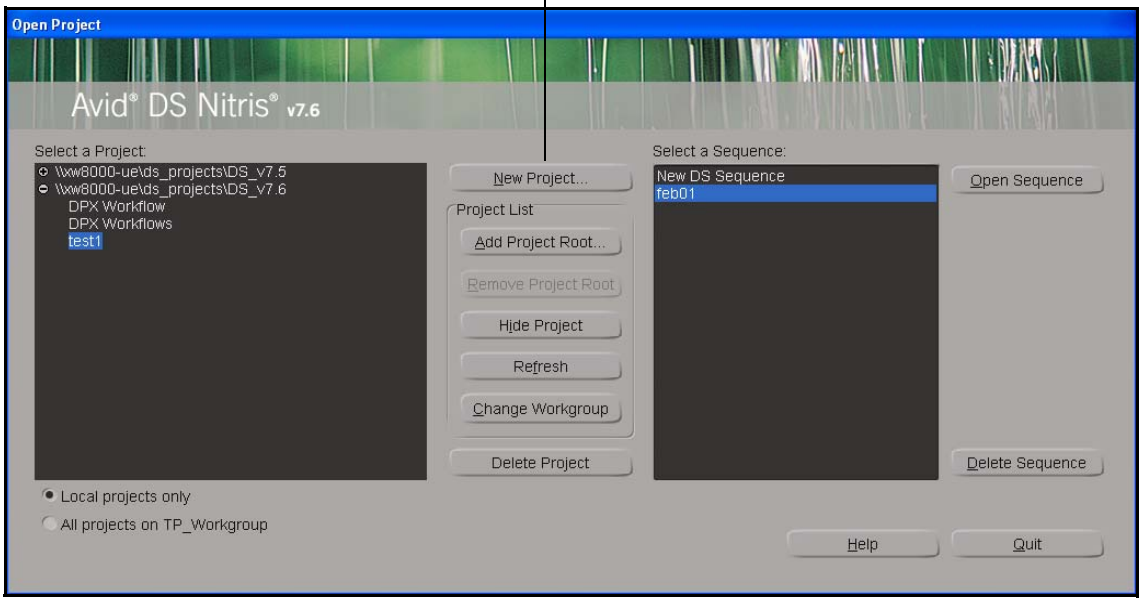
You can change the video and audio quality settings during the course of your work according to the amount of storage space available. For example, if you want to conserve disk space, do a rough cut on material captured at low resolution or in compressed form. When the sequence is ready for finishing, redigitize the material you need, so you can work at the quality at which you will be outputting.

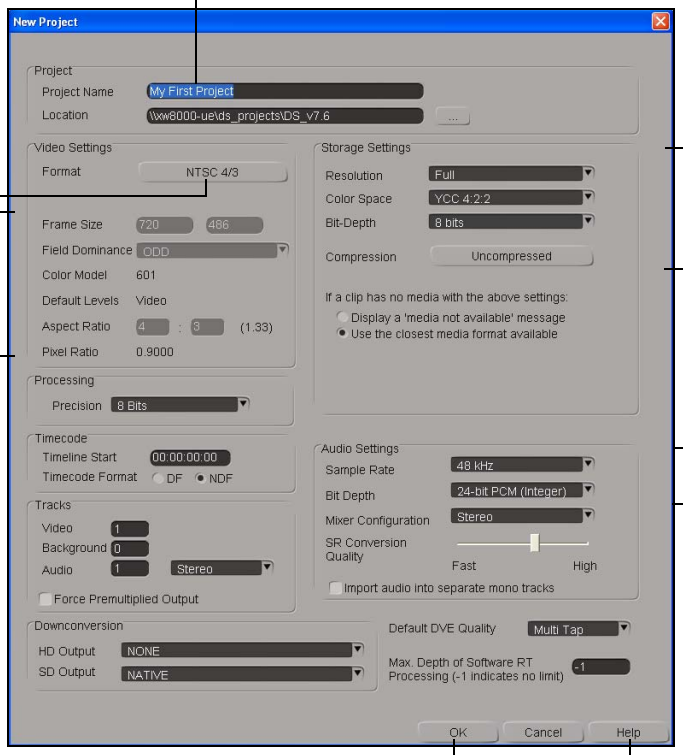
*To change the default location of your project, select **Add Project Root** and follow the onscreen prompts.*

***Media Composer comparison**: All sequences in a Media Composer project must use the same format. In Avid DS Nitris, a project can contain sequences with different formats.*

To create a project:

1. When you start Avid DS Nitris, the Open Project dialog box displays. Select the **Local Projects Only** option at the bottom-left.
2. Click the **New Project** button.





3 Give your project a name. We named ours *My First Project*.

4 Select the NTSC 4/3 video format.

The frame details are usually set automatically.

5 Set the resolution, bit depth, and compression for capturing the video media.

6 Set the sample rate and bit depth for the audio media.

8 Save project preferences.

A new sequence is opened and the Editing layout is displayed for you to start building a sequence.

7 Get more information on each setting in this dialog box.

9 Select **File > Save**. In the Save Sequence dialog box, name it **Sequence1** and click **OK**.

Chapter 3
Working on the Desktop

In this chapter, you will be familiarizing yourself with some of the basic elements in Avid DS Nitris, such as the layouts, toolbars, dialog boxes, and menus.

This chapter takes approximately 30 minutes to complete.

- Restoring the Default Layout
- Title Bar
- Layouts
- Using the Menus
- Undoing and Redoing Actions
- Status Bar
- Accessing the Views
- Using the Toolbars
- Dialog Boxes
- Entering Values
- Using Keyboard Shortcuts

Restoring the Default Layout

If your system was previously used by a different user, then you might not be viewing the default Editing layout. Before you start exploring the Avid DS Nitris desktop, you should restore the layout to its defaults.

To restore the layout:

1. Select **Layout > Restore Default Layout**.

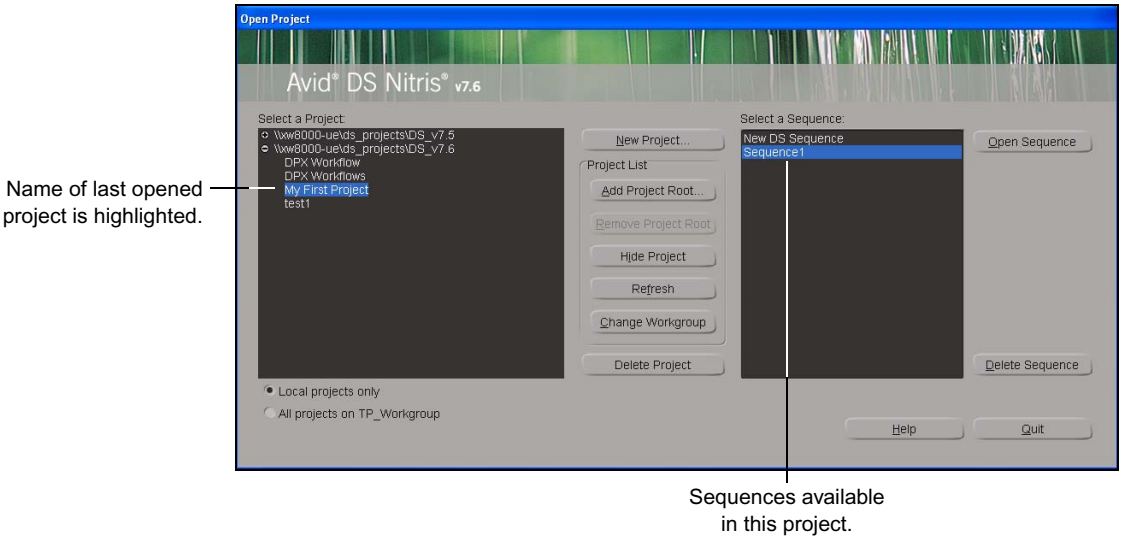
   A message window displays.

2. Click **OK**.

3. Close and restart Avid DS Nitris.

   In the Open Project dialog box, the name of your project is already highlighted.

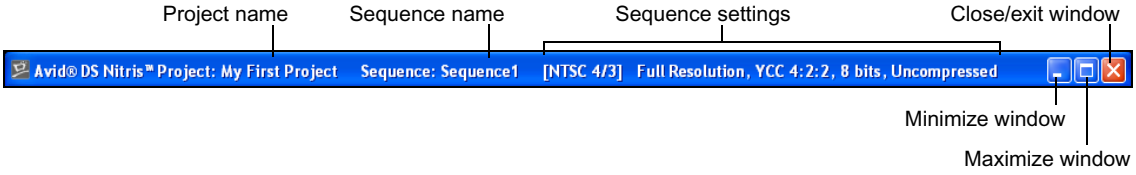
4. Select **Sequence1** and click the **Open Sequence** button on the right side of the dialog box.



The layout is restored to its default settings. For more information, see “Layouts” on page 136 to see how the Editing layout should display.

Title Bar

The title bar at the top of the Avid DS Nitris window displays the name of the project and sequence, sequence video format, and buttons for minimizing, maximizing and closing the application window.



Layouts

A layout contains tools for performing specialized tasks. Whether you're digitizing media, editing, compositing, painting, or titling, there's a corresponding layout for the job. The default layouts in Avid DS Nitris include: Editing, Effects, Graphics, Compositing, and 3D DVE.

***Tip**: You can maximize any part of the desktop by selecting the section, for example, the Timeline or the Viewer, and hitting F12. If you want to maximize the viewer from anywhere on the desktop, hold down the Ctrl key and press F12.*

***Media Composer comparison**: Layouts are similar to Toolsets and Workspaces in Media Composer. Layouts contain views; some views are similar to tools, but others are collections of tools with options for customization.*

Layouts are customizable; you can add, remove, reposition, and resize most of the elements in a layout. You can also create custom layouts from scratch. You can rearrange the views on the desktop, or add new views and toolbars.

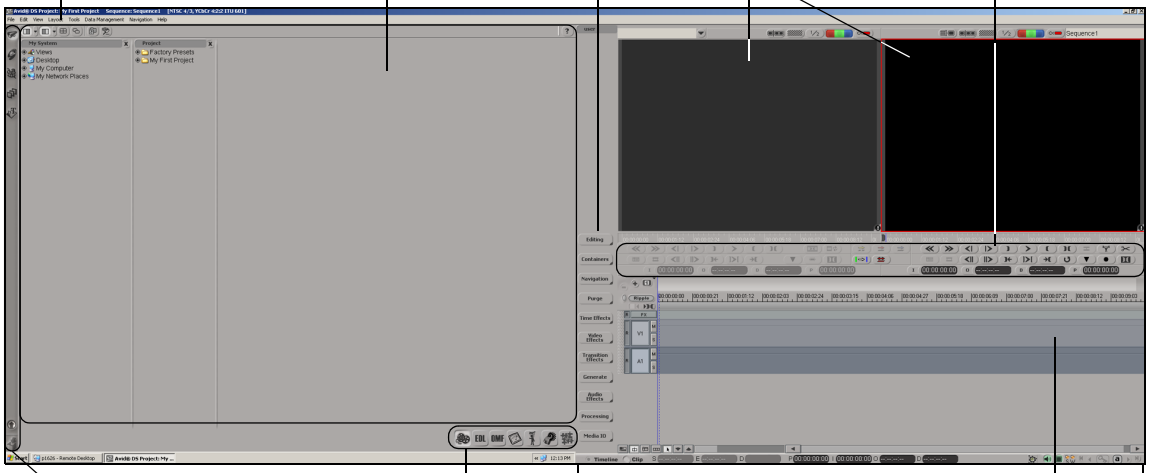
Toolbar contains commonly used tools grouped together to make certain tasks quicker and easier. All toolbars can be customized to accommodate your style of working.

Menu bar contains commands, such as opening and saving projects and sequences, editing your layouts, and getting help.

View is an area that contains a group of tools that are specific to the tasks you'll perform in a layout. The Editing layout below shows the Avid Explorer view, a file management tool that is useful when handling files and editing.

Viewers display the output of your sequence at the position indicator. During a graphics session, they serve as an area to create and arrange titles and graphics objects.

Transport controls let you preview media in the viewer or play sequences that have been edited on the timeline.



Taskbar is a navigational aid that lets you move between layouts that are optimized for particular tasks: editing, effects, graphics, compositing, or 3D DVE.

View switcher lets you access different toolsets or views.

Status bar displays the timecodes of selected objects on the timeline, and provides toolbar, warning, error, and active command information.

Timeline is where you place and edit clips to build a sequence. It graphically displays the position of video and audio clips, transitions, and effects over time.

Subtopics

Accessing the Default Layouts

Creating a New Layout

Copying Layouts

Saving Layouts

Editing Existing Layouts

Restoring Default Layouts

Importing a Layout

Related Topics

Avid Explorer

Using the Menus

Status Bar

The Timeline

Using the Toolbars

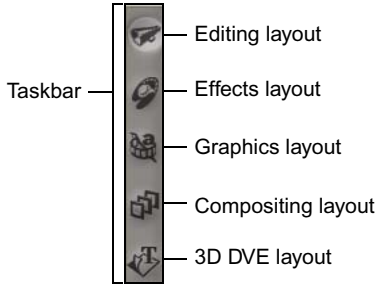
Transport Controls

Source and Record Viewers

Accessing the Default Layouts

Switching between the different layouts lets you access tools for particular tasks, such as editing, creating effects and graphics, compositing, and adding 3D DVE elements. When you click one of these buttons in the taskbar, its corresponding layout, views, and tools are displayed.

***Tip**: If you hover over active buttons on the desktop, such as the taskbar or transport controls, tooltips will appear to help you identify icons and provide keyboard shortcuts.*



Compositing button

Go to Top Timeline button

Editing button

To switch layouts:

1. In the taskbar, click the Compositing button.

   The Compositing layout displays. Notice that the timeline and view have changed. You are now in a nested clip called a *composite container clip*. You'll learn more about this later in "Compositing" on page 277.

Some of the layouts can't be accessed unless a clip is selected on the timeline.

2. Return to the main timeline by clicking the Go to Top Timeline button at the lower end of the taskbar.

   A clip called *Composite* is created on the B1 background track on the timeline. This clip was automatically created when you switched to the Compositing layout. Background tracks are usually used for compositing.

3. Switch back to the Editing layout when you're done.

Creating a New Layout

You can redesign the default layouts to best suit the tasks that you perform. You can create a completely new layout from scratch or base your layout on an existing one.

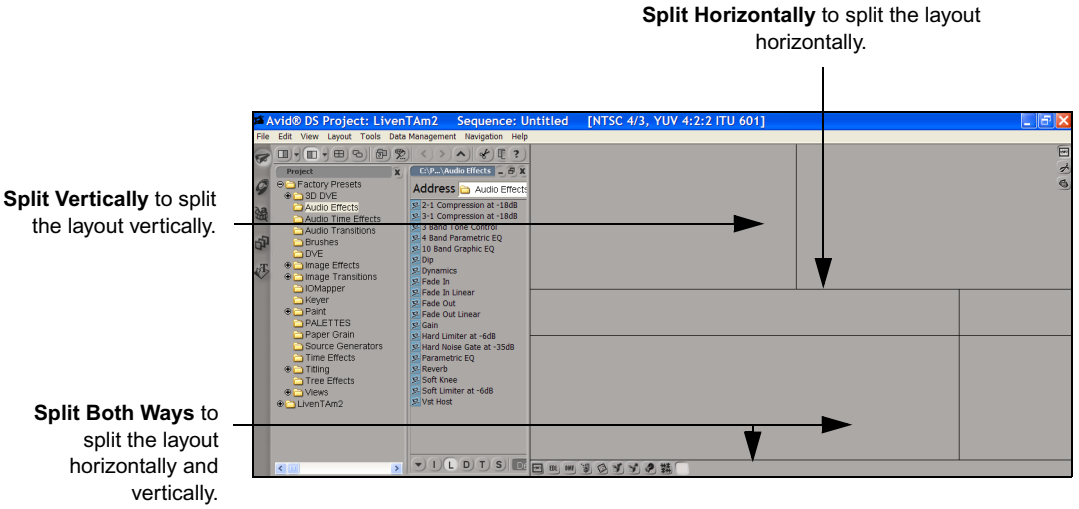
To create a new layout:

1. In the taskbar, switch to the layout on which you want to base your blank one.
2. Select **Layout > New Layout > Blank**.
3. In the New Layout Name dialog box, enter a name for your layout and click **OK**.

   A new layout button is added to the taskbar.
4. Switch to the new layout by selecting the new layout button in the taskbar.

   The new, blank layout is displayed.
5. Select **Layout > Edit Layout**.

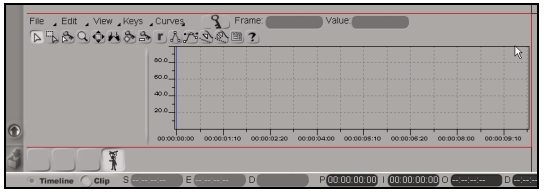
   To split the new layout into different sections, right-click and select one of the following:



6. Drag the split lines to the desired location and click to set the lines in place.
7. To add a view switcher, right-click the desired area of the new layout and select **Add View Switcher**.

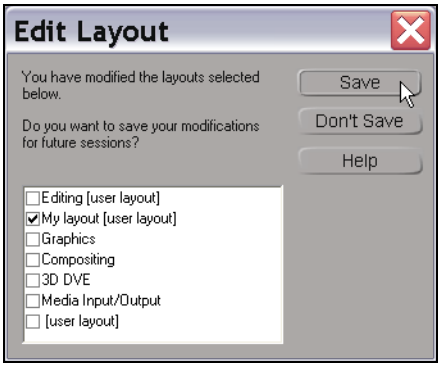
   An empty view switcher is added to your layout.
8. To add a view, toolbar, or property editor, right-click and select **Set View** and one of the options from the menu.

   In this example, the animation editor is added to the layout. Its button appears in the view switcher.



9. Continue adding elements to your layout. When you're done, turn off the Edit Layout mode by selecting **Layout > Edit Layout**.

   You are prompted to save your layout.



10. Click the **Save** button.

    The changes are stored in your user profile. Each time you start Avid DS Nitris, these layouts are available.

Copying Layouts

Instead of creating a new, blank layout, it is sometimes more convenient to copy an existing layout from either the taskbar or the Layout menu, and then modify it to your liking.

To copy a layout from the taskbar:

1. On the taskbar, right-click the button of the layout you want to copy and select **Copy Layout**.
2. In the New Layout Name dialog box, enter a name for your layout and click **OK**.

   A copy of the layout is displayed and a button is added to the taskbar.

To copy a layout from the Layout menu:

1. From the Layout menu, select one of the following:
   - **New Layout > Copy Layout** and select a layout to copy.
   - **New Layout > Copy Current Layout**.
2. In the New Layout Name dialog box, enter a name for the layout.

   A copy of the layout you chose is displayed on the desktop. A button for the layout is added to the taskbar.

Saving Layouts

When you save the changes you made to the layouts, they are stored in your user profile. Each time you start Avid DS Nitris, these layouts become available.

To save a layout:

1. From the Layout menu, do one of the following:
   - Select **Save Layouts.**
     or
   - Deselect **Edit Layout**.

   A dialog box indicating the modified layouts is displayed.
2. To save changes to the layouts for future sessions, click **Save**.

Editing Existing Layouts

You can modify existing layouts by adding new tools or views, or resizing areas.

To edit a layout:

1. Use the taskbar to switch to the layout that you want to modify.
2. Select **Layout > Edit Layout**.

   You can now edit your layout.
3. Deselect **Layout > Edit Layout** again to turn off the Edit Layout mode.

Restoring Default Layouts

If necessary, you can easily remove any modifications that you made to a specific layout by restoring its default settings. You can only restore the layout that you are currently in. So if you're in the Editing layout and restore it, only the Editing layout will be reverted to the default. You could, for example, revert the 3DDVE layout while keeping any customization for the Editing and Graphics layouts.

To restore a layout:

1. Switch to the layout that you want to restore.
2. Select **Layout > Restore Default Layout.**

   You are prompted to restart Avid DS Nitris.
3. Exit and restart Avid DS Nitris.

   The layout is restored to its default settings.

Importing a Layout

You can easily load an existing layout from another user or version of Avid DS Nitris. To use a personalized layout, you first have to export it before applying the following procedure.

To import a layout:

1. Select **Layout > Import/Export Preferences**.
2. In the Preference Management dialog box, select the **Import Preferences** tab.
3. Do one of the following:
   - In the File Name text box, enter the name and location of the layout (preference set) that you want to import and press Enter.
   - Click **Browse**. In the Import Preferences file chooser, select a .AvidPrefs file to import and click **OK**.
4. Select the layout(s) that you want to import and click the **Import** button.

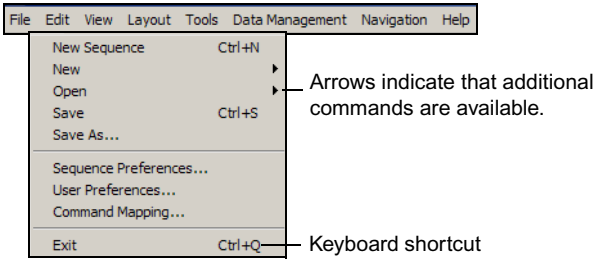
   You will be prompted to restart Avid DS Nitris when the import is complete. If you created your own layout, additional buttons appear in the taskbar.

Using the Menus

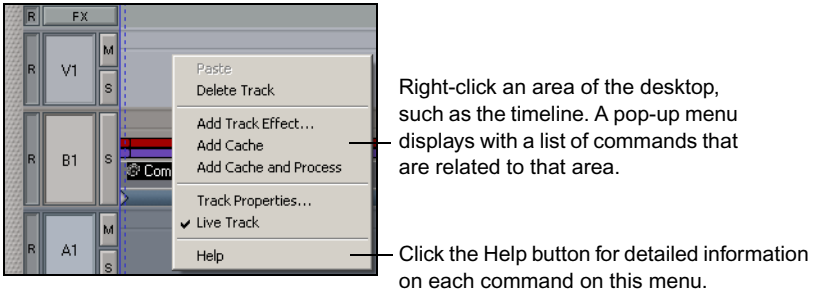
Menus appear in different places to make it easy for you to access commands.

- The menu bar is displayed across the top of the desktop directly below the title bar. The commands in the menu bar include general operations related to opening and saving projects, as well as setting project preferences, customizing layouts, and accessing Help.

When you open a menu, you will notice keyboard shortcuts to the right of some commands. Instead of opening a menu, you can use the keyboard shortcut. For example, to save a sequence, press Ctrl+S on the keyboard.



- Pop-up menus are displayed by right-clicking individual elements or specific areas of the interface, such as the timeline, viewers, or tracks. These menus provide commands that are specific to the particular interface element you've chosen.



Undoing and Redoing Actions

To correct errors while you're working, you can undo and redo most operations. For example, you can recover the properties of an object that you recently edited by undoing the commands that you just applied to the object.

You can undo commands as far back as the system memory can recall. This is limited by the number of undo levels that you have specified in your user preferences, and by the complexity of the operation you want to undo. An operation, such as purging media from a project, cannot be undone. For more information, see "User Preferences Dialog Box".

To undo a command or operation:

- Select **Edit > Undo** or press Ctrl+Z.

  The command or operation is undone. You can keep using the Undo command until you recover the desired properties.

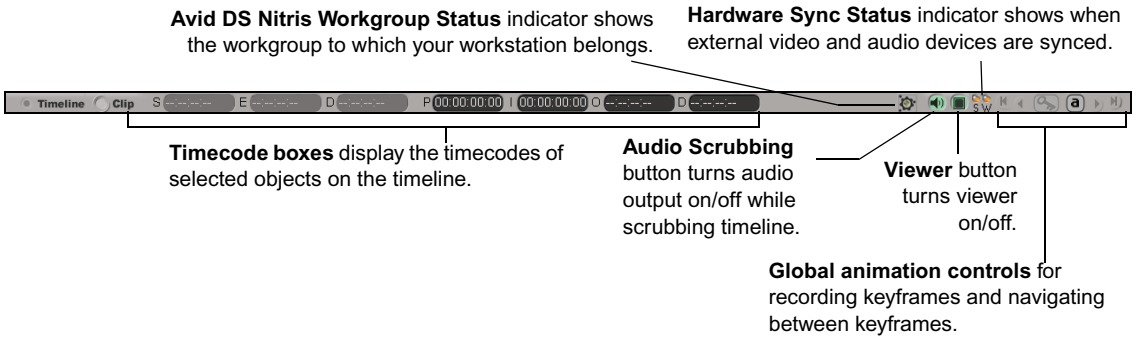
To redo a command or operation:

- Select **Edit > Redo** or press Ctrl+Y.

  The command or operation is redone.

Status Bar

The status bar at the bottom-right of the desktop displays the timecodes of selected objects on the timeline and provides status, warning, error, toolbar, and active command information, as well as the global animation controls.



Related Topics

Animation Controls (Global in Status Bar)

Timecode Boxes (Timeline Status Bar)

Accessing the Views

Views contain groups of tools for creating, managing, and editing media. Clicking a button on the view switcher at the bottom-center of the desktop lets you switch to the different toolsets within a layout. In the Editing layout, Avid Explorer is the main view displayed on the left side of the desktop.

View switcher

Avid Explorer button

To switch views:

1. Click any of the buttons in the view switcher to see each view.
2. Switch back to Avid Explorer view when you're done.

Subtopics

Customizing the View Switcher

Splitting Views

Combo Views

Customizing the View Switcher

You can customize the view switcher by adding and removing views, as well as repositioning and resizing the buttons. You can also add a new customized view switcher to a layout.

To add a view to the view switcher:

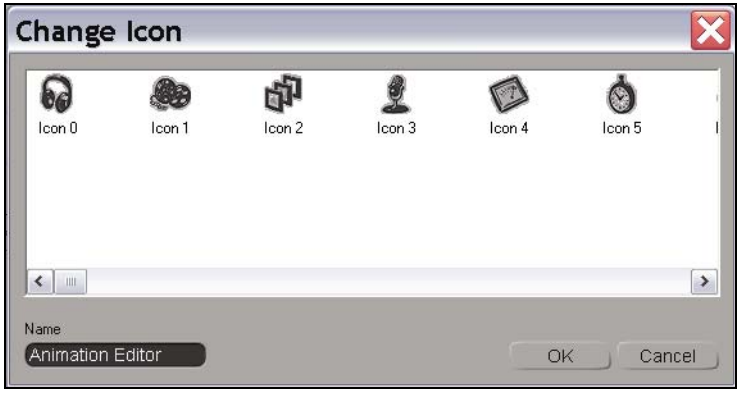
1. select **Layout > Edit Layout.**
2. Right-click the view switcher and select **Add View**.

   An empty button is added to the view switcher.

3. Right-click the area on the desktop where the new view will be located and select **Set View**. From the list, select a view, toolbar, or property editor for your new view.

- To change the button in the view switcher, right-click a button in the view switcher and select **Icon**.

4. In the Change Icon dialog box, select an icon.
5. In the Name text box, enter a name for your icon and click **OK**.



To customize the size and type of buttons in the view switcher:

- Right-click the view switcher and select **Text Buttons**, **Small Buttons**, or **Big Buttons**.

Text buttons

Small buttons

Big buttons

To reposition the view switcher on the desktop:

- Right-click the view switcher and select **Position:Top, Position:Right, Position:Bottom**, or **Position:Left**.

  The view switcher is repositioned at the top, right, bottom, or left of the view.

To align the buttons:

1. Right-click the view switcher and select **Align:Top**, **Align:Center**, or **Align:Bottom**.
2. Select **Layout > Edit Layout** to exit the Edit Layout mode.
3. Save your new layout if desired.

To remove a view button from the view switcher:

1. Select **Layout > Edit Layout**.

   You are now in Edit Layout mode.

2. On the view switcher, right-click a button and select **Remove View**.

To hide the view switcher:

1. Select **Layout > Edit Layout**.

   You are now in Edit Layout mode.

2. Right-click the view switcher and select **Hide**.
3. Select **Layout > Edit Layout** again to exit the Edit Layout mode.

   The view switcher is hidden.

To add a view switcher to a view:

1. Select **Layout > Edit Layout.**
2. Right-click the area on the desktop where the new view switcher will be located and select **Add View Switcher**.

   An empty view is added to the layout.

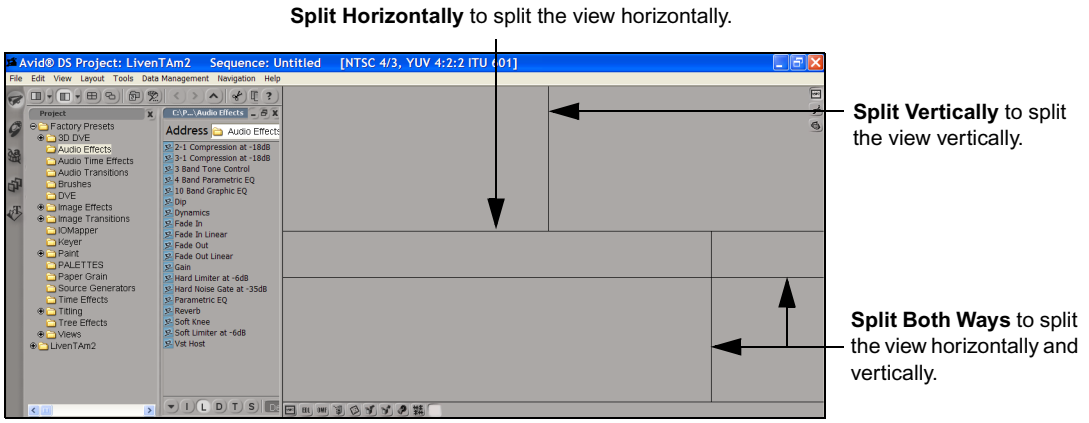
3. Resize the view switcher by dragging the splitter bar to the desired position and click. To adjust the position of the splitter bar, drag it to a new position.
4. Select **Layout > Edit Layout** to exit the Edit Layout mode.
5. Save your new layout if desired.

Splitting Views

You can further customize your desktop by splitting a view. You can split views horizontally, vertically, or in both directions.

To split a view:

1. Select Layout > Edit Layout.
2. In the area that you want to split (boundaries are highlighted in red), right-click and select one of the following:
   - Split Horizontally
   - Split Vertically
   - Split Both Ways



3. Select **Layout > Edit Layout** to exit the Edit Layout mode.

You can display a view that's not part of the current layout by opening it in a floating window. You can move floating views anywhere on the screen. If you switch layouts before closing a floating view, the view is hidden until you return to the layout in which you opened it.

To open a view in a floating window:

- Select **View > Multi-Instance Views > view**.

  If the view is not part of the current layout, it is displayed in a floating window. When you select a view that is part of the current layout, the view switcher updates and displays the tools of the view.

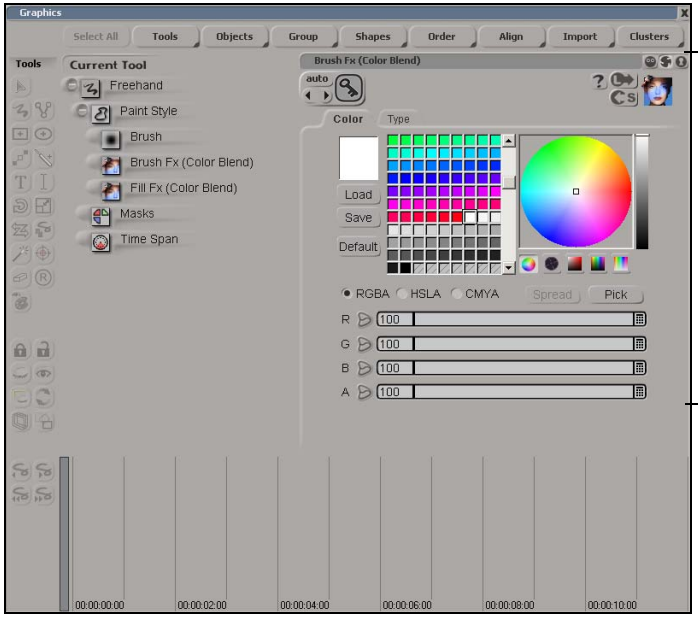
Combo Views

A combo view contains a group of tools for a particular task, such as the Graphics combo view. Unlike the fixed layouts, you can move the combo views around on the desktop.

To open a combo view:

1. Select **View > Default Combo Views > Graphics** from the menu bar at the top of the application.

   The Graphics combo view displays.



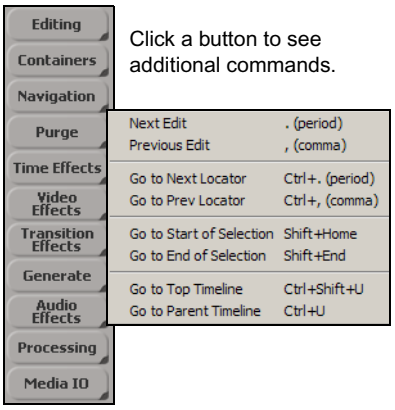
This may be different than what you see in your version of Avid DS Nitris. It depends on what was last displayed.

2. Some of the tools in the Graphics combo view are dimmed for the moment. For now, move the combo view around on the desktop by dragging it by the title bar.
3. Close the combo view by clicking the close (X) button at the top-right corner. Later, you'll learn more about the tools in this view—see "Adding Graphics and 2D Titles" on page 259.

Using the Toolbars

The toolbars contain commonly used tools and effects. The buttons on the toolbar let you activate tools or commands, and apply effects. You'll see one or more different types of toolbars in the layouts. The most common type of toolbar looks like this:

NLE Tools toolbar



Other types of toolbars include the buttons above, beside, and below the viewers.

Subtopics

Closing Toolbars Automatically

Customizing Toolbars

Closing Toolbars Automatically

Automatic closing of a toolbar lets you execute commands from any floating toolbar and then automatically closes the toolbar. This streamlines your desktop.

You can only auto-close floating toolbars.

To set a toolbar to close automatically:

- Right-click a floating toolbar and select **Auto-Close Toolbar**.

To execute a command on a toolbar:

1. Select a clip, track, region, or node in an Effects Tree, and do one of the following:
   - Drag a preset from the floating toolbar to the timeline or an Effects Tree.
   - Click a preset button on the floating toolbar.

   The command is executed and the toolbar is automatically closed.

To reopen a toolbar that closes automatically:

- Select **View > Default Toolbar** or **User Toolbars**, or use its keyboard shortcut.

***Tip**: For quick access to a floating toolbar, assign a keyboard shortcut to it in the Command Mapping dialog box.*

Related Topics

Command Mapping Dialog Box

Customizing Toolbars

Customizing the toolbars lets you personalize a toolbar with your favorite commands. You can also create a new toolbar and add commands, presets, and scripts to it.

To show/hide the title bar:

- Right-click a toolbar button and select or deselect **Display Title bar**.

To customize the look of a toolbar:

- To change the look of a toolbar, right-click a toolbar button, and select **Button Theme >** *theme*. There are eight different themes.

To manipulate a toolbar:

- To copy a toolbar, right-click a toolbar and select **Copy Toolbar**.
- To delete a toolbar, right-click a toolbar and select **Delete Toolbar**.

To add presets to a toolbar:

Presets let you preserve definitions for effects, transitions, graphics tools, etc. for later use. The default presets shipped with Avid DS are stored in the \DSPresets folder. Avid DS also creates a \DSPresets folder within each project folder, which lets you store presets specific to a particular project.

1. Drag or select a preset(s) from one of the following areas:
   - Avid Explorer or Windows Explorer.
   - A preset button on a toolbar.
   - The preset thumbnail in a property page.
2. Drop the preset(s) on one of the following:
   - An empty area of a toolbar.

     Buttons are created for each preset added to the toolbar.
   - A menu button on a toolbar.

     Each preset is added to the menu list.

***Tip**: A name is automatically given to the presets you add to a toolbar. To give the preset a name, press Shift while dropping the preset on a toolbar. In the Save Preset dialog box, type a name and description.*

To display hidden characters in a toolbar:

- Right-click a button on a toolbar and select **Show Hidden Items**.

  The hidden characters in a toolbar are displayed in red.

Subtopics

Creating New Toolbars

Customizing Toolbar Buttons

Related Topics

Saving Effects

Creating New Toolbars

To create a new toolbar:

1. To create a new toolbar, select **Layout > New Toolbar**.
2. Type in a name for the toolbar.
3. To add commands to your new toolbar, right-click the toolbar and select **Customize Toolbar**.

a. To add commands to the toolbar, select a category from the Command Categories list.

b. From the Available Commands list, select a command and drag it to your toolbar.
or

a. To add a menu button to the toolbar, select **Menu Button** from the Available Commands list and drag it to your toolbar. You can add multiple commands to the menu button.
or

a. To add a preset to toolbar, open a property editor whose values you want to save as a preset. Drag the thumbnail from the property editor to a toolbar.

b. In the Save Preset As dialog box, enter a name for the preset and add any comments.
or

a. To add a script to a toolbar, select **View > Single-Instance Views > Script Editor**. Drag a script from the Script Editor to a toolbar.

Customizing Toolbar Buttons

You can easily customize the size and look of toolbar buttons. To save space on the desktop, you can display them as long, thin buttons or display them larger for better visibility. You can also display the buttons in icon or text form, as well as choose from eight different "themes".

To customize toolbar buttons:

- To change the buttons from text to icons or vice versa, right-click a toolbar and select **Button Mode >** *mode*.
- To change the theme of the buttons, right-click a toolbar and select **Button Theme >** *theme*.
- To change the size of the buttons, right-click a toolbar and select **Button Size >** *size*.
- To move a button from one toolbar to another, press Shift and drag the button.
- To copy a button, press Ctrl and drag the button to another toolbar.
- To delete a button from a toolbar, right-click a button and select **Remove Button**.

To add a button to a toolbar:

- Drag a button from another toolbar, the transport controls, or the viewer area to the desired toolbar and do one of the following:
  - Place the button on an empty area of a toolbar.
  - Place the button on a preset list button, which is indicated by a small triangle at the bottom-right of the button.

The button is highlighted to indicate that you can add it to the list.

To add a button to a toolbar using the Customize Toolbars window:

1. Right-click an empty area of a toolbar and select **Customize Toolbar**s.
2. From the Command Categories, make a selection.
3. From the Available Commands list, select a command and drag it to the toolbar.

To rearrange the items on a menu button:

1. Right-click a menu button (it has a small triangle at the bottom-right) and select **Customize Menu Button**.
2. Select an item on the left and use the **Move Up**, **Move Down**, and **Remove Buttons**.

To rearrange toolbar buttons:

1. Right-click the toolbar and select **Show Hidden Items** to display all the hidden marks and line separators on the toolbar. This makes it easier to rearrange buttons.
2. Right-click and select **Customize Toolbars**.

   The Customize Toolbars windows is displayed.
3. From the Command Categories, select **Toolbar**.
4. From the Available Commands, drag any of the following to the toolbar, placing it where desired:

Option	Description
Menu Button	Creates a button from which you can access a pop-up menu
Menu Separator	Adds a line to the bottom of a pop-up menu. Drag it to a menu button.
Preset List Button	Creates a button from which you can access all the default effects
Toolbar Empty Line	Inserts a blank, horizontal space between buttons
Toolbar Group Label	Adds a label for a group of buttons
Toolbar Horizontal Line Separator	Inserts a horizontal line between buttons
Toolbar Horizontal Space Separator	Inserts an empty, horizontal space between buttons
Toolbar Line Break	Inserts a line break in a toolbar

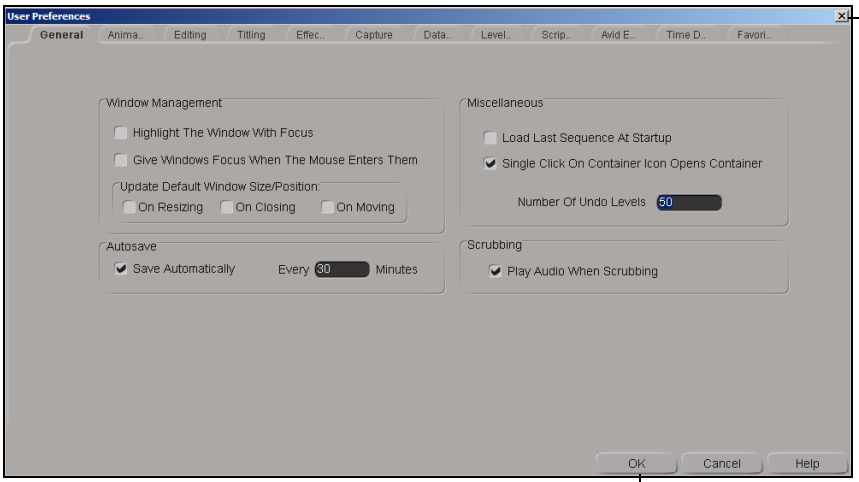
5. When you’re done, right-click the toolbar and deselect **Show Hidden Items**.

Dialog Boxes

A dialog box lets you set options and parameters. When you select a command in Avid DS Nitris, it often opens a dialog box, requiring you to provide input before the command can be executed. You cannot proceed with further operations while a dialog box is open.

To open a dialog box:

1. Select **File > User Preferences**.



To exit without applying changes, select the Cancel button or the close (X) button, or press the Esc or Alt+F4 keys.

The changes you made are cancelled and the dialog box is closed.

To apply any changes you made in this dialog box, click **OK**.

2. Keep the dialog box open for the next section on entering values.

Entering Values

The following example serves to illustrate one of several ways to enter numerical values in text boxes. You can choose the method that is the most convenient for you. There are also keyboard shortcuts available that let you quickly enter values and timecodes.

To enter values in a text box:

(The following example shows how to set the number of undo levels and the auto-save frequency.)

1. In the User Preferences dialog box (General property page), click in the **Number of Undo Levels** text box.

The contents of the text box is highlighted in blue.

2. Type in a new value for the number of times you can undo a task in Avid DS Nitris. The default is 50 and the maximum is 1000.
3. In the Autosave box, enter a new length of time to automatically save your sequence at regular intervals.
4. Click the **Help** button for detailed information on each parameter. You'll find Help buttons or Help icons on all dialog boxes and property editors.
5. Click **OK** to apply the values and close the User Preferences dialog box.

Using Keyboard Shortcuts

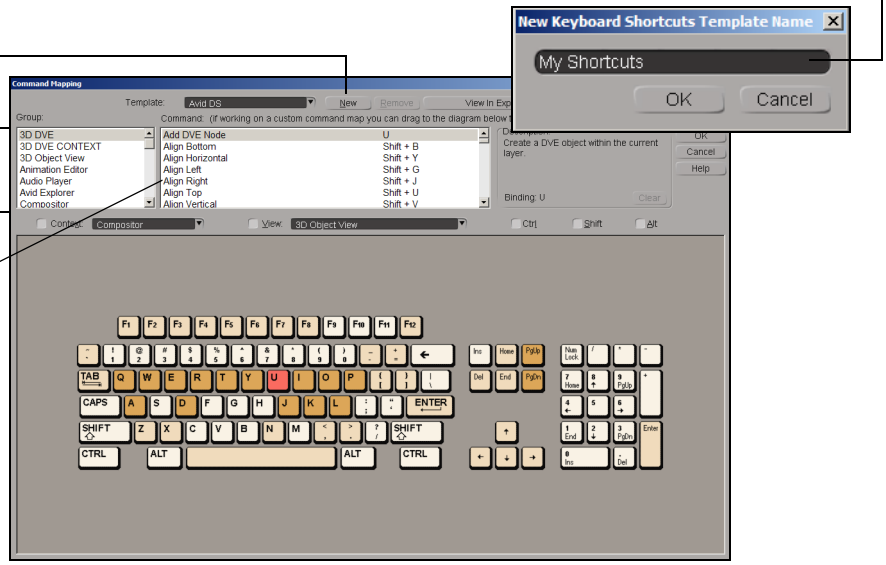
Keyboard shortcuts let you quickly execute commands and access tools and views using a key or combination of keys on your keyboard. In Avid DS Nitris, you can define your own keyboard shortcuts.

To customize keyboard shortcuts:

1. Select **File > Command Mapping**.
2. In the Command Mapping dialog box, click the **New** button.
3. Enter a name for the new template.

   A copy of the existing template is created and saved under the new name. You can customize it to optimize your work.
4. Select an item, depending on the shortcut you want to customize.
5. Select the command whose keyboard shortcut you want to change. Drag the command to a key on the onscreen keyboard. The key that you highlight will be your new shortcut.

   Tip: Press the Shift, Ctrl, or Alt keys to use them in a shortcut.
6. Click the Help button for detailed information on keyboard shortcuts.
7. Click **OK** when you're done.



Chapter 4
Capturing Material

Capturing material is the process of creating media files from video or audio source material. This chapter describes how to capture material from different sources, such as videotape and file.

This chapter takes approximately 60 minutes to complete.

- Capturing Source Material
- Configuring the External Device
- Capturing from Tape
- Capturing from File

Capturing Source Material

Source material is the original, unaltered material from videotapes or digital recordings. This source material may come from a variety of sources, such as video, audio, animated sequences, graphics, and still images. When you capture material with Avid DS Nitris, you digitally transfer the source material to a format and storage disk that Avid DS Nitris can work with.

During capture, Avid DS Nitris creates media files (in the form of master clips) based on parameters you set, such as in-points, out-points, and compression. Master clips contain information about the location of the media on your storage disk, the source data's tape name, and the original in and out timecodes. With this information, you can recapture the material at any time. Master clips also include information about the video format, resolution, compression, audio format, and so on.

Subtopics

Avid Explorer

Organizing your Project Files

Changing the View Mode

Identifying File Types in a Folder

Avid Explorer

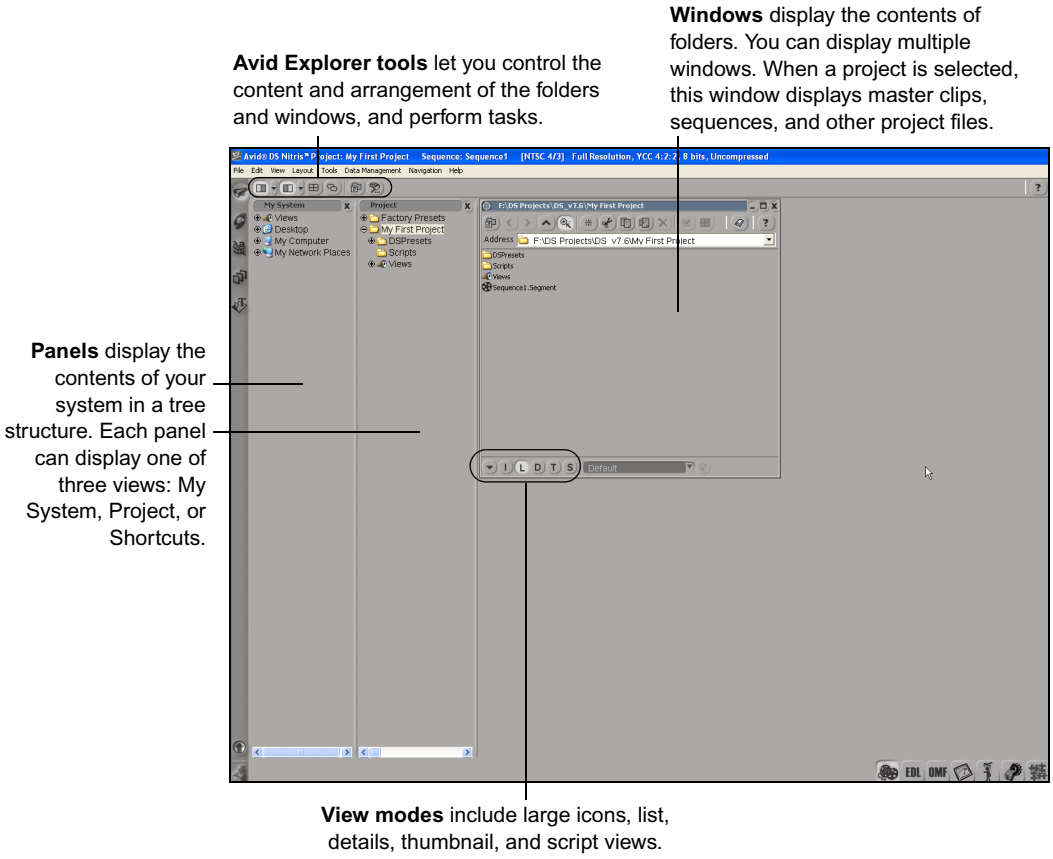
Avid Explorer displays the hierarchical structure of files, folders, and drives on your workstation. When you select a project folder in Avid Explorer, it displays the related project files (clips, sequences, effects) in a window. This window is similar to the bin view in other Avid products like Media Composer and Film Composer.

From Avid Explorer, you can capture clips, as well as organize sequences, clips and effects within your project.

Avid Explorer (Main) button

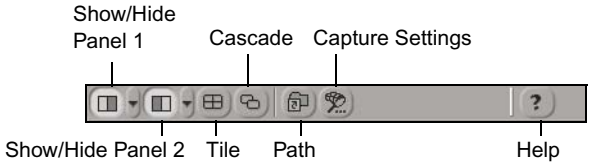
To access a bin:

1. Use the view switcher to switch to Avid Explorer if you are in a different view.
2. In the Project panel, double-click your project folder named My First Project. The contents of the folder are displayed on the right.



Folders usually contain source clips and other objects for use in your sequence. At the moment, the folders are empty because nothing has been captured. Avid Explorer tools let you navigate through and manage the contents of folders.

The tools at the top of Avid Explorer let you navigate to different folders and change the display of information in a window.



Subtopics

Organizing your Project Files

Changing the View Mode

Identifying File Types in a Folder

Related Topics

Avid Explorer Tools

Bin Tools (Top)

Organizing your Project Files

Before capturing any material, you will create additional folders in your project folder to hold master clips. You may want to create separate folders for your video clips, audio clips, still images, and even one for custom presets. By organizing your project using a system of folders, you can locate files quickly and easily.

To create a folder:

1. Make sure your project folder is selected in Avid Explorer.
2. Right-click an empty area of the window on the right and select **New** > **Folder**.

   A new folder is created within the project folder.
3. Type in a new name and press Enter. We created a folder called **Master Clips** for storing the master clips.
4. Continue adding as many folders as you need. You can create additional folders inside the new folders.

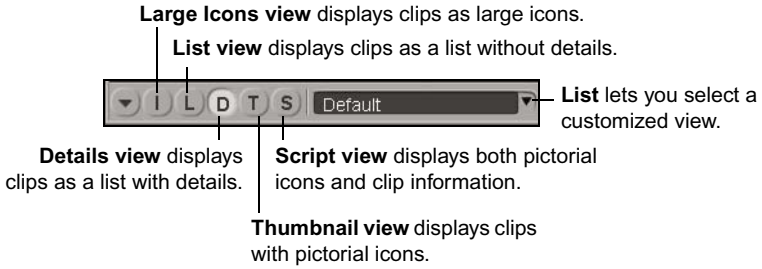
Although it's not necessary right now, here's how you can delete any extra folders that are not needed.

To delete a folder:

- Right-click a folder and select **Delete**.

Changing the View Mode

In a window, there are several views to help you locate clips for a sequence. The tools at the bottom of the window let you change the way the contents of the window are displayed. Go ahead and click any of the icons to see the various views.



Related Topics

Working with Bins

Identifying File Types in a Folder

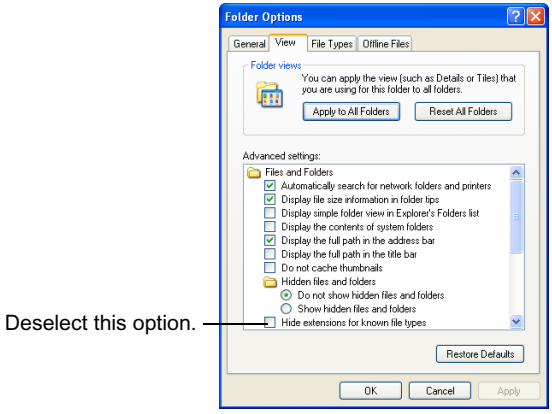
Avid DS Nitris media files have their own icons, which appear on or beside clips. When an icon is highlighted in red, it means that Avid DS Nitris could not find any media associated with a clip. This clip must be recaptured before you can work with it.

Icon	File type	Icon	File type
	Audio clip		Background or composite container clip
	Video clip		Sequence
	Combined audio and video clip		Still image
	Audio container clip		Linked still image

You may find it useful to see the extensions of file names.

To see file name extensions on your system:

1. Open Windows Explorer.
2. Select **Tools > Folder Options**.
3. Select the **View** tab.



4. Deselect the **Hide extensions for known file types option** and click **OK**.

Configuring the External Device

You'll probably capture material from videotape or audiotape most of time. First, you'll need to configure the device from which you will be capturing. To specify the settings for an external device, such as a videotape recorder (VTR) or deck, you'll be using the Deck Configuration view.

***Media Composer comparison**: The Deck Configuration view combines the Deck Configuration and Deck Preference settings.*

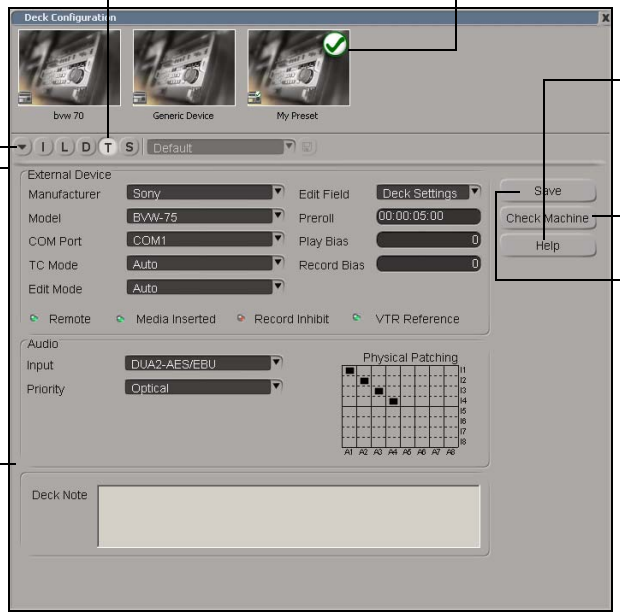
Avid DS Nitris includes templates for many different types of devices. You can use the settings in the templates, or adjust them to suit your own requirements.

You can also save the settings for your device as a *preset*, so that you don't have to reconfigure the device each time you use it for capture or output. A preset is a customized set of properties that you save for reuse later on or for other projects.

For the following procedure, you will need access to videotape material and a deck.

To configure your tape deck:

1. Open the Deck Configuration view by selecting **View > Multi-Instance Views > Deck Configuration.**
2. Click the Fast Menu button and select **Add New Deck Preset**. Give the new preset a name.
3. Select the **Thumbnails** view.
4. Double-click the preset you created. A green checkmark indicates that it's active.
5. Set the options for your device.
6. Click the **Help** button for details on each parameter.
7. Click the **Check Machine** button.
8. Click the **Save** button to save your deck preset.
9. Close the Deck Configuration view.



Related Topics

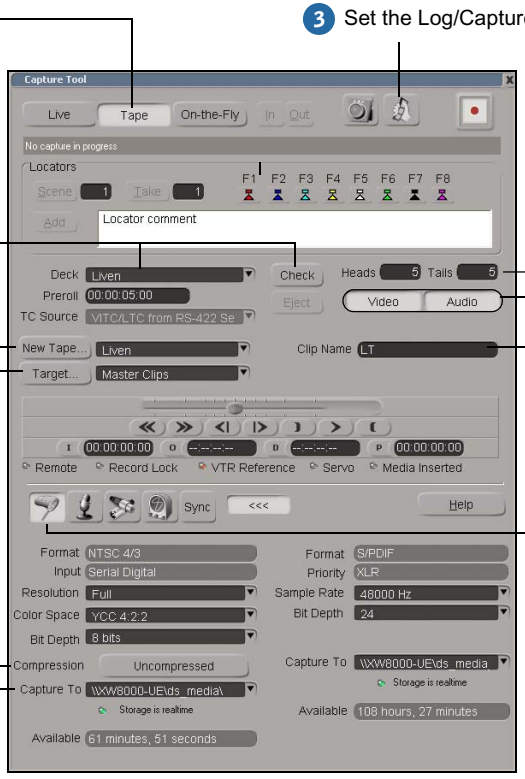
Configuring the External Device

Capturing from Tape

Although there are several ways to capture from tape, you'll be using the Capture Tool to log and capture clips, so that you can later recapture them using frame-accurate timecode.

To log and capture clips:

1. Open the Capture view by selecting **View > Single-Instance Views > Capture Tool.**
2. Click the **Tape** button.
3. Set the Log/Capture button to **Capture**.



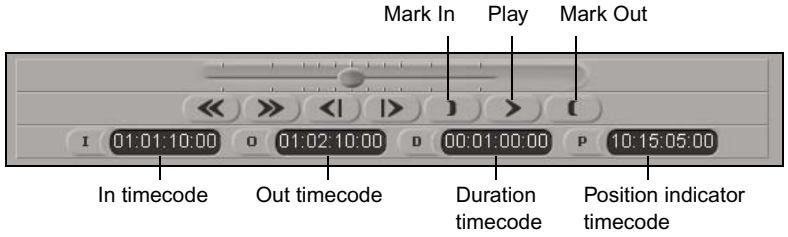
4. Select your deck preset and click the **Check** button.
5. Select a tape or name a new one.
6. Click the **Target** button and select a folder to hold the captured clips. If you created a folder for master clips, set this as the target folder.
7. Enter number of extra frames to record before the in-point and after the out-point.
8. Select the channels you want to capture.
9. Enter a base clip name to prefix all captured clips.
10. Click the Capture Settings button.

    The capture settings are displayed. Set the relevant options for your system. Do the same for the other four settings:

Input Monitor | Audio Input | Video Input | Sync Source

11. Set a compression level.
12. Specify a storage location.

13 On the transport controls in the Capture Tool, click the Play button to play the source material.



14 Click the Mark In button at the point at which you want to start the capture.

The timecode of the in-point you selected is displayed in the In timecode box.

15 Use the transport controls in the Capture Tool to play or shuttle the tape to advance to the point at which you want to end the capture and click the Mark Out button.

Tip: If you already know the in and out timecodes, you can type them in the In or Out timecode boxes. You can also enter a value for the duration and Avid DS Nitris will calculate the out-point, which is displayed in the Out timecode box. The Duration timecode box displays the length of material to be captured.

16 Click the Start Capture button in the upper-right corner of the Capture Tool.

The clip appears in the folder you specified, according to the in and out times you set. Continue to capture clips.

17 In the Project panel of Avid Explorer, double-click your project name. A bin opens and displays its contents.

18 Double-click a clip in the bin. Click the Play button under the Source viewer (left side).

The clip plays in the viewer, but is not loaded on the timeline.

19 Close the Capture Tool.

Related Topics

Logging and Capturing Material

Capture Tool

Capturing from File

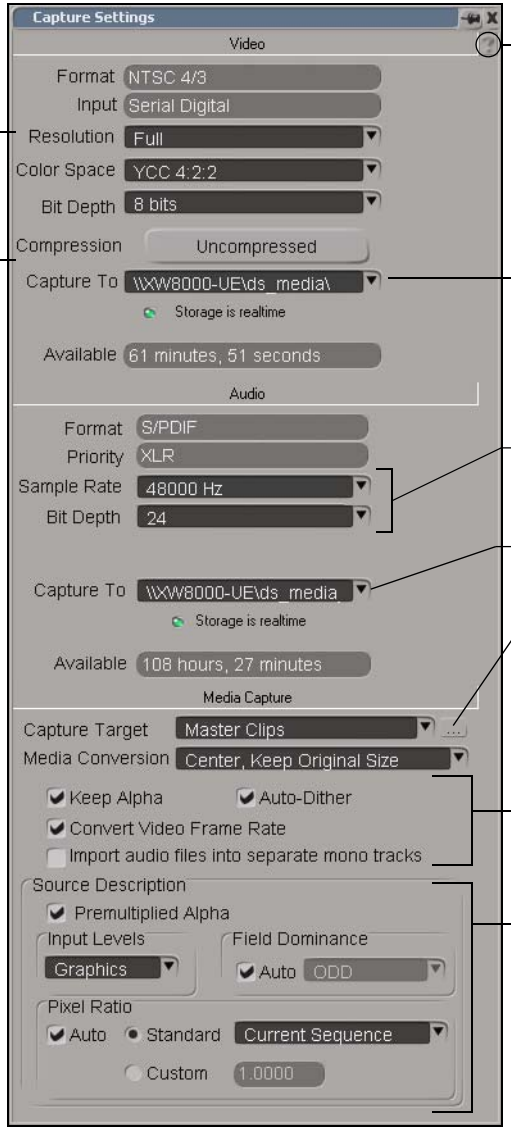
Avid DS Nitris lets you capture various file formats. Besides video, you can capture still and animated graphics files, and audio files. To capture from file, you will be using Avid Explorer in Avid DS Nitris.

Logging and capturing from file is like capturing material from tape. That is, you can log the material without capturing, or log and capture at the same time. Logging creates information about the source material and in/out timecodes in a clip, so that you can perform a batch capture later on. Before you capture the files, you'll need to specify the capture settings.

To log and capture from file:

1. At the top of Avid Explorer, click the Capture Settings button.

Media Composer comparison: The Capture Settings view is similar to Import Options. There is no Import or Batch Import dialog box.



2. Set the video quality at which you want to capture material. You can choose a lower resolution, or use compression to save space on your storage device while you do a rough cut.

3. Click the Help button for more information on each parameter.

4. Select the storage folder for the media.

5. Keep the default setting for the audio quality.

6. Select the storage folder for the audio media.

7. Click the browse button (it has three dots) to select a folder to hold the master clips. We selected the *Master Clips* folder we created earlier.

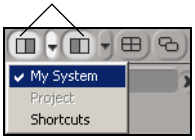
8. Keep the default conversion settings.

9. Keep the default settings for the source files.

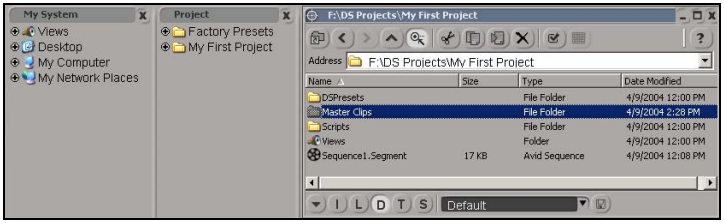
10. Close the Capture Settings view.

After choosing your setup, go to Avid Explorer to capture the files.

11 In Avid Explorer, both Show/Hide Panel buttons should be highlighted. If they're not, click both to make sure the two panels are displayed.



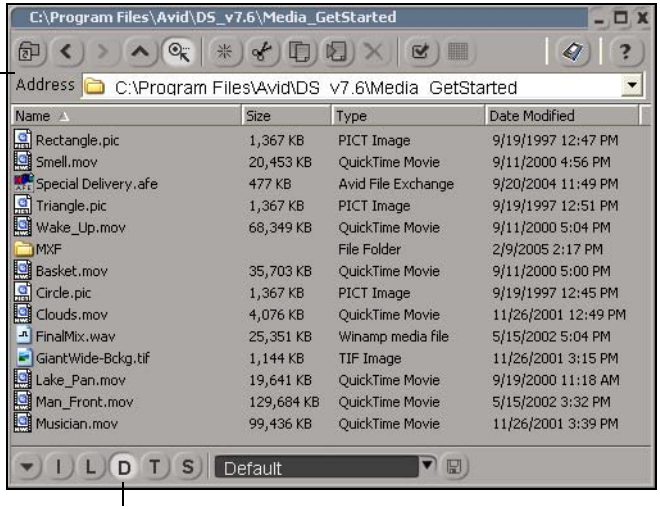
12 Click the arrow next to the first Show/Hide Panel button and select **My System**.
The panel updates to display the folders on your system.



13 Click the arrow next to the second Show/Hide Panel button and set the second panel to **Project**.
The Project panel updates to display the folders for the factory presets and the project folder.

14 Select your project folder to open the project bin

15 Type the following in the Address line: **C:\Program Files\Avid\DS_v*X*\Media_GetStarted**.
Make sure to type in the exact path.



The contents of the folder is displayed.

16 Click the Details button to see the details of the files.

17 Press Ctrl and select these file types: PICT images (.pic files), QuickTime movies (.mov files), .avi files and TIFF images (.tif files). Do not select the MXF folder or the Avid File Exchange (.afe) file.

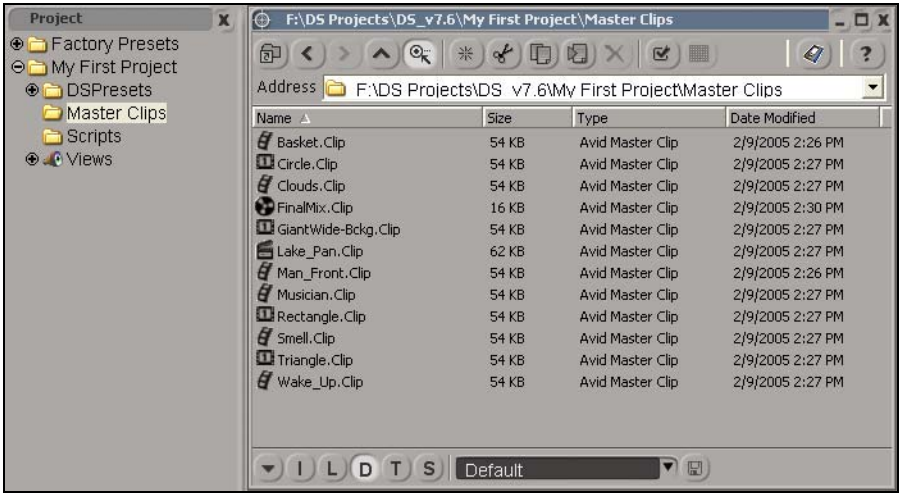
18 Right-click one of the selected files and select **Capture**.

A progress bar appears to show you the status of the capture. Captured files are placed in the folder you specified in the Capture Settings view.

19 Repeat step 16 and capture the .wav file.

20 In the Project panel, click the name of your project: **My First Project**. Then click the folder that you created for the master clips.

The clips you captured are displayed in the bin.



Chapter 5
Getting Ready to Edit

Before starting an editing session, it's important to understand how to organize and manipulate your clips.

This chapter takes approximately 30 minutes to complete.

- Editing Layout
- Previewing Clips

Editing Layout

The Editing layout is where you perform most editing tasks. Once you place clips on the timeline, you can apply transitions and effects, trim, move, slide, slip, and synchronize clips.

The Editing layout consists of the Source and Record viewers, transport controls, timeline, NLE Tools toolbar, and timeline navigation bar. The buttons in the view switcher let you access Avid Explorer and several other views that are handy in the Editing layout.

Editing button

To access the Editing layout:

- If you are not in the Editing layout, click the Editing button in the taskbar.

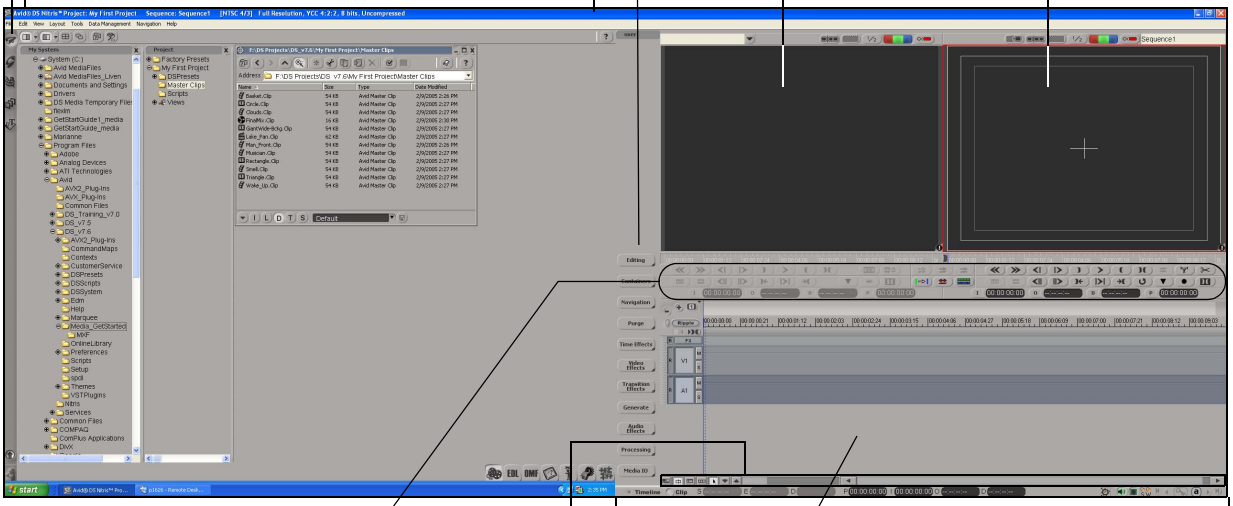
Taskbar lets you switch between layouts.

NLE Tools toolbar lets you perform general editing tasks, apply transitions and effects, find and add locators, navigate the timeline, work with container clips and reference clips, and process and purge material from the timeline.

Avid Explorer lets you explore and organize clips, sequences, and custom effects.

Source Viewer displays the current source clip.

Record Viewer displays the frame of the sequence at the position indicator.



Transport controls let you mark in/out-points, add locators, and control playback of sequences.

Timeline lets you build and edit a sequence.

Timeline navigation bar lets you pan the timeline, zoom in and out on the timeline, step into and out of container clips, switch between the Source and Record timelines, select Source/Record, Color Correction, Trim, or Slip/Slide modes.

Status bar displays the timecode of selected objects on the timeline and provides status, warning, error, toolbar, and active command information, as well as the global animation controls.

Related Topics

Working with the Avid Explorer

Source and Record Viewers

Timeline

Transport Controls

Timeline Navigation Bar

Status Bar

Accessing the Default Layouts

NLE Tools Toolbar

Previewing Clips

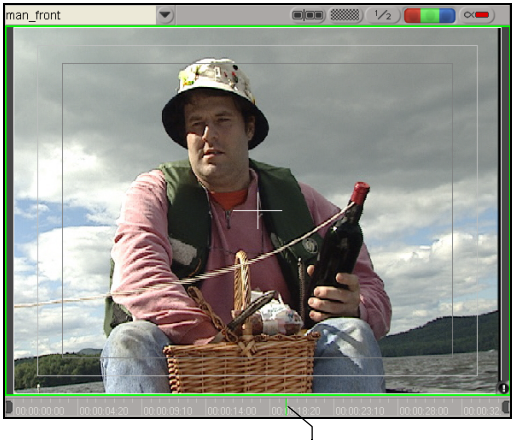
The Source viewer lets you view and mark source clips before including them in your sequence. With a clip loaded in the Source viewer, you can review the clip to find and mark footage for use in your sequence. You can move through the clip using the navigation keys on the keyboard or use the transport controls below the Source viewer.

If you have not yet captured the clips needed for the lessons, see Capturing from File.

***Media Composer comparison**: If you are using the Media Composer keyboard template, you will not be able to move the video and audio separately. You must break the sync lock by pressing the Editing > Sync Lock button on the NLE Tools toolbar.*

To preview clips:

1. Drag the **Man_Front** clip from the bin to the Source viewer (left).
2. Drag the green position indicator under the Source viewer back and forth to preview the clip.



3. Press Enter to begin playing the clip.
4. Press Enter again to stop playback.

***Tip**: Go to the start of the clip or sequence by pressing the Home key.*

You can use the Home, End, and arrow keys on the keyboard to move through footage when a clip is loaded in a viewer.

Press this key	To
Home	Go the beginning of a clip or sequence.
End	Go to the end of a sequence.
Left Arrow	Move the footage one frame backward.
Right Arrow	Move the footage one frame forward.

Use the Step buttons under the viewer to play the clip backward or forward in 1-frame or 10-frame increments.

Related Topics

Transport Controls

Using J-K-L Keys for Three-Button Play

The J-K-L keys on the keyboard let you play, step, and shuttle through footage at varying speeds. This feature, also referred to as *three-button* or *variable-speed* play, lets you use three fingers to manipulate the speed of playback for greater control.

To shuttle through footage using the J-K-L keys:

1. Use the following keys to shuttle at varying speeds:
   - Press the L key to move forward through the footage at normal speed.

Press the L key	To play footage at	NTSC rate	PAL rate	24p rate
2 times	2x normal speed	60 fps	50 fps	48 fps
3 times	3x normal speed	90 fps	75 fps	72 fps
4 times	5x normal speed	150 fps	125 fps	120 fps
5 times	8x normal speed	240 fps	200 fps	192 fps

   - Press the J key to move backward at the same shuttle speed increments as the L key.
   - Hold down the K+L keys for slow forward.

- Hold down the J+K keys for slow backward.

2. To stop shuttling, press the space bar.

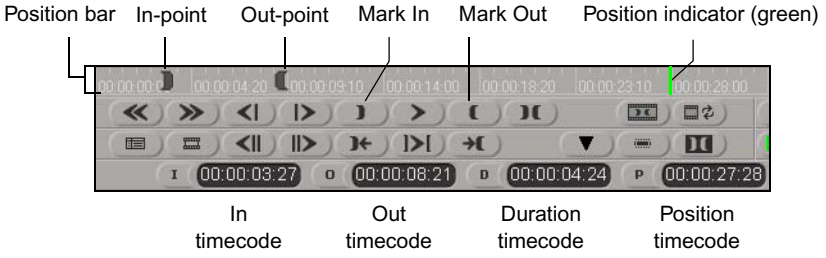
Marking In and Out-Points in the Source Viewer

Marking the in and out-points of clips in the Source viewer gives you several advantages:

- You can play back and mark clips in the bin before loading a single clip, saving several steps.
- You can quickly build a sequence by splicing the marked clips into place one after another.
- You can use the process of rough-cut or *storyboard* editing, which allows you to instantly splice several prepared clips into a sequence—see "Placing Multiple Clips on the Timeline".

Even if your marks are not accurate now, you can later trim the edit points and fine-tune the sequence on the timeline.

Use the transport controls under the Source viewer to mark your clips:



To mark a clip for use in your sequence:

1. Move the green position indicator under the Source viewer to the desired in-point.

2. Click the Mark In button.
3. An alternate method to move the position indicator to the desired out-point is by entering the timecode in the P (position) timecode box.

4. Click the Mark Out button.

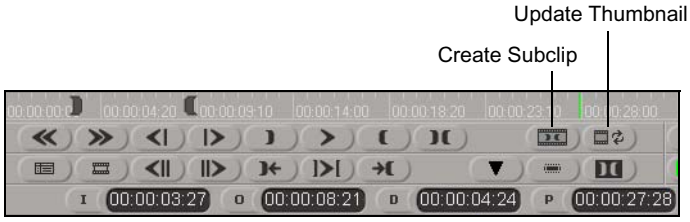
   An in-point and out-point appear in the position bar. If you need to adjust these points, simply drag them to a new location.

Creating Subclips

Subclips break up longer master clips into smaller segments of selected footage. When you mark footage with in and out-points, you can either save over the existing clip along with the new marks, or you can create new subclips between the in and out-points that you set. The master clip maintains its original in and out-points.

Unlike master clips, subclips do not directly reference the original media. Subclips remain linked to the master clips from which they were created.

Instead of placing the marked clip on the timeline, you can first create a subclip from it. This leaves the original length of the master clip untouched, while a copy of the original clip with new in and out-points is saved.



Create Subclip button

To create a subclip:

***Tip**: Before creating a subclip, you may want to place the subclip you're about to create in a different file window. To do this, click the **Capture Settings** button in Avid Explorer toolbar. In the Capture Settings dialog box, change the **Capture Target** (Media Capture section) settings.*

1. After you've previewed a clip in the Source viewer and marked the in and out-points, click the Create Subclip button.
2. In the Create Subclip dialog box, type a name for the subclip.

You can use the default name, which is the original clip name appended with a number, such as Man_Front - 001.

3. Click **OK**.

   The new clip is created and saved in the same folder as the original clip.

Related Topics

Media Capture Settings

Changing the Thumbnail of a Clip

It is easier to identify clips in Avid Explorer if you set the thumbnail to display a particular frame in that clip.

Thumbnails

Update Thumbnail button

To change a clip's thumbnail frame in the bin:

1. At the bottom of the bin in Avid Explorer, click the Thumbnails button to display your files as thumbnails.
2. Move the green position indicator to the frame you want to display as the thumbnail frame.

3. Under the Source viewer, click the Update Thumbnail button to change the thumbnail frame of the clip.

   The thumbnail view of the master clip in the bin updates.
4. Save your sequence. Select **File > Save.**

Chapter 6

Creating a First Cut

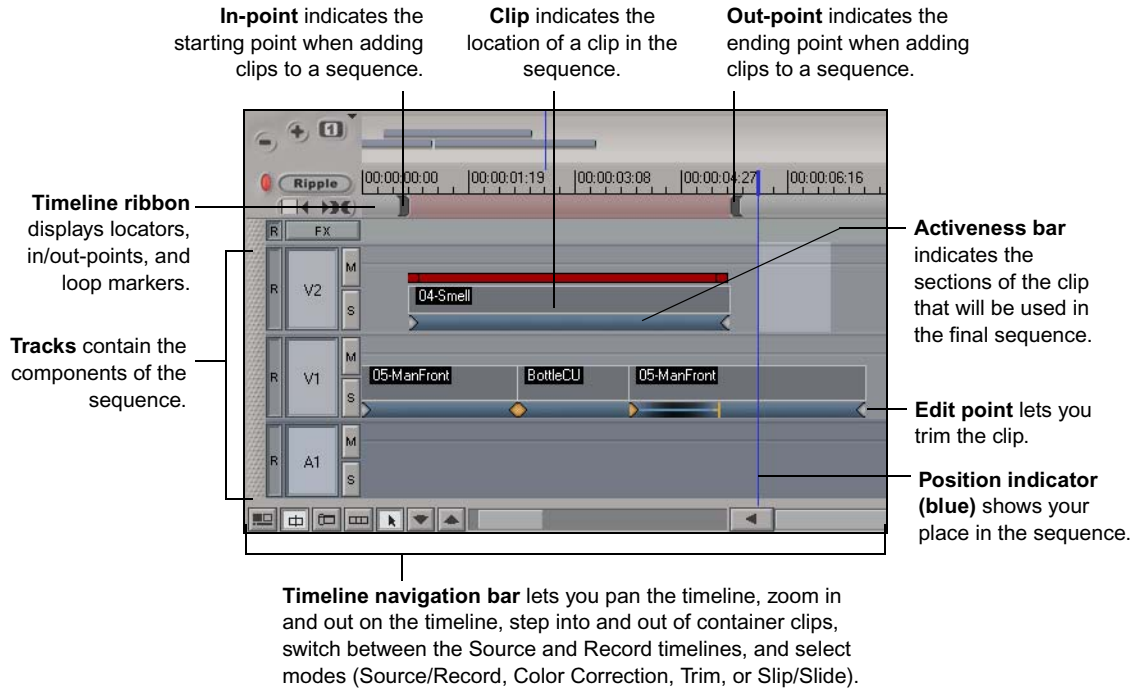
There are several ways to build a sequence. This chapter describes how to place clips on the timeline to create a sequence.

This chapter takes approximately 45 minutes to complete.

- The Timeline
- Working with Tracks
- Navigating the Timeline
- Selecting Objects on the Timeline
- Placing Clips on the Timeline

The Timeline

The timeline is where you place and edit clips to build your sequence. The timeline displays all the elements that make up your sequence, such as video and audio clips, transitions, and effects.



***Media Composer comparison**: The concept of activeness is unique to Avid DS Nitris. Activeness refers to the sections of a clip used in the final sequence. Active frames are indicated by an activeness bar below a clip.*

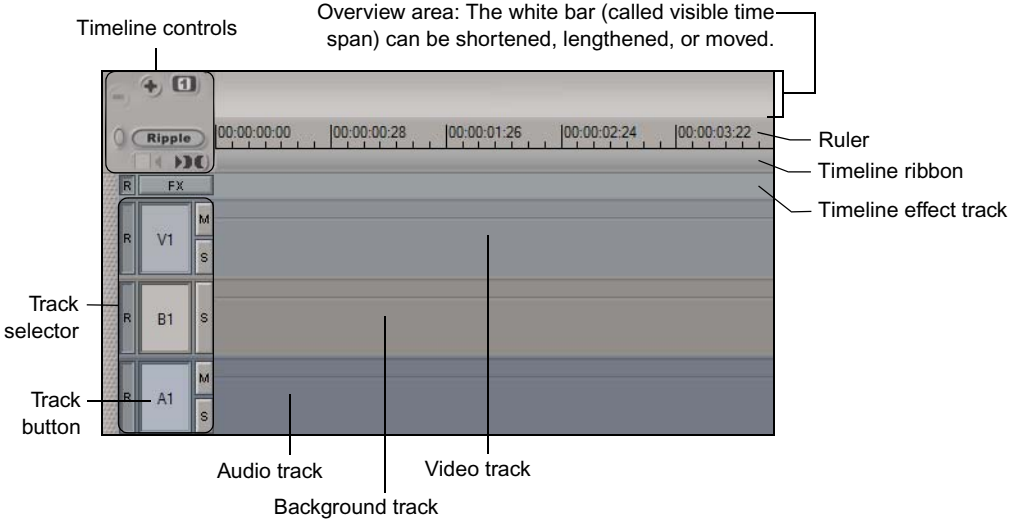
Related Topics

Timeline

Working with Tracks

There are three types of tracks on the timeline:

- **Audio tracks** contain the audio clips and audio container clips of a sequence.
- **Video tracks** contain the video clips and container clips that are composited over clips on the video and background tracks.
- **Background tracks** contain the video clips and background/composite container clips of a sequence.



While working with multiple tracks, you can use the Track selector to select, manipulate, delete, ripple, and patch tracks, as well as scroll and adjust the heights of tracks. You can use multiple tracks to layer audio effects and sound, or to add video titles and other effects.

***Media Composer comparison**: The ripple feature is unique to Avid DS Nitris. You'll learn more about it later on when trimming clips.*

You can change track properties, such as the track name or the level of detail at which the clips are displayed on a track. By default, tracks are numbered sequentially (V1, V2, A1, A2, and so on) as they are created on the timeline.

To show or hide the Track selector:

1. Right-click the overview area and select **Display** > **Display Control Area**.

   The Track selector is hidden.

2. Make sure to turn the display of the Track selector back on.

Subtopics

Selecting Tracks and Regions of Tracks

Adding, Reordering and Deleting Tracks

Setting the Track Height

Muting Audio and Video Tracks

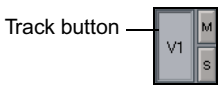
Setting Tracks to Solo

Related Topics

Track Selector

Selecting Tracks and Regions of Tracks

You can select one or more tracks at the same time. When you select a track, you can perform editing operations on the entire track. For example, you can select two tracks and apply a track-based effect by clicking Video Effect from the NLE Tools toolbar and choosing an effect from the pop-up menu. This effect will be applied over all the clips on the selected tracks. When you select a region, you can apply edits to a portion of a track.



To select a track:

- Click the Track button of a track.

  The Track button for the selected track is highlighted.

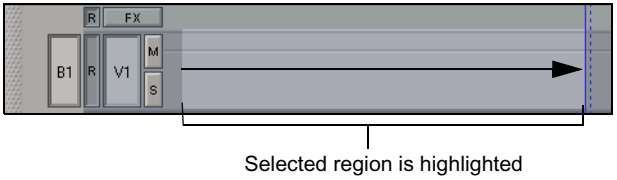
To deselect a track:

- Click the Track button of a selected track.

  The unselected track button is dimmed.

To select a region on a single track:

- On a video or audio track, drag right or left to select a region.



To select a region on multiple tracks:

1. Drag over a section of the track to select a region.
2. Hold down the Ctrl key and click another track.

   The region is highlighted on all selected tracks.

Adding, Reordering and Deleting Tracks

You can add any number of audio, video, or background tracks to the timeline. Video tracks are grouped at the top of the timeline, and audio tracks are grouped at the bottom of the timeline. Background tracks are inserted between the audio and video tracks.

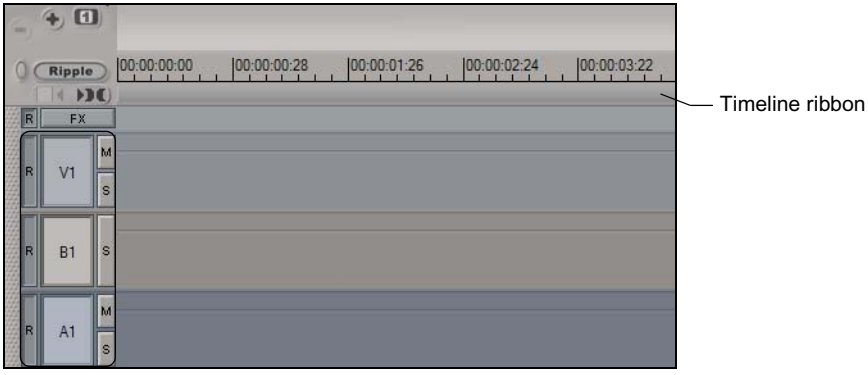
You can change the order of the video, audio, and background tracks. You cannot, however, place a video track below a background track. Also, you can delete any tracks that are no longer required in the sequence.

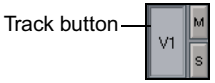
To insert a track on the timeline:

- Right-click the overview area and select **Create Video Track**, **Create Background Track**, or **Create Audio Track**.

  An empty track is added to the timeline.

***Tip**: You can automatically insert a track when dragging a clip from the viewer or Avid Explorer to the timeline. Simply drag the clip to the timeline ribbon.*





To reorder tracks:

- Drag one Track button over another Track button.

To remove a track from the timeline:

- Right-click an empty area of a track and select **Delete Track**.

  The selected track is deleted from the timeline.

Setting the Track Height

You can enlarge or reduce the height of the tracks to improve visibility and display more information within the tracks. You can reduce the track height if you need more space on the timeline to view other tracks. Increasing the height of the video tracks lets you see larger thumbnails of your clips.

Reducing the track height may hide any effects you have applied on the timeline.

To enlarge or reduce the height of tracks:

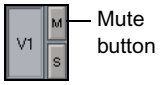
- Press Ctrl and drag the bottom of a Track button to change the height of the track.

Muting Audio and Video Tracks

If there are several tracks on the timeline and you need to exclude clips from the preview, you can turn off the audio on selected audio tracks or turn off the video on a selected video track. When the sequence is played, any video or audio on the tracks that are ‘muted’ are not displayed or heard.

The settings of the Mute and Solo buttons on each track are saved along with the sequence.

Muted tracks do not contribute to the final sequence.



To mute a track:

- Click the Mute button on an audio track to turn off the audio.
- Click the Mute button on a video track to turn off the video.

  The Mute button turns red.

Setting Tracks to Solo

When you solo a track, it plays the contents of that track during the preview. Both active and inactive video clips are displayed in the viewer. With video, you can only solo one track at a time. With audio, however, you can solo more than one track. Any tracks that do not have the Solo button activated are not displayed or heard.

To solo a track:

- Click the Solo button of the tracks that you want to preview.

  The Solo button turns green.

Navigating the Timeline

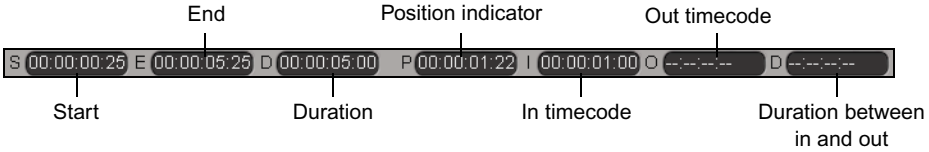
The timeline has various controls to quickly move through a sequence and adjust your view of the tracks while editing. The position indicator (the vertical blue line) in the timeline shows your place in the sequence. Also, the Record viewer displays the frame of the sequence on which the position indicator is parked.

Selection Mode button

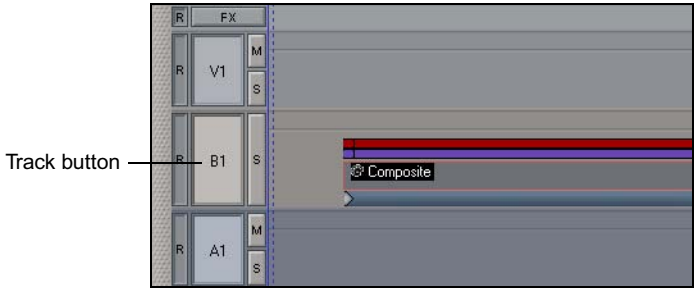
To view the timecode of a clip:

1. To select items on the timeline, you must be in Selection mode.
   Click the Selection Mode button just above the status bar. The button should be highlighted.
2. Drag the **Composite** clip towards the right on the timeline. Let go of the clip.

   The Start and End timecodes boxes on the status bar update.



3. Right-click the Track button of the background track (B1) and select **Delete Track**.



Subtopics

Using the Scale and Scroll Bars

Using the Scale and Scroll Bars

Depending on the length of your sequence, you might not be able to see the entire sequence on your timeline. Using the scale and scroll bars at the bottom of the timeline, you can pan the timeline, or zoom in and out to view the entire timeline.

To scale or scroll the timeline:

1. Drag the scale bar to zoom in and out around the position indicator on the timeline.
2. Click the arrows or drag the timeline scroll bar to pan back and forth along the timeline.

Selecting Objects on the Timeline

By selecting objects on the timeline, you can move clips to different tracks, view the properties of a clip, and select a region of a track. The objects you can select include: clips, effect bars, edit points, regions, markers, and more. But before you can select anything from the timeline, you must be in Selection mode. If you're not already in Selection mode, make sure to turn it on now.

To turn on the Selection mode:

- Click the Selection Mode button on the timeline navigation bar.

  The button is highlighted to indicate that you're in Selection mode.

Placing Clips on the Timeline

You can build a rough cut of your sequence by dragging, inserting, overwriting, and replacing clips on the timeline. You can only place video clips on video or background tracks, and audio clips on audio tracks.

Subtopics

Dragging and Dropping Clips

Inserting Clips

Overwriting Clips

Replacing Clips

Related Topics

Workflow: Working with Sequences

Dragging and Dropping Clips

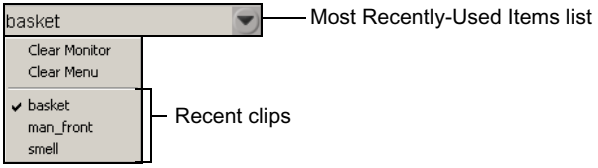
An easy way to place create a rough cut of your sequence is to simply drag clips from the Source viewer and drop them on an open area in a track on the timeline. If you drop a clip on the ribbon area, a new track is automatically created to accommodate the clip.

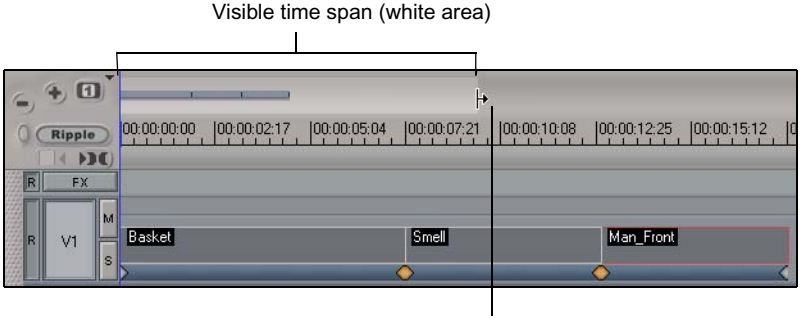
If you have not yet captured the clips needed for the lessons, see "Capturing from File".

To drag and drop a clip to the timeline:

1. From Avid Explorer, select the **Basket** clip and drag it to the Source viewer for previewing.
2. Mark appropriate in-point and out-points on the clip.
3. Drag the **Basket** clip from the Source viewer to the V1 video track on the timeline, and drop it at the beginning of the timeline.

4. Repeat steps 1 to 3 using the **Smell** clip. Place the Smell clip beside the Basket clip on the timeline.
5. From the Most Recently Used Items list in the upper-left corner of the Source viewer, select the **Man_Front** clip. The clip is displayed in the Source viewer. Mark the in and out-points and then place the clip on the timeline.





6. Drag the right edge of the visible time span towards the right to display more of the timeline.

Inserting Clips

You can also insert clips on the timeline between other clips. When you insert clips, it pushes forward any existing clips on the timeline.

If you have not yet captured the clips needed for the lessons, see Capturing from File.

Insert Clip button

To insert a clip:

1. Make sure that none of the clips are selected. If one or more clips are selected, a red border surrounds each clip. Click an empty area of the track to deselect clips on the video track.
2. Drag the **Wake-Up** clip to the Source viewer.
3. On the timeline, place the pointer over the ruler and drag the position indicator over the **Smell** clip.

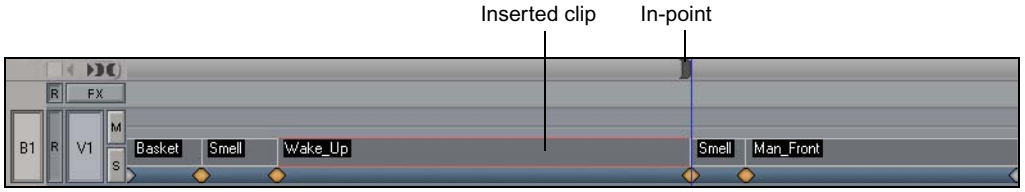
4. Using the transport controls under the Record viewer (right), click the Mark In button or press I to set an in-point.

   An in-point maker is displayed on the timeline ribbon.

5. On the transport controls, click the yellow Insert Clip button.

   The Wake_Up clip is inserted on the timeline at the location of the in-point marker.

***Tip**: Adjust the visible time span or use the scale and scroll bars at the bottom of the desktop to adjust your view of the clips on the video track.*



***Tip**: To undo an insert or any other operation, press Ctrl+Z.*

The main Ripple button is deactivated by default. For more information, see "Rippling Clips".

Overwriting Clips

You can place a clip on the timeline and overwrite a portion of an existing clip on the timeline using the Overwrite Clip button. This method is more precise than dragging and dropping clips on the timeline.

Overwrite Clip button

To overwrite a clip on the timeline:

1. On the timeline, drag the in-point marker to the middle of the Man_Front clip.

2. Click the red Overwrite Clip button to place the clip at the in-point and overwrite any existing clips over the section that it covers.

   A section of the Man_Front clip is overwritten by the Wake-Up clip.

Replacing Clips

Replacing is a way to place a clip on the timeline and delete a selected clip at the same time.

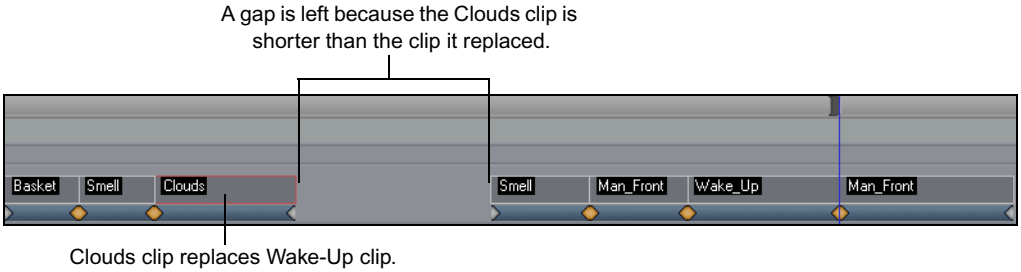
Replace Clip button

To replace a clip on the timeline:

1. Drag the **Clouds** clip to the Source viewer.
2. On the timeline, select the first **Wake-Up** clip.

   A red border surrounds the clip.

3. Click the blue Replace Clip button to overwrite the selected clip with the one that is currently in the Source viewer.



4. Delete the **Wake-Up** clip as it is not needed.
5. Select **File > Save** to save your sequence.

Chapter 7
Refining the Edit

After you create a rough sequence on the timeline, you can refine your edits to sharpen the look and improve the relationship between pictures and sound. This chapter describes how to rearrange, overwrite, and remove material in a sequence. You can also trim the edit points between clips to fine-tune transitions.

This chapter takes approximately 30 minutes to complete.

- Rearranging Clips
- Trimming Clips

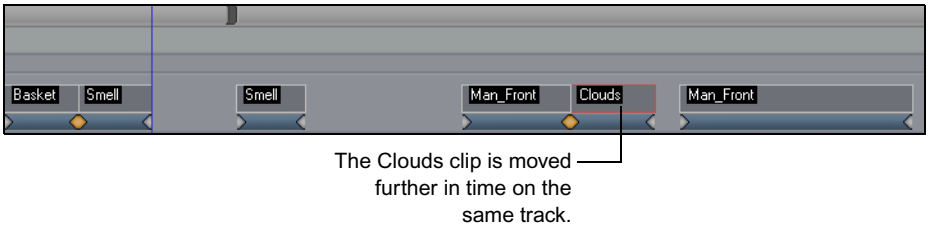
Rearranging Clips

After selecting one or more clips, you can rearrange them on the timeline by moving them along the same track or to a different track. When you move a clip to a new location, blank space or silence remains in the previous position.

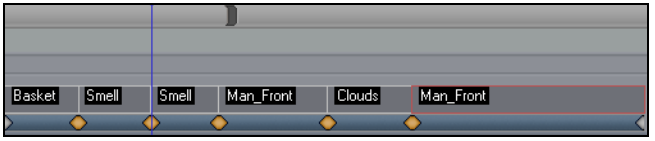
If you have not yet captured the clips needed for the lessons, see Capturing from File.

To rearrange clips on the same track:

1. Open **Sequence1** if it is not already open.
2. Select the **Clouds** clip on the timeline. Drag it above the other clips on the timeline and drop it into its new position between the two Man_Front clips. You should see a gray shadow representing the clip as you move it.



3. To close the gap between the clips, select the second **Smell** clip, and drag left until the gap is closed. Do the same for the remaining clips.



4. Save your sequence.

If Ripple mode is active on the track before you move the clip, then the selected clip is removed from its previous position and the gap is closed.

Synchronized video and audio clips always move together. If you need to move them independently, you must unlock them first.

Subtopics

Copying Clips

Removing Clips from the Timeline

Rippling Clips

Synchronizing Clips

Copying Clips

You can easily make copies of clips on the timeline. When you copy a clip, you do not duplicate the media on the storage device. Both clips refer to the original media.

To copy a clip:

1. Select one or more clips to copy.
2. Right-click one of the selected clips and select **Copy Clip**.
3. On the same track, move the position indicator to where you want to paste the clips. Right-click the track and select **Paste**.

   A copy of the clip appears at the location of the position indicator. The name of the copy is prefixed by “Copy of...”.
4. To paste the clips on a different track, right-click the desired track and select **Paste**.
5. To rename the clip, right-click the clip and select **Properties**.

   A property editor displays the properties of the clip.
6. In the Name text box, enter a new name for the clip and close the property editor by clicking the Close (X) button at the top-right corner.

You can use the standard cut (Ctrl+X), copy (Ctrl+C), and paste (Ctrl+V) shortcuts in Avid DS Nitris.

Removing Clips from the Timeline

You can remove any clip on the timeline. The master clip in Avid Explorer and its media are not deleted.

To remove a clip:

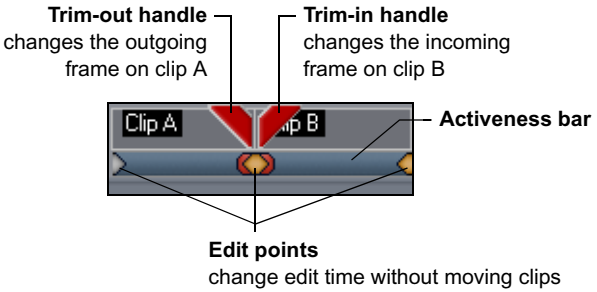
- Select one or more clips and press Delete.

  The clip(s) are removed from the timeline.

Trimming Clips

Trimming is the process of fine-tuning the move from one clip to another. Each clip has two elements that you can select and edit: the trim handles and the edit points. Edit points are located at the ends of the activeness bar of a clip, or where it transitions to another clip.

There are two ways to trim clips: by directly manipulating the clips on the timeline or by using the Trim mode.



To trim a clip on the timeline:

1. Select the edit point between two clips on the timeline.
2. Select a trim handle and drag left or right.

   The clip is trimmed.
3. Select and then drag an edit point left or right to see the difference between showing the trim handle versus its edit point.

The trim handles affect only the selected clip. The edit points affect the point of transition between the two clips. In either case, you cannot extend the trim or edit points beyond the length of the actual clip.

Subtopics

Using the Trim Mode

Using Ripple Mode When Trimming Clips

Using the Trim Mode

The Trim mode provides a close-up view of a clip, so you can trim the clip on a frame-by-frame basis. The results are the same as if you were dragging the clip's trim handles or edit points on the timeline, except there are more tools to work with in Trim mode.

Trim Mode button

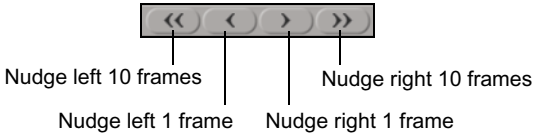
To enter Trim mode:

1. Select an edit point between two clips. If you do not select an edit point before entering Trim mode, the edit point closest to the position indicator is selected for trimming.
2. On the timeline navigation bar at the bottom of the timeline, click the Trim Mode button.

   The Source/Record viewers are replaced with the Outgoing and Incoming viewers and trim controls.

To trim the edit point of a clip:

- With the edit point selected, use the trim nudge buttons to move the edit point forward or backward, and trim frames at the selected edit point. As you trim the edit point, the frames of the clip are hidden or revealed to reflect the new incoming or outgoing frame.



These buttons appear dimmed when there are no more frames available at the head or tail of the clip.

To review the most recent trim edit:

- Click the **Play Preview** button below the Outgoing frame.

  A playback loop begins playing in the Incoming viewer. The loop begins several frames before the transition and ends several frames after, pausing briefly before beginning playback again.

3. Click the **Play Preview** button again to stop playing.

To exit the Trim mode:

Click the **Trim Mode** button again.

Related Topics

Entering and Exiting Trim Mode

Trimming Clips in Trim Mode

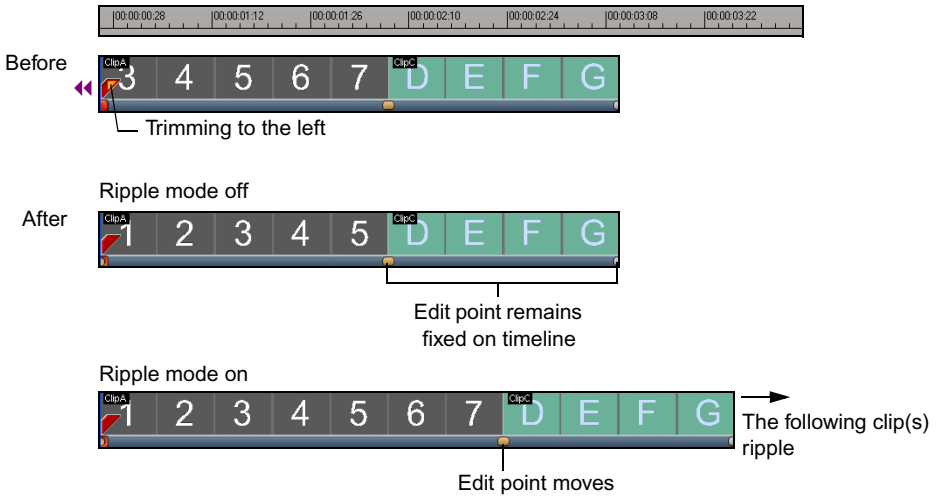
Understanding Trim Mode

Using Ripple Mode When Trimming Clips

The Ripple mode lets you preserve the integrity of previous edits on the timeline as you continue making other edits. As you trim clips on the timeline, the Ripple mode allows clips that follow the edit point to move to accommodate the change.

The following illustrations show how clips are affected when you trim an in-point with and without the Ripple mode.

Trimming an in-point to the left



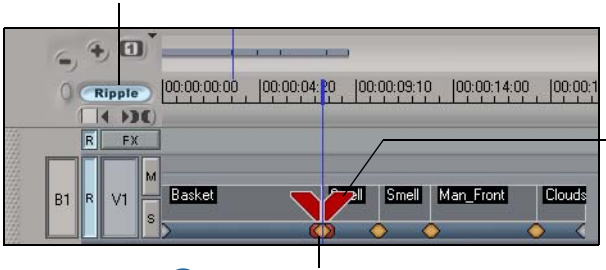
When trimming a clip with the trim handles, to preserve the integrity of edit points on subsequent clips, activate the Ripple mode on the timeline.

To enter the Ripple mode:

Ripple button

1. Click the Ripple button to activate the Ripple mode.

   The main Ripple button and the Ripple buttons for each track are activated. You can deactivate the Ripple mode on individual tracks that you do not want to be affected.



2. Select an edit point to trim.
3. Drag the trim handle to the right or left to trim the clip.

   The trim handle can only be moved as far as there is extra material available on the clip.
4. Turn the Ripple mode off.
5. Do NOT save this sequence.

Related Topics

Rippling Clips

Trimming with the Trim Handles

Chapter 8
Applying Effects

Avid DS Nitris offers a wide variety of effects that you can apply to media. This chapter describes the effects library, the different ways to apply effects, the Effects layout, and property editors.

This chapter takes approximately 90 minutes to complete.

- The Effects Library
- Applying Effects
- The Effects Layout

The Effects Library

The term *effect* refers to a range of filters, DVEs, keyers, and transitions. Each effect has several properties that allow for unlimited variations. You can save custom property settings and use them on other projects.

The effects are grouped into these categories:

Effect categories	Description
3D DVE	Effects that let you create 2D/3D titles, as well as 3D DVEs.You can apply these effects to clips, tracks, or trees.
Audio	Effects that let you adjust the output signal of your audio clip. You can apply these effects to audio clips, tracks, or mixer strips in the Mixer view.
DVE	Effects that are either a transition from one clip to another clip or a 3D transformation between layers in a composite. You can apply these effects to clips, tracks, layers, or trees.
Image filter	Effects with single inputs that encompass a wide variety of effects that you can apply to video clips, tracks, layers, and trees. These include blur, fade-in, fade-out, and noise, to name a few.
Image transition	Effects with two inputs that let you transition from one clip to another, such as the dissolve, wipe, fade, DVE, or crossfade effects. You can apply these effects between two clips or to trees.
Source generator	Effects that create a clip for you, such as solid or gradient colors, 3D Warp effects, or patterns. This new clip is useful as the background for a compositing session or to create a fade-to-color transition.

Subtopics

Effect Bar Colors

Using the Property Editors

Effect Bar Colors

When you apply an effect, an effect bar appears on the timeline in various colors depending on the type of effect. This makes it easy to identify the different types of effects on the timeline.

These are the colors you'll see on the effect bars:

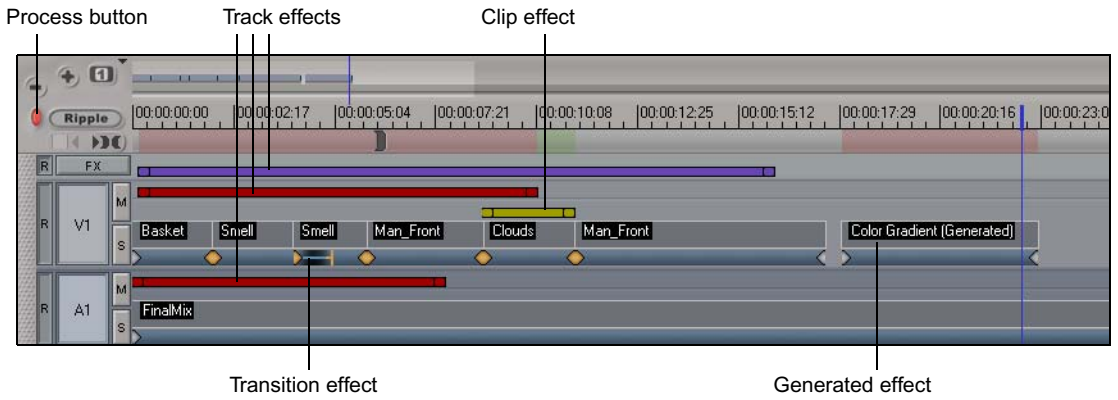
Color	Effect
Blue	Keyer
Gray	Color Correction Classic
Green	Edge and Blur
Light blue	Fade
Light green	Color Correction
Orange	AVX Host
Purple	Graphics
Red	Image and audio
Yellow	DVE and Picture-in-Picture

Applying Effects

There are basically two ways to apply effects:

- **On the timeline**: All effects applied on the timeline are based on what you've currently selected, including clips, tracks, or portions of the timeline (called *regions*), transitions between clips, as well as the layers and the Effects Tree in the Compositing layout.
- **In the Effects layout**: By switching to the Effects layout, you can begin an effects session with all the tools available in this layout. Although this layout is optimized for color correction, you can use it for all kinds of video effects.

The following illustration shows the timeline with different effects on clips:



After applying or creating effects, you might have to process an effect to play it in real time. When the Process button on the timeline turns red, it means that one or more effects on a section of the timeline require processing. The region that requires processing is highlighted on the timeline ribbon. For more information, see "Processing Overview" on page 254.

***Tip**: Press Ctrl-click to select multiple effect bars on the timeline.*

Subtopics

Applying Effects to Clips

Applying Effects to Tracks

Applying Transition Effects

Applying Audio Effects

Creating a Stack of Effects

Related Topics

Understanding Processing

Working with Real-Time Effects

Applying Effects to Clips

Effects applied to individual clips are called *clip effects*. They are useful when you want to apply an effect only to one clip on the timeline. Clip effects are attached to the clip, so when you move or edit it, the effects travel with it.

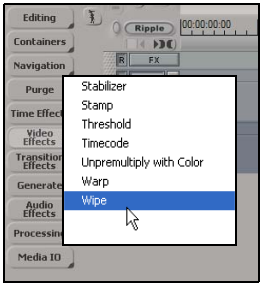
You can apply an unlimited number of clip effects to a clip; this is called a *stack of effects*. You can build complex effects by editing and stacking simple effects. As effects are added, effect bars are placed on top of one another on the timeline. The effect at the bottom is processed first, followed by each effect directly above it.

To apply a clip effect:

1. Open **Sequence1**.
2. Select the first **Man_Front** clip on the timeline.
   You should still be in Selection mode. On the timeline navigation bar, click the **Selection Mode** button so you can select objects on the timeline.

3. From the NLE Tools toolbar beside the timeline, click **Video Effects > Wipe**.

***Media Composer comparison**: When applying effects in Media Composer, you must use the Effects Palette. In Avid DS Nitris, you can apply effects from different places, such as the toolbars, pop-up menus, or Avid Explorer.*



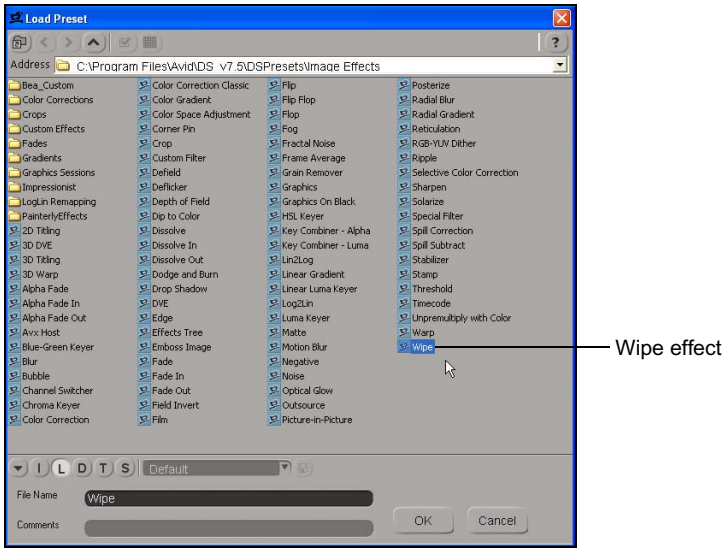
Alternatively, you can:

- Drag an effect from a toolbar to the selected clip(s).
- Drag an effect from Avid Explorer to the selected clip(s).
  or

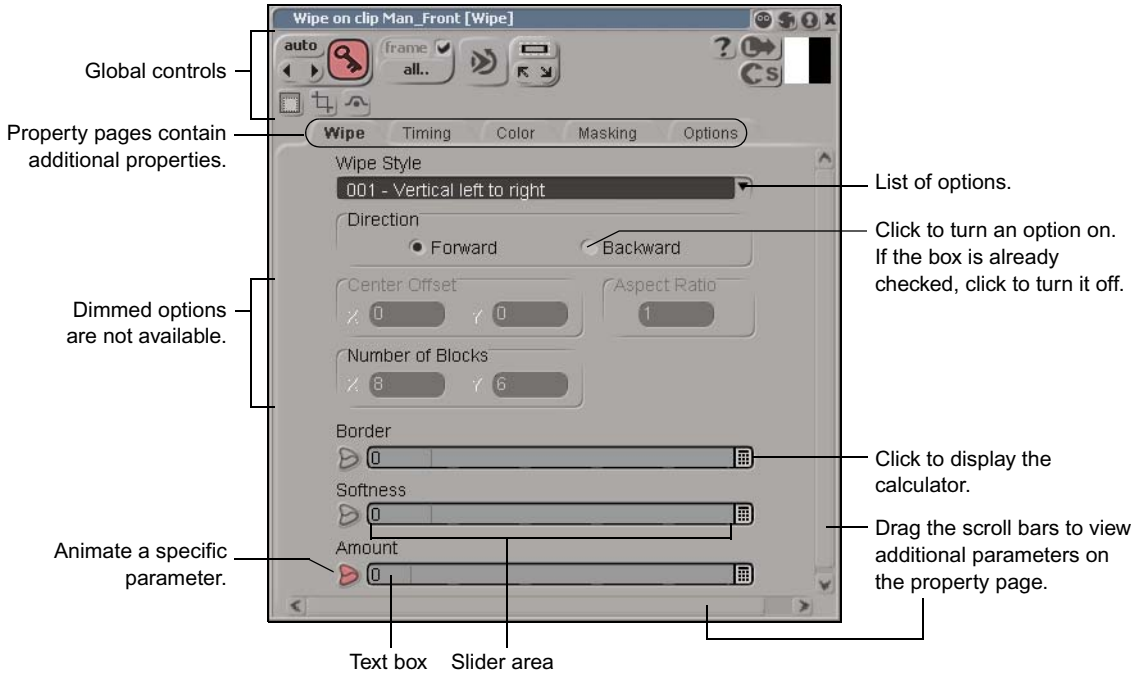
- Right-click the selected clip and select **Add Clip Effect**.

  The Load Preset dialog box displays the effects in the \Image Effects folder. Select the **Wipe** effect and click **OK**.

The address line in the dialog box should be: C:\Program Files\Avid\DS_vX\DSPresets\Image Effects. If it is not, navigate to the correct folder.



The Wipe effect is applied to the clip you selected, an effect bar appears over the entire length of the clip, and the property editor displays.



Subtopics

Using the Property Editors

Using the Property Editors

Whenever you use an effect, you'll encounter its property editor. The property editor displays the properties of a selected object or tool, and can have one or more pages of properties. You can adjust these properties to achieve a desired effect using the text boxes, lists, options, and sliders. Any values that you change are immediately applied.

There are also global controls for loading, saving, and viewing presets, processing, animating properties, and previewing clips. Different property editors have different global controls.

To edit the effect:

1. To see how the Wipe effect looks on your clip, drag the position indicator slowly back and forth (scrub) on the timeline.
2. In the property editor, adjust the values of the effect by doing any of the following:
   - Click anywhere in the slider area and drag to the right to increase values, or to the left to decrease them.

- Press Shift and drag the slider to adjust values slowly.
- Press Ctrl and drag the slider to adjust values quickly.
- Click in a numerical text box and circle clockwise with your mouse to increase values or circle counterclockwise to decrease values.

Drag clockwise or counterclockwise to increase or decrease values.

3. Click the calculator next to a slider to make calculations.
4. Go ahead and adjust any of the parameters. Click the Help button for detailed information on each parameter. When you're done, close the property editor to save the settings.
5. Save your sequence.

Related Topics

Property Editors

Applying Effects to Tracks

Effects applied to tracks on the timeline, such as the video and audio tracks, are known as *track effects*. Track effects are useful when you want to apply the same effect to several clips on the same track.

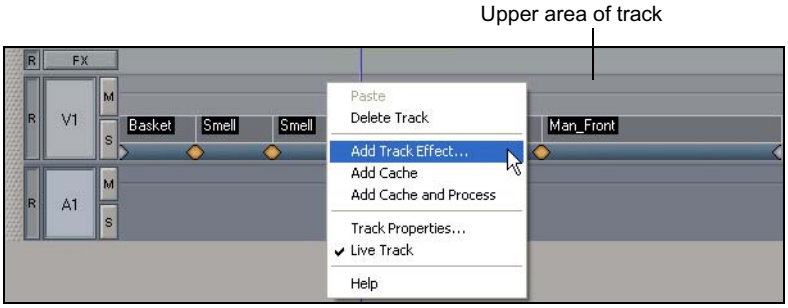
You can apply effects to one or more tracks, or to a specific area of a track called a *region*. The region of the track that you select can be empty or it can contain one or more clips.

Like clip effects, you can apply an unlimited number of track effects to a track or build a stack of effects one on top of another to create more complex effects.

To apply an effect to a track:

1. Make sure that no clips are selected on the timeline.
2. Right-click the upper area of the V1 video track.

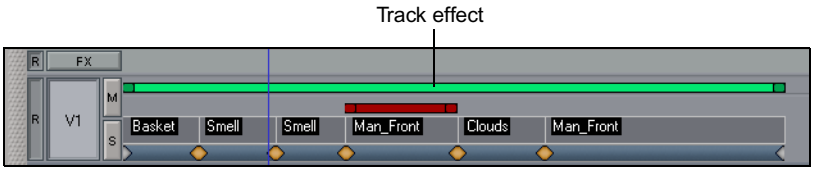
   The entire track is highlighted.
3. Select **Add Track Effect** from the menu.



The Load Preset dialog box displays the effects in the \Image Effects folder.

4. Select any effect, such as Blur, and click **OK**.

   The effect, in this case Blur, is applied to all the clips on the track and its property editor displays.



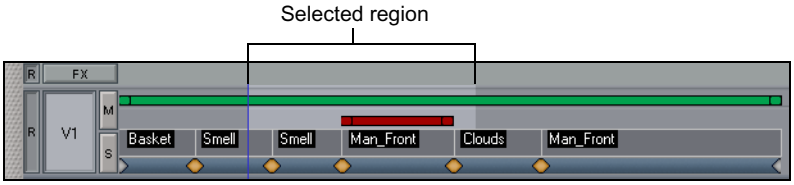
5. Close the property editor.

***Tip**: As you add multiple effects, you can insert a cache bar at any point. This lets you process all effects below the cache bar, so you don't have to reprocess them as you add more effects. For more information, see "Creating Caches at Any Level".*

***Tip:** When you want to change an effect within a stack of effects, be sure to bypass the effects that are above the effect on which you want to work. This will ensure that the changes are added before the other effects are applied. For more information, see "Bypassing Effects"*

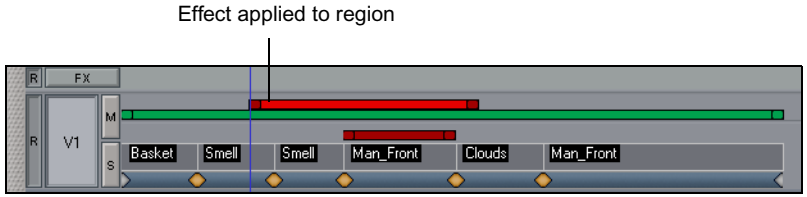
To apply an effect to a portion (region) of a track:

1. Hold down the left mouse button and drag towards the right to select the region of the track on which you want the effect to be placed.



2. Do one of the following:
   - From the NLE Tools toolbar beside the timeline, click **Video Effects >** *any effect*.
   - Drag an effect from a toolbar to the selected region.
   - Drag an effect from Avid Explorer to the selected region.
   - Right-click the white selected region and select **Add Track Effect**. In the Load Preset dialog box, select an effect and click **OK**.

     An effect bar is applied to the region and its property editor displays.



3. Close the property editor and save your sequence.

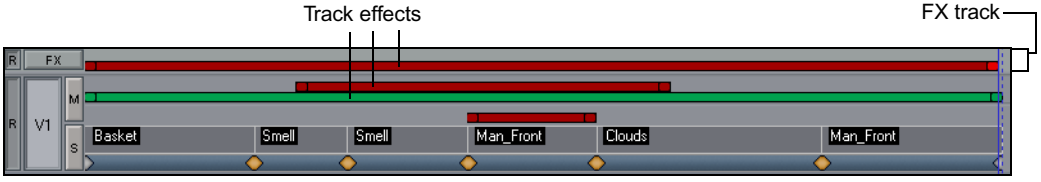
Subtopics

Applying Effects to the Timeline Effect Track

Creating Clips with Source Generator Effects

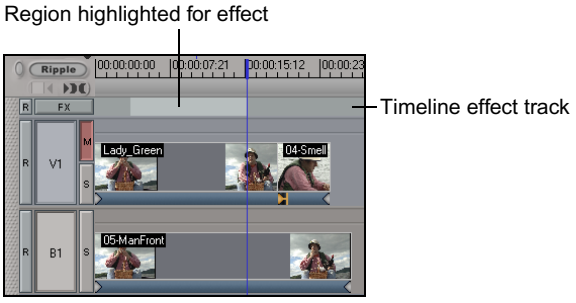
Applying Effects to the Timeline Effect Track

The timeline effect track is a track that appears above all the other tracks on the timeline; this track can only accept track effects. When you apply an effect to the timeline effect track, it modifies the clips on all the tracks below it. This lets you, for example, place a graphics effect (such as a title) on the timeline effect track, so that it will be displayed over the resulting video sequence. You can apply effects to the timeline effect track in the same way that you apply track effects.



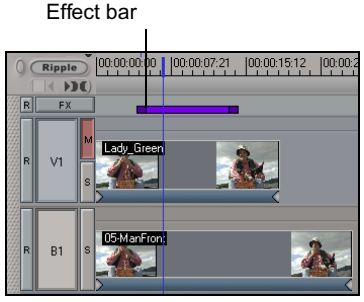
To apply an effect on the timeline effect track:

1. On the timeline effect track, drag to select a region.



2. Do one of the following:
   - From the toolbar, click **Video Effects** > ***effect***.
   - Drag an effect from a toolbar to the selected region.
   - Drag an effect from the Avid Explorer to the selected region.
   - Right-click the timeline effect track and select **Add Timeline Effect**. In the Load Preset dialog box, browse through the folders and select an effect.

     The effect is applied to the selected region. The effect's property editor is displayed for you to make any adjustments.



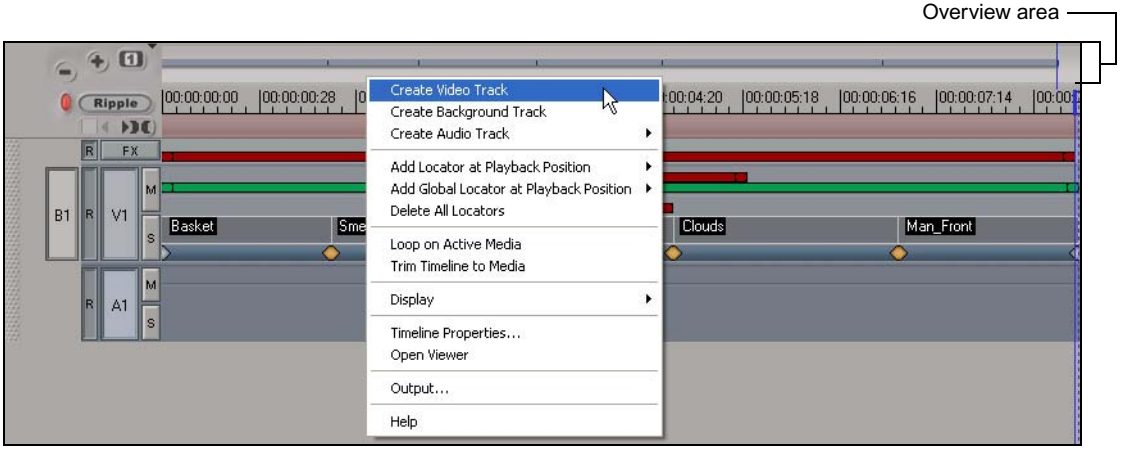
***Tip**: If you want the effect to move with the clips below it, click the Ripple button on the timeline effect track. For more information, see "Rippling Clips".*

Creating Clips with Source Generator Effects

You can create new clips based on a selected region of a track. When you create a new clip, you can choose from a list of effects (called *source generator effects*), such as the Solid Color or Wood Grain effect. These types of clips are useful as the background for a compositing session or to create a fade-to-color transition.

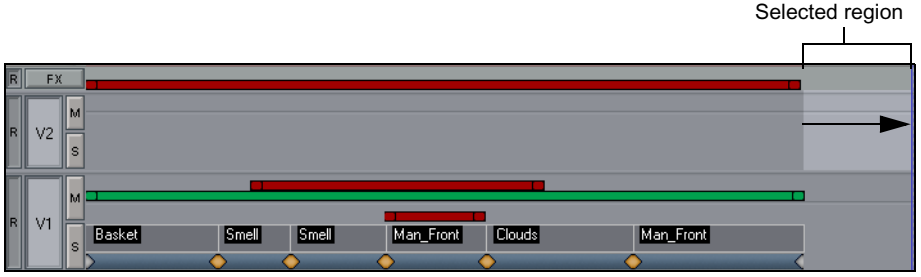
To create a clip with effects:

1. Add a new video track to the timeline by right-clicking the overview area (directly above the ruler) and selecting **Create Video Track**.



A new track, labeled V2, appears above the V1 track.

2. On the new track, drag to select a region at the end of the sequence.

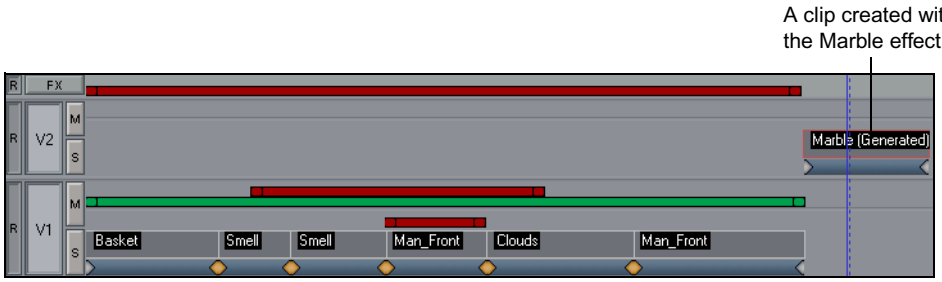


3. From the NLE Tools toolbar, click **Generate > Source Generator Clip**.

   The Load Preset dialog box displays the available source generator effects.

4. Select an effect. We chose the Marble effect for our example.

A clip is created on the track and given the name of the effect, which is appended with the term “Generated”. The effect’s property editor displays.



5. Close the property editor.
6. Save your sequence.

Applying Transition Effects

Transition effects include dissolves, wipes, fades, Digital Video Effects (DVEs), or cuts that you can apply to or between clips on the timeline. You can apply transitions to the beginning or end of a single clip, or between two clips.

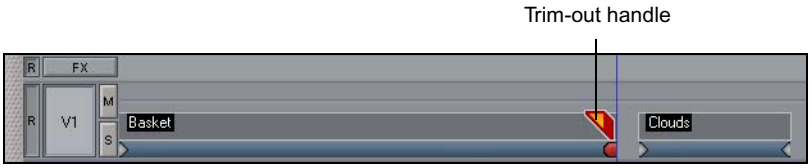
Transitions on the timeline can be created only when there is extra material available on one of the clips to accommodate the transition.

To apply a transition effect between two clips:

1. Start a new sequence by selecting **File > New > DS Sequence**.
2. Drag the **Basket** and **Clouds** clips to the video track on the timeline. Leave some space between the clips.

***Tip**: Use the overview area at the top of the timeline or the scroll bar at the bottom of the timeline to adjust the view of your clips.*

3. Select the edit point at the end of the Basket clip.



4. Drag the trim-out handle left to trim in by a few frames. Now you'll have extra material for the transition.
5. Move the Clouds clip beside the Basket clip.
6. Select the edit point between the two clips.

7. From the NLE Tools toolbar, select **Transition Effects >** *effect***.** We chose the Wipe effect.

   The transition's property editor displays. The transition is represented as a gradient below the clip.

8. Close the property editor.
9. Drag the position indicator back and forth (scrub) on the timeline to preview the transition.

Related Topics

Applying Transitions

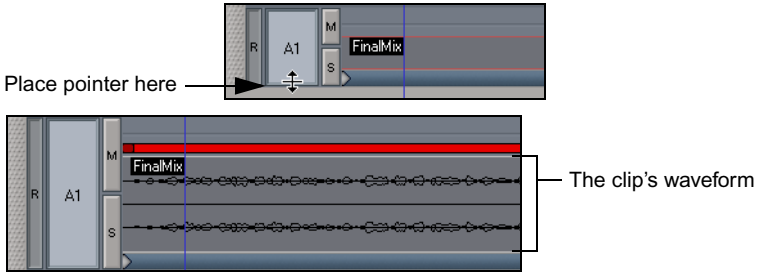
Applying Audio Effects

There is a range of audio effects that you can apply to clips or tracks on the timeline, as well as on the mixer input strips in the Mixer view.

To apply an audio effect on the timeline:

1. Place the **FinalMix** clip on the audio track.
2. From the NLE Tools toolbar, click **Audio Effects** > *effect*. The Dynamics effect is a good one to try.
3. To view the effect's waveform, place the pointer at the bottom of the Track button and press Ctrl. The pointer should now look like a double-pointed arrow. Drag downwards. The farther you drag, the larger the waveform becomes. It will take a second or two for Avid DS Nitris to generate the waveform.

***Tip**: You can also Ctrl-drag on the video tracks to see thumbnails of your clips.*



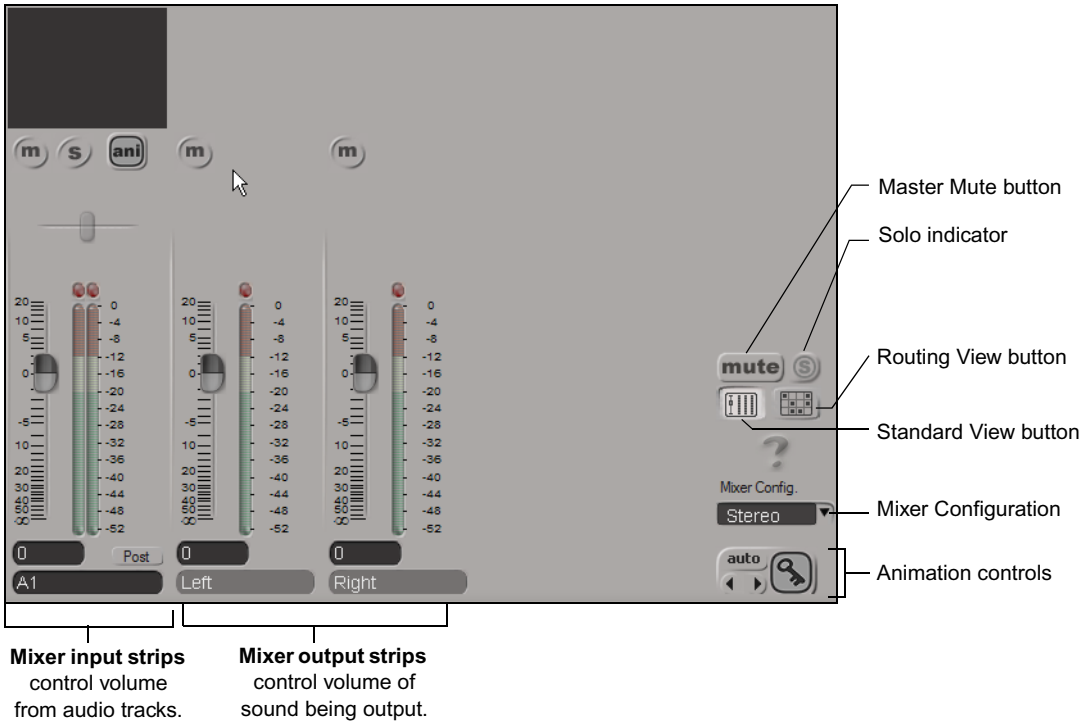
4. Scrub the timeline or click the Play button to hear the result.
5. Close the property editor.

Subtopics

Applying Audio Effects in the Mixer

Applying Audio Effects in the Mixer

The mixer combines the audio signals coming from the audio tracks and routes them to the mixer output strips. You can assign the channels of an audio track to a specific output strip. When you add an effect to a mixer input strip, the effect is applied to an entire audio track.



Mixer button

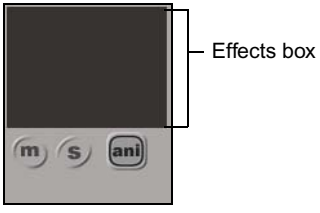
To access the mixer:

- From the view switcher, click the **Mixer** button.

To add an effect to a mixer input strip:

1. Right-click the effects box of a mixer input strip and select **Add Effect**.

   The Load Preset dialog box displays.



2. Select an effect from the \Audio Effects folder, such as the Reverb effect.

   The effect is applied to the input strip.

3. Double-click on the effect to open the property editor and experiment with the properties. Play the clip to hear the result. You can also add more audio effects. Click the Help button for details on all the parameters.
4. Close the property editor when you're done.

5. Switch back to the viewer by clicking its button on the view switcher.

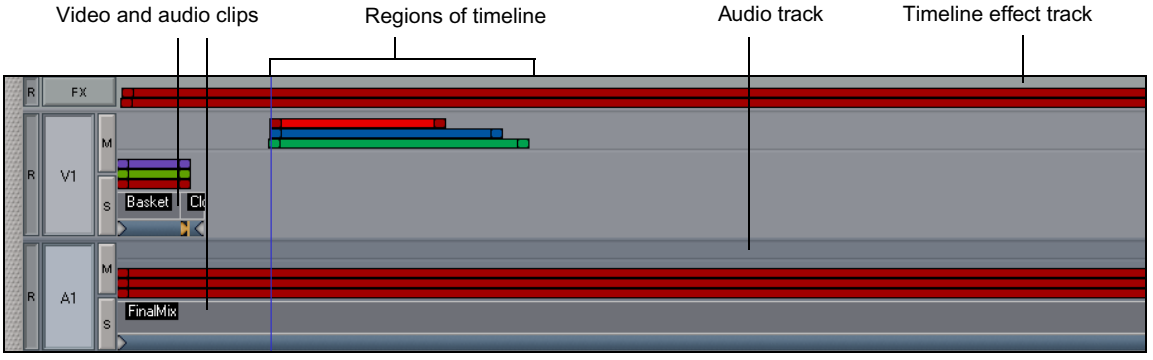
6. Save your sequence as **Sequence2**.

Related Topics

Mixer

Creating a Stack of Effects

A stack of effects is simply one effect piled on top of another, which altogether creates a more complex effect. You can apply an unlimited number of effects to individual clips, the timeline effect track, and regions on the timeline. Simply keep adding effects and experimenting with them until you're satisfied. In the example below, there are stacks of effects on the video clip and audio clip, as well as on the timeline effect track and on regions of the video track.

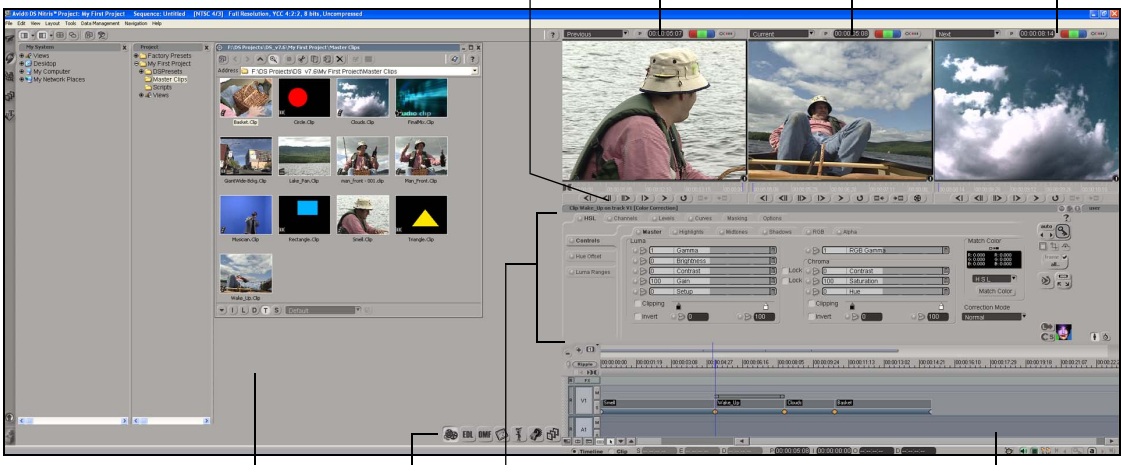


The Effects Layout

The Effects layout provides an efficient way of working with video effects. This layout is optimized for color correction and will automatically load the Color Correction effect when you first switch to the layout. You can easily change the Color Correction effect for another effect.

Transport controls let you preview media in the viewer or play sequences that have been edited on the timeline.

Viewers display three consecutive clips on the timeline at the location of the position indicator.



Avid Explorer lets you explore and organize clips, sequences, and custom effects within a hierarchy of folders.

View switcher let you access different toolsets or views.

Large property editor lets you adjust the properties of the selected effect.

Timeline is where you place, edit, and apply effects.

If you have not yet captured the clips needed for the lessons, see Capturing from File.

Effects button

To access the Effects layout:

1. Start a new sequence.
2. Place the following clips side-by-side on the video track on the timeline: **Smell**, **Wake_Up, Clouds**, and **Basket**.

***Tip**: Adjust the overview area so that all the clips are visible on the timeline.*

3. Place the position indicator over the **Wake_Up** clip.

4. From the taskbar, select the Effects button.

   By default, the Color Correction effect, with its large property editor, is displayed. A gray effect bar above the Wake-Up clip on the timeline indicates that the Color Correction effect is loaded, but inactive. When you edit the values on the property editor, the effect bar changes to a light-green (active) color.

***Tip**: If there was already a video effect on the timeline that you wanted to edit, select the effect bar before switching to the Effects layout. Instead of the default Color Correction effect, the Effects layout will display the property editor of the selected effect.*

5. Place the position indicator over the next clip, so you can view sequential clips in the viewers.
6. Save your sequence as **Sequence3**.
7. Now is a good time to restore the layout to ensure that you're using the default settings in the Effects layout—see "Restoring the Default Layout" on page 134.
8. Restart Avid DS Nitris and open **Sequence3**.
9. Click the green effects bar to switch to open the effects property editor.

Subtopics

Using the Viewers

Related Topics

Property Editors

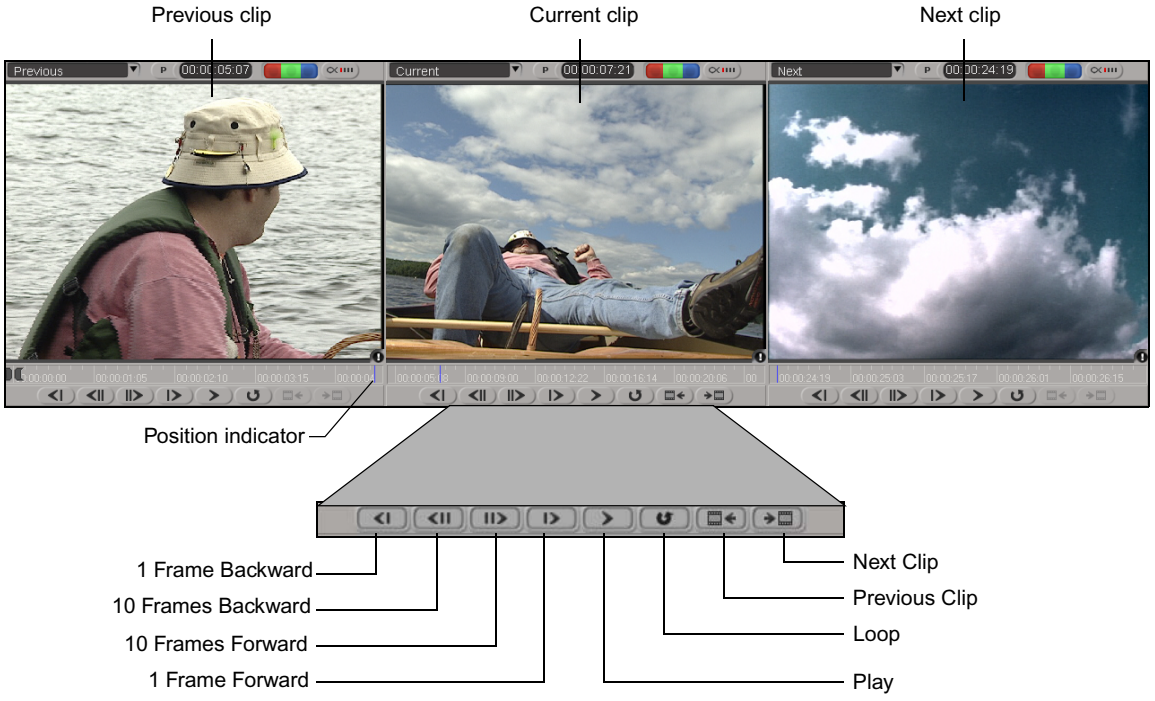
Working with the Avid Explorer

Timeline

Transport Controls

Using the Viewers

By default, the viewers in the Effects layout let you see three consecutive clips on the timeline, making it easy to compare clips. The middle viewer displays the clip that the position indicator is on in the timeline. The transport controls beneath the viewers let you preview media in the viewer and play the clips.



Editing button

To configure the display in a viewer:

1. Move the position indicator over a clip on the timeline.

   The middle viewer updates, displaying the clip on which your position indicator is located. The other viewers also update to maintain the relationship between the displayed clips.

2. You can change the clip that is displayed on these viewers by selecting an option from the Source menu.

3. Save your sequence.
4. Switch to the Editing layout.

Related Topics

Configure Viewer Display Menu

Transport Controls

Chapter 9

Working with Effects

Now that you've experimented with applying effects and editing the parameters, you will learn how to select effects from the timeline, open the property editors of effects, and bypass, view, and animate effects.

This chapter takes approximately 30 minutes to complete.

- Editing Effects
- Animating Effects
- Mix Parameter for Effects

Editing Effects

After you've applied an effect to a clip or track, you can manipulate it in many ways. You can copy, move, delete, and trim effects. You can also select multiple effect bars on the timeline to simultaneously perform such functions as cut, copy, paste, or delete.

To select effect bars:

1. Select **File > Open > Sequence** and open **Sequence1**.
2. Click an effect bar.

   The selected effect becomes highlighted.
3. To select additional effect bars, hold down the Ctrl key and click the effect bars (if an effect was already selected, it becomes deselected).

   The selected effect becomes highlighted.
4. Copy the effects by pressing Ctrl+C.
5. To paste the effects, select a clip or region on the timeline and press Ctrl+V.
6. Cut the effects by pressing Ctrl+X.
7. To undo, press Ctrl+Z.
8. To deselect effect bars, click anywhere on the timeline.
9. Return to the original sequence by reopening Sequence1. Press Ctrl+O and select **Sequence1**.

Opening an Effect's Property Editor

An effect's property editor automatically opens when you first apply an effect. By default, you can only view one property editor at a time, but if you need to, you can view multiple property editors simultaneously.

To access an effect's property editor:

1. Do one of the following:
   - Double-click an effect bar.
   - Right-click an effect bar and select **Effect Properties**.

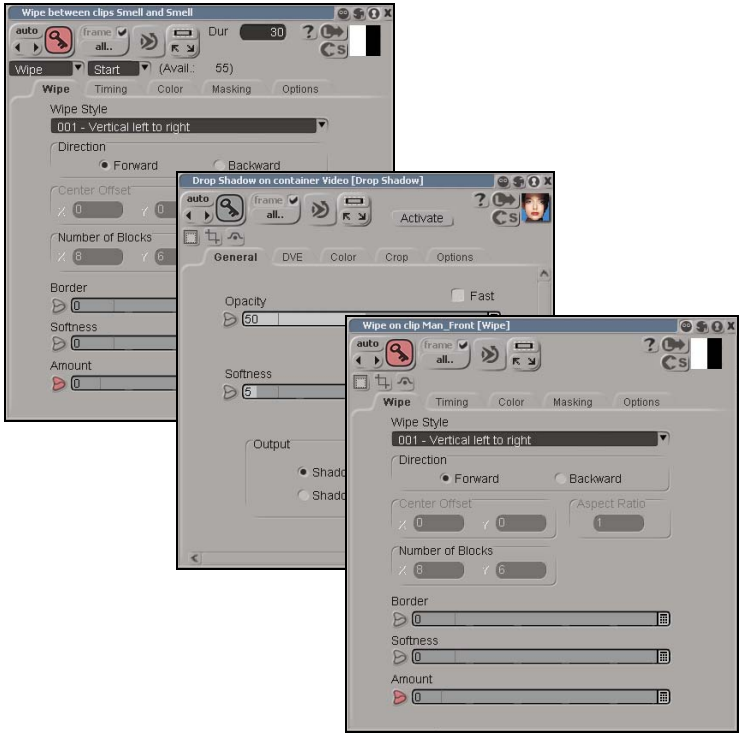
   The property editor of the effect displays.

2. To view multiple property editors, click the Lock button at the top-right corner of the property editor.

The property editor of the effect you opened will now stay open when you open other property editors. As you open each property editor, it appears on top of the previous property editor.

3. Move the property editor to a different location, so you can see all of them. Placing the property editors side-by-side lets you compare the values of each effect.
4. Open and “lock” each property editor that you want to view.

***Tip**: You can open the property editor of a transition effect by double-clicking the transition beneath a clip.*



5. Click the Help button for detailed information on the parameters of each effect.

6. Close the property editors when you're done.

If you were switched to a different layout when you opened an effect, then switch back to the Editing layout.

Related Topics

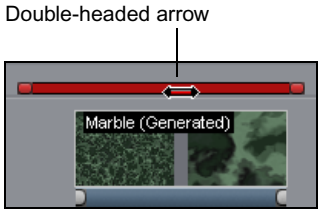
Title Bar Controls

Moving Effects

You can easily move effect bars to another location on the same clip or track. However, when you move a clip effect, the movement is restricted to the length of the clip.

To move an effect on the timeline:

1. On the timeline, select a clip or track effect bar.
2. When you see the double-headed arrow, drag left or right along the track.



Copying Effects

If you like a certain effect and want to replicate it, you can copy and paste it to any track or clip on the timeline.

Subtopics

Copying Effects to Another Clip or Track

Copying Effects to a Section of a Track

Copying Multiple Effects

Copying Effects to Another Clip or Track

To copy an effect to another clip or track on the timeline:

1. On the timeline, select an effect bar and press Ctrl+C.

   The effect is copied to the Clipboard.
2. Do one of the following:

- Select a clip to paste the effect on the entire clip (clip effect).
- Select a track to paste the effect at the location of the position indicator (track effect).
- Select a region to paste the effect on the selected region (track effect).

3. Press Ctrl+V.

   The effect is pasted on the clip or at the selected point on the track.

Copying Effects to a Section of a Track

To copy an effect to a section of a track:

1. On the timeline, select an effect bar and press Ctrl+C.

   The effect is copied to the Clipboard.

2. On the timeline, drag to select a region.

   The selected region is highlighted.

3. Press Ctrl+V.

   The effect is pasted into the region you selected on the track.

When you paste an animated effect into a region that is shorter or longer than the original effect, the animation is either cropped or scaled depending on the Crop Curves option in the effect's property editor.

Related Topics

Trimming Animation

Copying Multiple Effects

To copy and paste multiple effects on the timeline:

1. On the timeline, press and hold down Ctrl and click on each effect bar.

   The effect is copied to the Clipboard.

2. Do one of the following:

   - Select a clip to paste the effect on the entire clip (clip effect).
   - Select a region to paste the effect on the selected region (track effect).

3. Press Ctrl+V.

   The effects are pasted on the clip or at the selected point on the track.

Reordering Effects

As you add effects, effect bars are placed on top of one another. You can rearrange the order of clip, track, or timeline effects by using the commands from the pop-up menu of the effect. The effect at the bottom of the stack is processed first.

You can also reorder effects by using the Cut (Ctrl+X) and Paste commands (Ctrl+V).

To change the order of an effect:

1. Right-click a clip or track effect bar, or an effect in the effects box of the mixer input strip.
2. From the menu, select one of the following:

Command	To
Bring to Top	Move the selected effect to the top of the stack.
Raise	Move the selected effect up one position in the stack.
Lower	Move the selected effect one position lower in the stack.
Push to Bottom	Move the selected effect to the bottom of the stack.

Viewing Effects

Outputting a selected effect to a viewer is useful for seeing how different effects look at the different stages of production.

You can also use the floating viewer. You can open an unlimited number of floating viewers to see each effect—see Opening a Floating Viewer.

Reconnect Viewer button (highlighted when selected)

To view effects:

1. Select an effect bar on the timeline.

2. Click the **Reconnect Viewer** button above the Record viewer (right viewer) to turn on the view mode.
3. Right-click the Reconnect Viewer button and select an output mode. We chose **Current Selection** for our example.

4. Move the position indicator to the frame you want to view.
5. Select an effect bar above the clip that you are viewing.

   The viewer displays the results of the effect and any other effects below it in the stack.
6. Select another effect to see a different result.

   Each effect you select is displayed in the viewer when the position indicator moves to the selected object.
7. Click the **Reconnect Viewer** button again to turn off the view mode.

You are not limited to viewing the result of the current timeline in the viewer. Later, you will learn to work with containers (nested timelines). The Reconnect Viewer will let you select different levels of the timeline and display their output in the viewer—see "Reconnect Viewer Menu".

Bypassing Effects

At times, you may want to see what your clips look or sound like without some of the effects you've applied to them. When you use the reconnect viewer feature and select an effect in a stack, you also see the results of any effects below it. You can isolate an effect for viewing by bypassing any effects under the selected effect.

To bypass a clip or track effect:

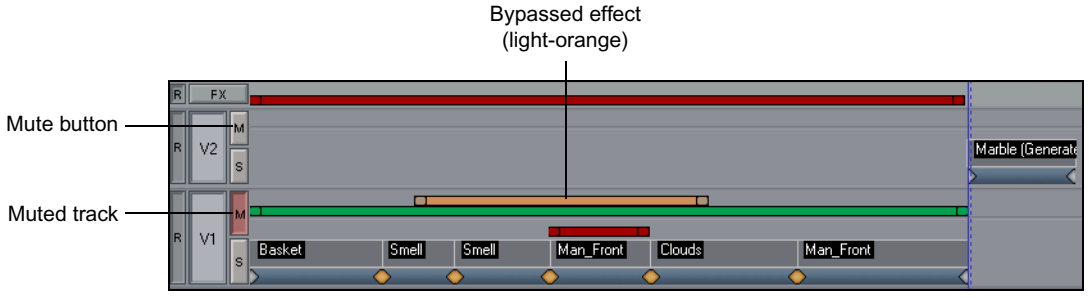
- On the timeline, right-click an effect bar and select **Bypass**.

  The effect bar turns a light-orange color. The effect is ignored when you play the track.

To bypass an entire track:

- Click the **M** (mute) button beside the track you want to bypass.

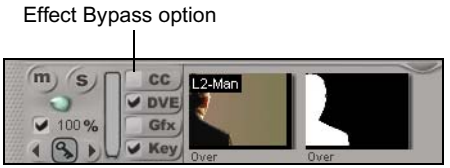
  The Mute button turns red, and the track is ignored when you play the sequence.



Make sure you deselect the Bypass option before processing your effects or they will not be applied. For more information, see "Processing Overview" on page 254.

To bypass a layer effect:

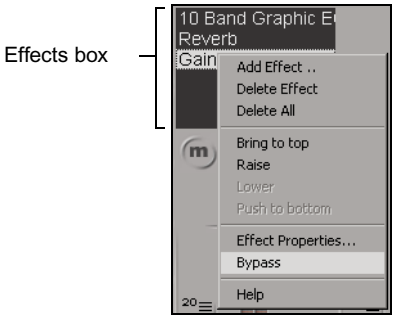
- In the Layers view, deselect **Effect Bypass** beside the effect you want to bypass.



The effect is ignored when you play the track.

To bypass a strip effect:

- In the mixer, right-click an effect in the effects box of the mixer input strip, and select **Bypass**.



The effect is ignored when you play the track.

*You can also select the **Bypass** option from the effect's property editor.*

Related Topics

Viewing Effects

Trimming Effects

You can trim clip and track effects interactively using the effect bars or timecodes. When there is animation associated with an effect, you can crop or rescale the animation. You can also interactively trim effects in much the same way as you trim clips.

To trim an effect using the trim handles:

1. On the timeline, select an effect bar and position the pointer at the left or right end of the bar.

Trim-in and trim-out handles of a clip

   The pointer changes to the trim-in or trim-out handle.

2. Drag the trim-in or trim-out handle left or right, respectively, to trim the effect.

If you are trimming a clip effect, you cannot trim out past the length of the clip.

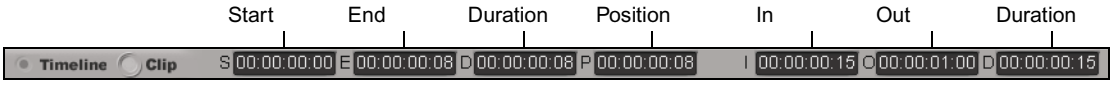
Subtopics

Trimming Effects Using Timecodes

Trimming an Animated Effect

Trimming Effects Using Timecodes

You can change the duration of any effect on the timeline by entering new values directly in the timecode boxes on the status bar. This is useful when you know the exact position on the timeline where you want an effect to start or how long you want it to extend.



To trim an effect using timecodes:

1. Select the effect bar that you want to trim.
2. From the status bar, do one of the following in the timecode boxes:
   - Enter the new timecode in the **S** (start) or **E** (end) timecode box.

     The effect is trimmed according to the new timecodes.
   - Enter the number of frames to trim, followed by a plus (+) or minus (-) sign. For example, if want to trim 10 frames from the start of an effect, then you can type 10+ in the **S** timecode box and the start of the effect bar will move forward 10 frames.

Trimming an Animated Effect

When you trim an animated effect, you can either rescale the function curves of the effect or crop them.

To specify how the animation is trimmed:

1. Open the property editor of the effect that you want to trim.
2. In the property editor, do one of the following:
   - Deselect the **Crop Curves** option to rescale the function curves.

     When you trim the effect on the timeline, the function curves are rescaled in the animation editor.
   - Select the **Crop Curves** option.

     When you trim the effect bar on the timeline, the function curves are cropped in the animation editor. On the animation graph, the highlighted area of the function curve shows the new length of the animated effect.

***Tip**: In an Effects Tree, you can crop the curves of all effects simultaneously using the Crop Curves option on the Effects Tree property editor. Right-click an empty area of an Effects Tree, and select **Properties** to display the Effects Tree property editor.*

Related Topics

Workflow: Animating Properties

Adjusting Effect Lengths

You can resize an effect from its beginning or end, such as when you want to adjust the length of a fade-out from the end of the effect instead of the beginning.

To adjust an effect from the beginning:

1. From the timeline, select an effect bar.
2. On the status bar, click in the **D** (duration) box, and enter the value to which you want to resize the effect.

To adjust an effect from the end:

1. From the timeline, select an effect bar.
2. On the status bar, click in the **D** (duration) box.

3. Press the minus (–) key and enter the value to which you want to resize the effect.

Saving Effects

After editing the properties of an effect, you can save them as a preset for work on other clips, tracks, or regions on the timeline, or even other projects. You can also share presets with other Avid DS Nitris users. Presets are an efficient way to reuse the same effects or transitions on other sequences or projects.

You can create presets by:

- Saving from an effect property page, using the Save Preset dialog box, or
- Dragging the thumbnail from an effect's property editor to a toolbar or to Avid Explorer. Saving an effect to a toolbar gives you quick access any effects you use frequently.

Save Preset button

To save an effect through the Save Preset dialog box:

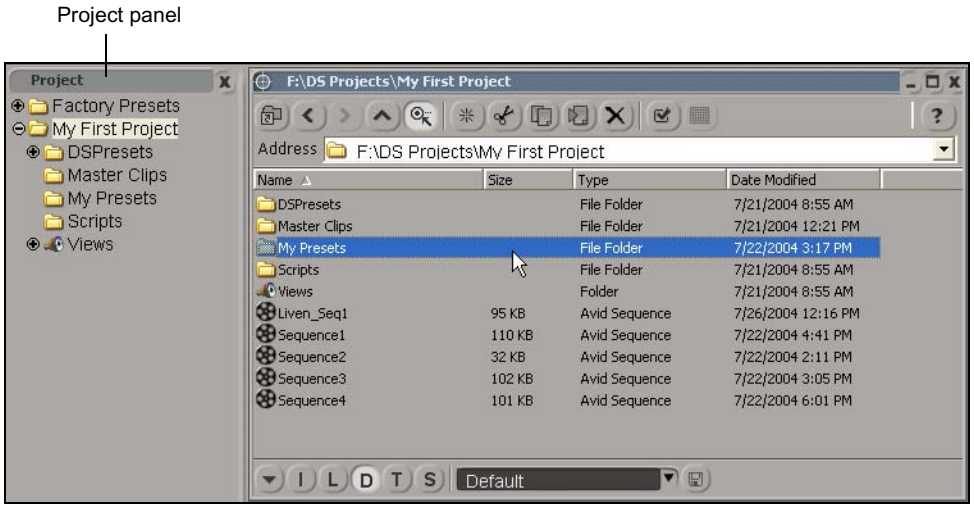
1. Open the property editor of an effect you want to save.
2. Customize the effect by adjusting the parameters.
3. From the property editor, click the Save Preset button in the top-right corner.

   The Save Preset dialog box displays.
4. Select the folder in which to store this effect. You can store the effect in the existing folder or create a folder for your own effects.
5. In the File Name text box, enter a name for your effect.
6. Add any comments to the Comments text box and click **OK**.

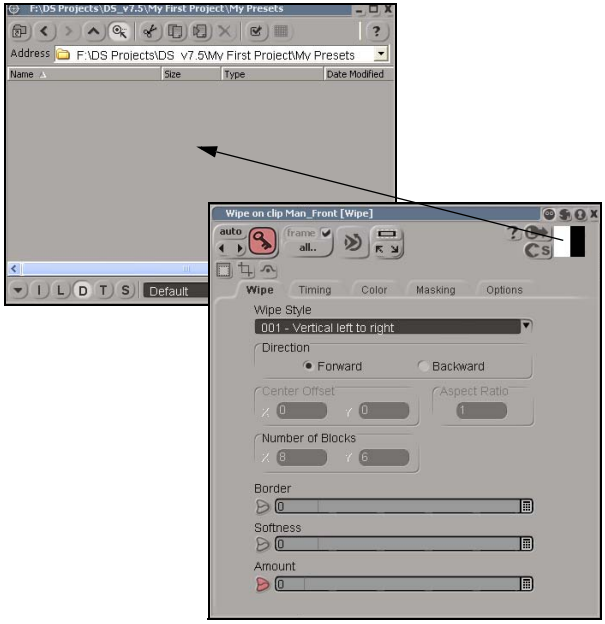
   The new effect is added to the folder.

To save an effect to Avid Explorer:

1. Select your project in the Project panel.
2. Right-click an empty area of the bin and select **New > Folder**.
3. Name the new folder **My Presets** and open the folder.



4. Open the property editor of the effect you want to save. We opened the Wipe effect.
5. Customize the effect by adjusting the parameters.
6. In the property editor, drag the effect's thumbnail to the folder view area in Avid Explorer.



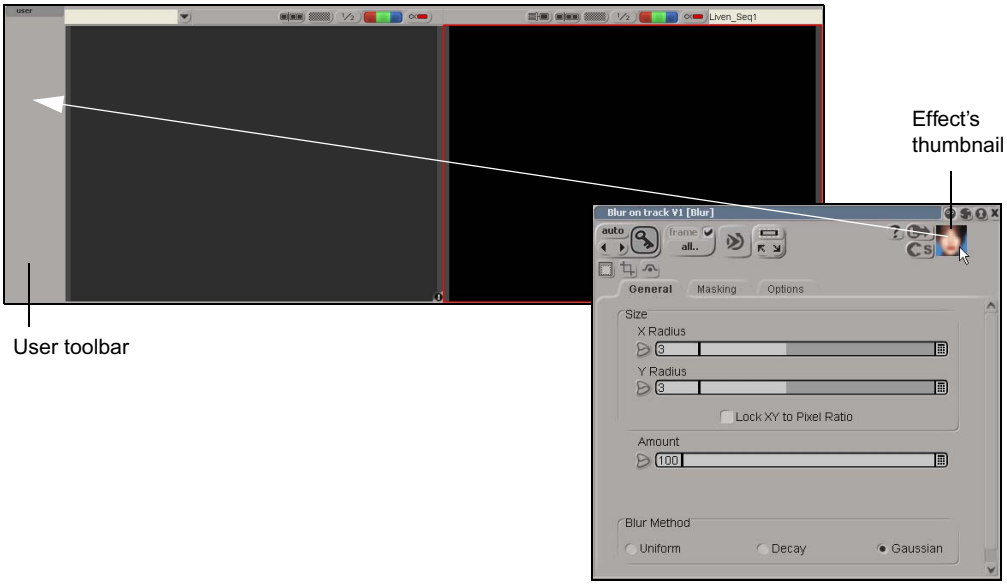
7. In the Save Preset dialog box, give the preset a name, add some comments, and click **OK**.

   The new effect is added to the folder.

8. Keep the property editor open for now.

To save an effect to a toolbar:

- In the property editor, drag the effect's thumbnail to the empty **User** toolbar beside the Source viewer.



A button is created for your preset and automatically named.

***Tip**: If you want to give the preset a name, press Shift before dropping the effect's thumbnail at the new location.*

To apply the preset you created:

1. From the timeline, do one of the following:
   - Select a clip or track.
   - Select a region of a track by dragging.
2. In the User toolbar, click the effect preset you created.

   The effect is applied to the clip or region you selected.

If you've created a number of presets, such as when color correcting a sequence, you can quickly apply these presets to the current effect.

The effect that you select and the preset you apply to it must be the same effect. Otherwise, a new effect is created.

To apply a preset to the same current effect:

1. Select an effect bar from the timeline or a node from the Effects Tree.
2. Press Ctrl and click the preset you want to apply.

   The preset is applied to the selected effect/node.

To copy a preset/script text from Avid Explorer or Script Editor to a toolbar:

1. Do one of the following:
   - Select a preset from Avid Explorer
   - Select script text from the Script Editor.
2. Drag it to a toolbar.

   A button is created for the preset/script.

Related Topics

Using the Toolbars

Substituting Effects

After you apply an effect, you can substitute a different effect or a preset effect. For example, when you apply an image effect to your clip, such as a blur, its property editor is displayed. From the property editor, you can load a custom blur effect or modify any of its properties, and then save it as a new preset.

There are a wide variety of effects you can load. Occasionally, you might be restricted to a specific family of effects, depending on which type of effect you start with.

Load Preset button

To substitute an effect:

1. Open the Wipe property editor and click the Load Preset button.

   The Load Preset dialog box is displayed.
2. Select the **Posterize** effect.

The Posterize effect replaces the Wipe effect and the posterize property editor displays. Keep the property editor open.

Replacing Effects

Replacing or substituting one effect for another lets you experiment with effects until you're satisfied with the look of an effect. You can replace effects on a toolbar, through an effect's property editor or, if you're working on a graphics session, through the graphics property tree.

If the thumbnail of an audio effect is dissimilar to the one you're replacing it with, then the audio effect cannot be replaced. You must delete the effect and apply another one.

Subtopics

Replacing a Preset Effect on a Toolbar

Replacing Effects Using the Property Editor

Replacing Effects Using the Graphics Property Tree

Replacing a Preset Effect on a Toolbar

If you've saved a preset effect and placed it on a toolbar as a button, you can easily replace it by just selecting a new effect from the timeline or Effects Tree, or by dragging a thumbnail from a property editor.

To replace a preset effect on a toolbar by selecting a new object:

1. Select one of the following:
   - On the timeline, select the effect bar, transition, or source generator
   - In the effects tree, select a node.
2. Press Alt and click the preset effect button.

   The button is updated with your selection and given a name.

***Tip**: If you want to give the preset a name, press Shift+Alt before clicking the button.*

To replace a preset effect on a toolbar by dragging a thumbnail from a property editor:

1. Do one of the following:
   - Timeline: Double-click an effect bar.
   - Effects Tree: Double-click a node.
2. In the property editor that is displayed, drag the effect's thumbnail to a toolbar button.

   The toolbar button is updated.

***Tip**: If you want to give the preset a name, press Shift before dropping the effect's thumbnail to the toolbar button.*

Replacing Effects Using the Property Editor

You can replace effects through the property editor. For example, if you've applied the Blur effect to a clip, you can replace it by loading the Negative effect in its place.

You can also replace an existing generated clip with another type of generated clip. For example, you can replace a generated color gradient clip with a marble clip.

Load Preset button

To replace an effect through its property editor:

1. On the timeline, double-click an effect bar to display its property editor.
2. From the property editor, click the **Load Preset** button.
3. From the Load Preset dialog box, select a different effect.

   The effect is replaced by the selected effect. The new effect's property editor is displayed.

To replace an effect through its property editor:

1. On the timeline, double-click an effect bar to display its property editor.
2. Drag an effect button from a toolbar and drop it on the thumbnail of a property editor.

   The effect in the property editor is replaced by the selected effect. The new effect's property editor is displayed.

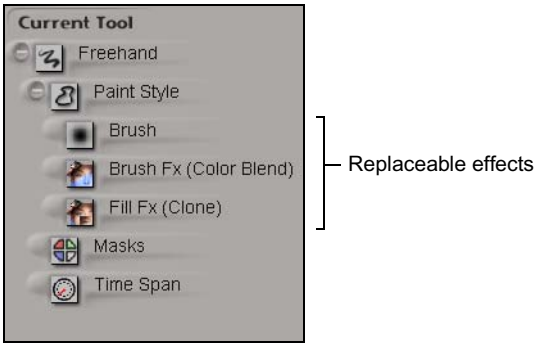
Replacing Effects Using the Graphics Property Tree

When working in the Graphics layout or the Graphics combo view, you can replace the following effects in the graphics property tree:

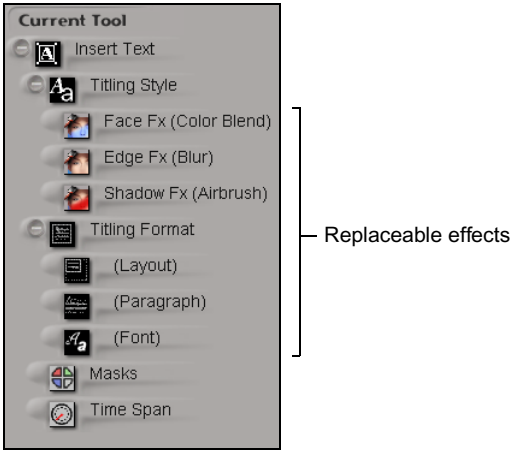
Object	Replaceable effects
Shapes	Brush, Brush Fx, Fill Fx
Titles	Titling Style: Face Fx, Edge Fx, Shadow Fx Titling Format: Layout, Paragraph, Font

To replace an effect in the graphics property tree:

1. In the Graphics property tree, right-click one of the following property buttons:
   - **Shapes**: Brush, Brush Fx, or Fill Fx



   - **Titles**: Face Fx, Edge Fx, Shadow Fx, Layout, Paragraph, or Font



2. From the menu, do one of the following:
   - Select an effect.
   - Select **Load**, browse through the folders, and select an effect.

   The effect you selected replaces the previous effect.

Related Topics

Adding Graphics and 2D Titles

Deleting Effects

If you decide that you no longer want an effect, you can delete it from the timeline. You can also delete audio strip effects from the effects box of the mixer input strip.

*Although you can't delete layer effects, you can bypass them by deselecting the **Effect Bypass** button next to the effect button. For more information on layered effects, see "Applying Effects to Layers".*

To delete an effect on the timeline, do one of the following:

- Right-click an effect bar and select **Delete Effect**.
- Select an effect bar and press Delete.

  The effect bar is removed from the timeline.

To delete an input strip effect:

- In the Mixer view, right-click an effect in the effects box, and select **Delete Effect**.

  The effect is removed from the mixer input strip.

Related Topics

Bypassing Effects

Animating Effects

Animation is the change of an object and/or its properties over time. By animating the properties of an effect, you can control how the effect changes over time. You can animate an effect, as well as access the animation editor from an effect's property editor.

The animation editor displays an animation graph from which you can add, delete, or modify the function curves of animated properties. Once animation is created, you can process the clip to view the animated frames in real time. You can adjust the animated properties or remove the animation at any time.

Animation Key button

To animate an effect:

1. Use the transport controls to move to the frame on which you want the animation to begin.
2. In the Posterize property editor, select the **Unlock** option.
3. Adjust one or more of the colors to obtain the desired effect.
4. Do one of the following:
   - Click the Animation Key button in the property editor to set a keyframe.
   - Click the Animation button of a specific parameter on the property editor.

   The button turns red to indicate that animation is present.
5. Use the transport controls to move the position indicator to the next frame on which you want to add keyframes. Make some more adjustments to the effect's property editor, and set another keyframe.

***Tip**: Depending on the accuracy you need, you can move frame by frame or set larger intervals between animated points.*

6. Continue adding as many keyframes as you need.
7. When you're done, save your sequence and close the property editor. The next step is to process the animation to see the effect. You'll be doing this in the next chapter.

Related Topics

Workflow: Animating Properties

Creating Animation

Using Presets

A preset is a customized set of properties for an effect. You can use the presets that come with Avid DS Nitris, or you can create your own by saving the properties that you have already set and reusing them. Either way, presets let you work more efficiently. Most presets are in the \DSPresets folder.

You can also use presets in the Graphics layout—see "Using Presets in Graphics".

Subtopics

Loading and Saving Presets

Loading and Saving Presets

You can load and save presets through the property editors or toolbars.

Load Preset button

Save Preset button

To load or save a preset using a property editor:

1. In the property editor, click the **Load Preset** or **Save Preset** button.
2. In the Load Preset dialog box, do one of the following:
   - To load a preset, select a preset.

     The property editor displays the properties of the preset you selected.
   - To save a preset, type a name for the preset you're saving.

     The preset you saved appears in the folder in which you saved it.

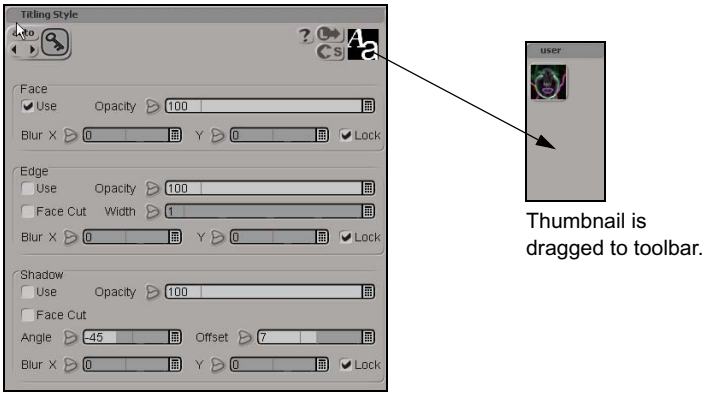
To load a preset using the toolbars:

1. Select a clip, track, or region to apply the preset.
2. Depending on where you saved your preset, from the NLE Tools toolbar, click **Time Effects**, **Video Effects**, **Transition Effects**, or **Audio Effects**, and then select your preset.

   The preset is applied to the clip, track, or region you selected.

To save a preset using the toolbars:

1. In a property editor, drag the thumbnail to a toolbar.



2. In the Save Preset As dialog box, type a name and description for the preset in the corresponding text boxes.

   A toolbar button is created in the toolbar.

Mix Parameter for Effects

The Mix parameter gives you the ability to blend the result of the effect with the original input or with a color. You can use the animation editor to precisely control or modify the blend.

Subtopics

Mixing Effects to the Input

Mixing Effects to Color

Mixing Effects to the Input

With mix to input you can control the intensity of the effect. It ranges from 100 (the effect is fully applied) to 0 (the effect is disabled).

***Tip**: You can avoid processing effects for certain time regions by setting the minimum value to 0 for those areas.*

To mix an effect to the input:

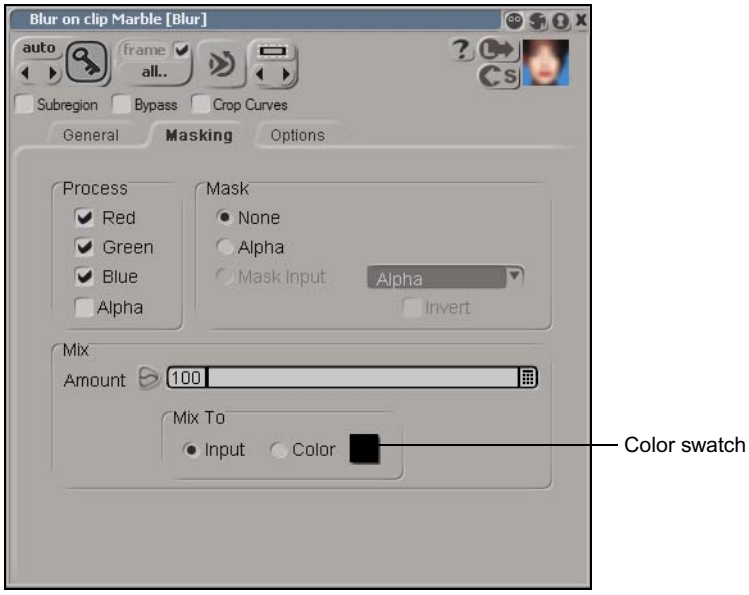
1. Apply an effect to a clip.
2. Use the effect's property editor to edit the clip properties as necessary.
3. On the Masking property page, select **Apply**, and then in the Mix To box, **Input**.
4. Using the slider, adjust the **Amount**.
5. If desired, animate the mix by adjusting the curve on the Timing property page, as described in "To animate an effect:".
6. Process the mix.

Mixing Effects to Color

Mixing effects to color lets you fade the result of the effect to any color. It ranges from 100 (only the effect is visible) to 0 (only the color is visible).

To mix an effect to a color:

1. Apply an effect to a clip on the timeline.
2. Use the effect's property editor to edit the clip properties as necessary.
3. On the Masking property page, select **Color** from the Mix To box.



4. Click the color swatch.
5. Use the Color Picker and click anywhere on your screen to select a color.
6. If desired, animate the mix, as described in “To animate an effect:”.
7. Process the mix.

Related Topics

Workflow: Animating Properties

Processing Effects

Chapter 10
Processing

Some of the effects in your sequence will require processing. In this chapter, you will learn how to select an area or effect, and set the most appropriate options for it.

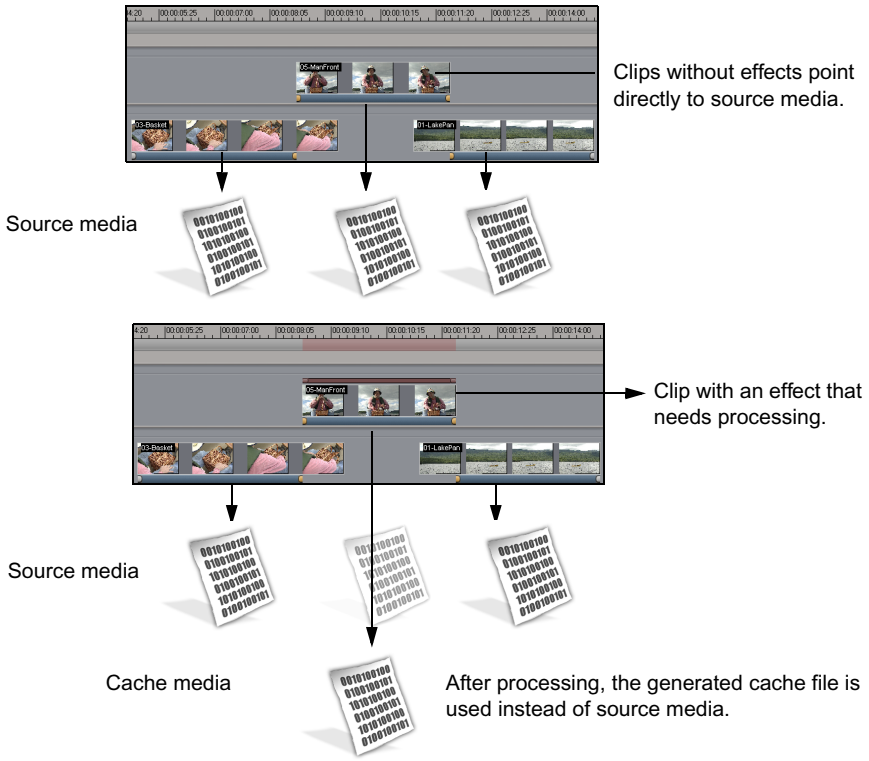
This chapter takes approximately 15 minutes to complete.

- Processing Overview
- Processing

Processing Overview

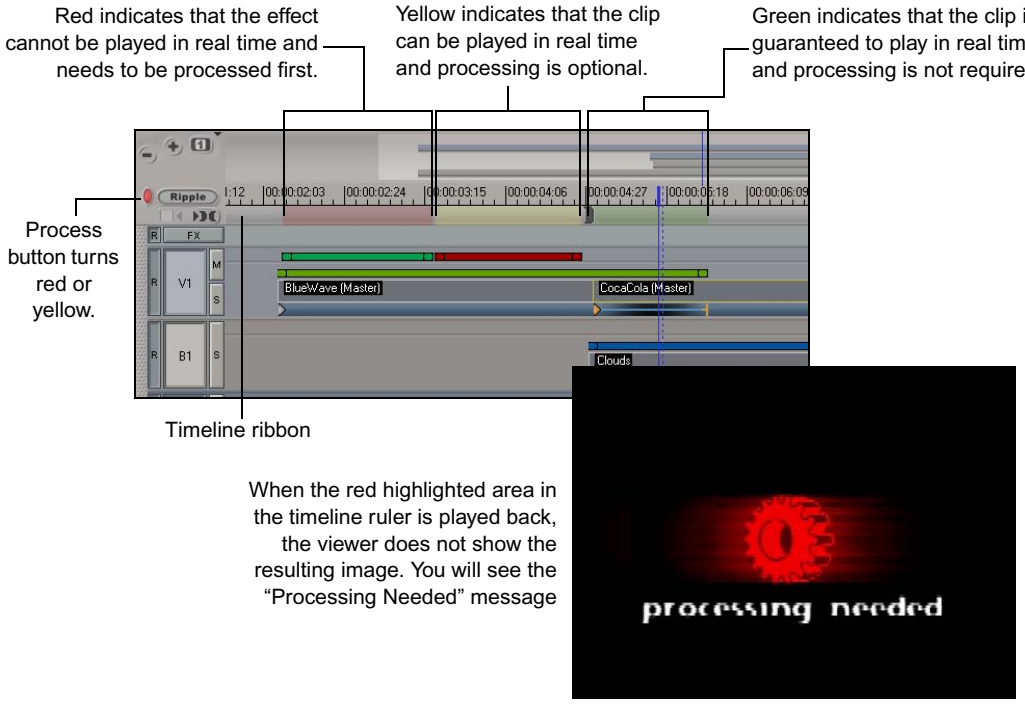
Before you can play most of the effects, you will have to process them. When you process effects, a final image or sequence of images is created and stored in a new media file, called a *cache*, so that your source media remains unaltered. During playback, this new cache file is used instead of the source media.

***Media Composer comparison**: In Avid DS Nitris, rendering is referred to as processing.*



Processing is usually needed for video images and graphics. Some video effects do not need processing as Avid DS Nitris can compute the effects during playback.

When you apply an effect to a clip, the timeline ribbon above it changes color to indicate that processing is needed. Before the effect is processed, there are three possible colors that may appear on the timeline ribbon: red, yellow, or green.



If you have the Avid DS Nitris DNA workstation, you get guaranteed real-time playback and output of some real-time effects because of the accelerated hardware in the workstation. These effects have a green color on the timeline ribbon where they are applied.

If you are not using the Nitris DNA workstation, then all effects are processed with the Avid DS software. If your workstation has sufficient processing power, many effects can be computed in real time by the software, allowing you to view the results during playback. These effects are indicated by a yellow color on the timeline ribbon.

Any effects that cannot be processed in real-time by the hardware or the software will have a red color on the timeline ribbon. When you play back areas where these effects are applied, you will see a "Processing Needed" message displayed in the viewer.

The Process button also turns red or yellow to indicate when processing is needed. You can process effects even if they are real-time effects. When you process effects, a cache is created with the new processed media. This guarantees perfect playback and output of your sequence. (Once a cache is created for a given effect, the timeline ribbon above is cleared. That is, there will no longer be any colored sections.)

Related Topics

Working with Real-Time Effects

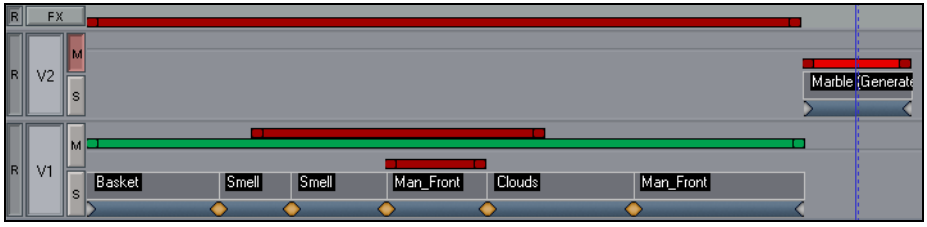
Processing

You can process a specific effect, a specific region, or the entire sequence. To work more efficiently, you can process the more complex effects at different stages in your sequence.

For example, if you have effects nested within a container clip, you can open the container and process the individual effect instead of processing the entire container clip.

To process an effect:

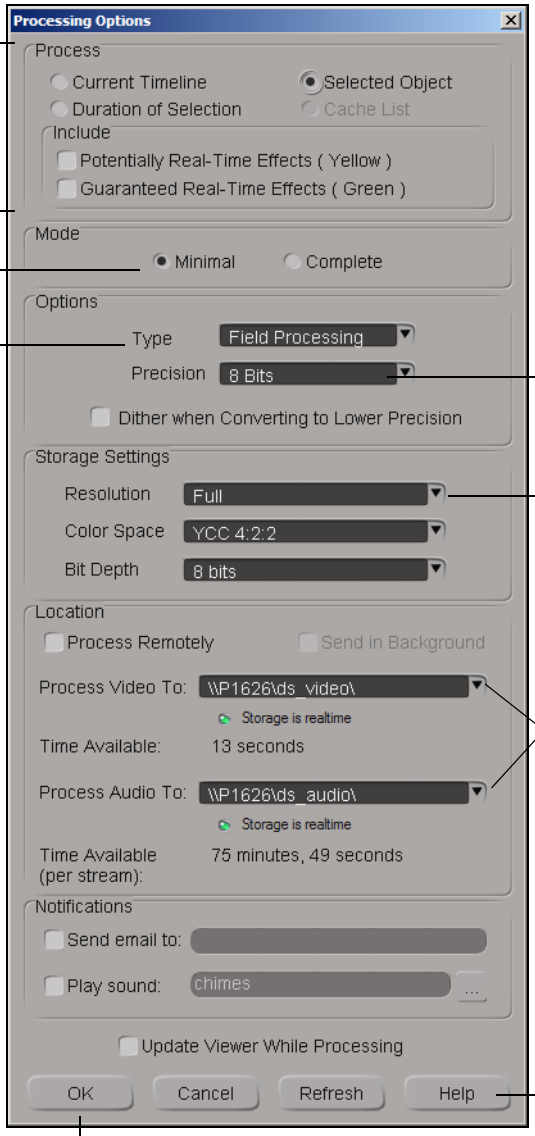
1. Open **Sequence1**.



2. On the timeline, select a region or object to process. An object can be a clip, track, effect, or transition bar.

3 Click the red/yellow Process button on the timeline. If the button is not highlighted, open the property editor of the effect you want to process and click the **All** button in the property editor.

The Processing Options dialog box displays.



4 Select what needs to be processed.

Note: You can even process real-time effects.

5 Select Minimal for quicker processing.

6 Choose whether you want to process in fields or frames.

7 Set the precision bit depth to optimize the processing quality of the video media.

8 Set the resolution at which the caches are created. The lower the resolution, the faster the processing times and the less storage space used.

9 Select the storage areas for audio and video.

10 Click Help for more details on all the options in this dialog box.

11 If you have sufficient space on the storage device, click OK to begin processing.

12 Save your sequence.

A progress bar appears at the bottom of the desktop to show the status of the process. The progress bar shows the number of passes, frames, and the estimated time that Avid DS Nitris will take to process your selection. These passes are based on the number of container clips and the levels of processing required within the selected region.

Related Topics

Setting the Processing Options

Chapter 11
Adding Graphics and 2D Titles

Avid DS Nitris provides you with a set of graphics tools and effects to create original images or to touch up existing clips without losing the original content. Using these tools, you can create graphics objects, such as paint strokes and titles.

This chapter takes approximately 30 minutes to complete.

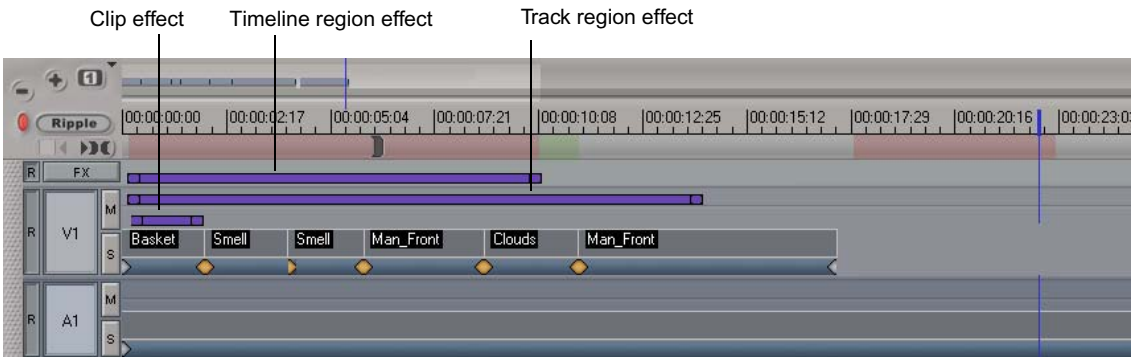
- Starting a Graphics Session
- The Graphics Combo View
- The Graphics Layout
- Displaying the Safe Action/Title Guides
- Graphics Property Tree
- Setting the Drawing Tool Properties
- Defining Color
- Creating Graphics and Titles
- Finishing a Graphics Session

Starting a Graphics Session

Before creating graphics or titles, you must first decide how the graphics will fit into your sequence. You can apply graphics as a clip effect or as a track effect, depending on how you want the graphics and/or titles to appear in your sequence. When you apply graphics to:

- **A clip**: The graphics you create exist only on that clip.
- **A region of the timeline effect track**: The graphics will appear over all the tracks on the timeline within that region, despite possible changes to the clips and/or sequences.
- **A region of a video track**: The graphics will appear on the region and clips of the video track.

The following illustration shows the timeline with different effects on clips:



For more information, see "Global Controls".

Displaying the Safe Action/Title Guides

The viewer serves as an area to create and arrange graphics and titles. The safe action/title guides ensure that the graphics you create will be visible on any broadcasting system. The outer frame defines the safe action area, while the inner frame defines the safe title area.

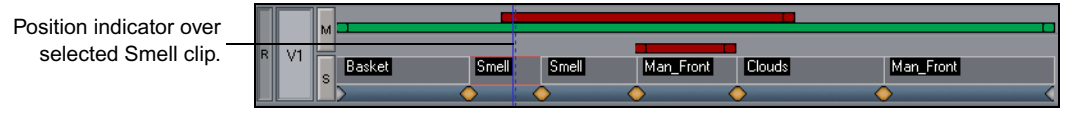
Graphics button

To display the safe action/title guides:

- Right-click the viewer and select **Safe Action/Title**.

To add graphics to a clip:

1. Open **Sequence1**.
2. Select the first **Smell** clip from the timeline and move the position indicator over this clip.



3. Do one of the following:

- In the taskbar, click the Graphics button to open the Graphics layout.
- Ctrl-click the Graphics button in the taskbar to open the Graphics combo view.

A Graphics effect is applied to the selected clip and the Graphics layout or Graphics combo view displays.

4. Save the sequence and restore the layout to ensure that you're using the default settings—see "Restoring the Default Layout" on page 134.
5. Reopen **Sequence1** and double-click the purple effects bar over the Smell clip to return to the Graphics layout.

Related Topics

Applying Effects

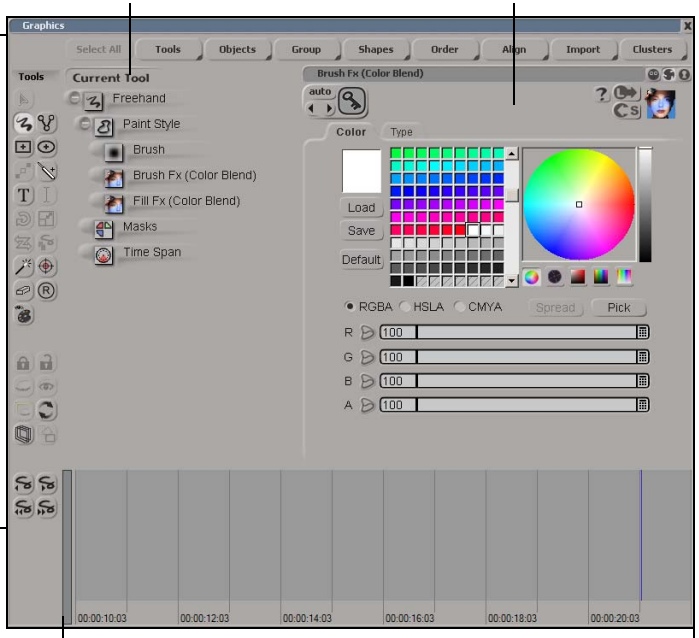
The Graphics Combo View

The Graphics combo view is a floating view that you can access from many locations in Avid DS Nitris to perform painting and titling tasks. This view contains all the same tools as the Graphics layout; however, in the combo view the Editing layout timeline remains visible.

Graphics property tree displays the properties of a selected tool or graphics object.

Property editor lets you set and modify various graphics properties, such as brush options, paint style, color, and titling style.

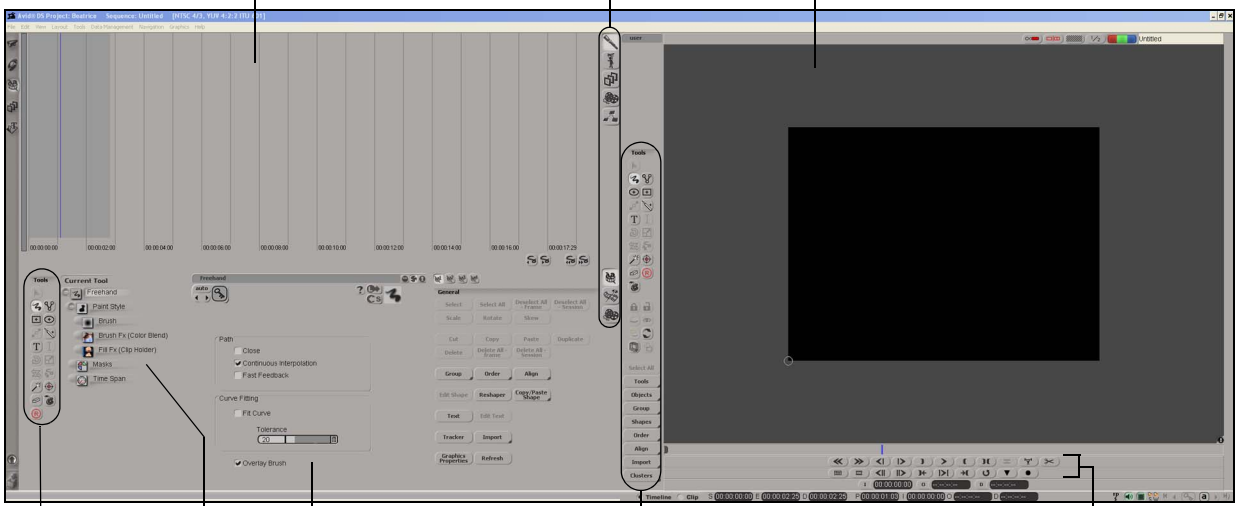
Toolbars contain tools for drawing and manipulating graphics objects.



Graphics Object view (GOV) displays graphics objects and their time spans in the current graphics session. You can also select, trim, move, rename, and delete any of your graphics objects.

The Graphics Layout

The Graphics layout is where you perform painting and titling tasks. You can create graphics objects, such as text and vector-based strokes, and apply colors, textures, and effects to them. Once created, you can edit and animate their properties.



Related Topics

Graphics Object View (GOV)

Graphics Property Tree

Property Editors

Source and Record Viewers

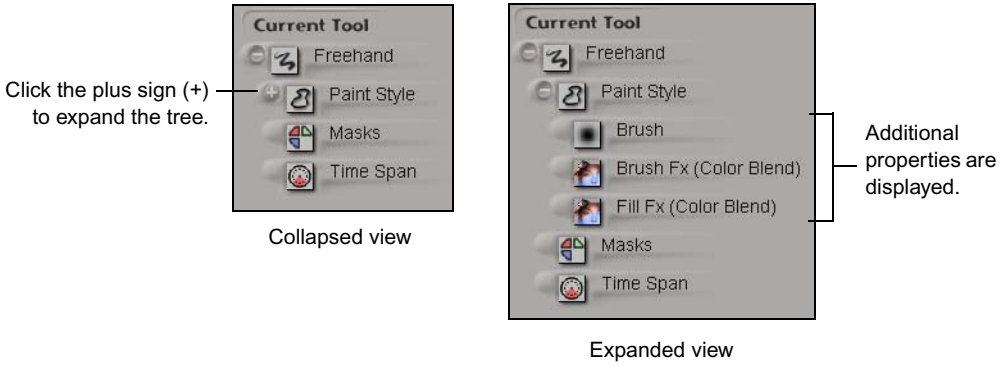
Toolbars

Transport Controls

Displaying the Safe Action/Title Guides

Graphics Property Tree

The graphics property tree displays the properties of a selected tool or graphics object (stroke or text). Using this tree, you can set the default properties of a drawing tool or edit the properties of selected graphics objects.



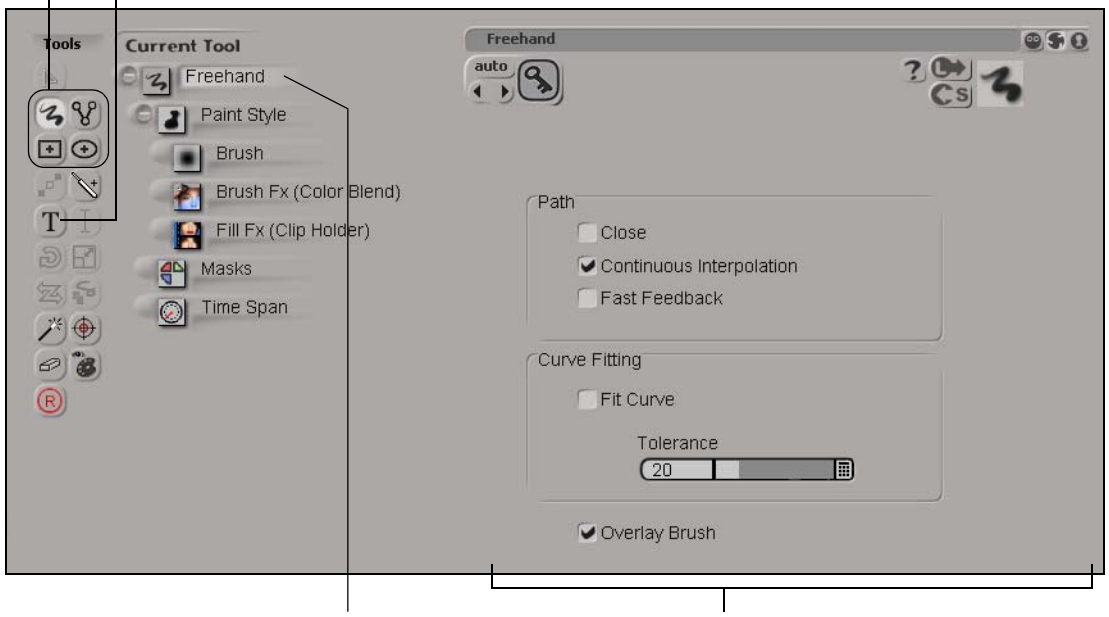
Setting the Drawing Tool Properties

Before you start drawing or creating titles, you should set the default properties of the drawing tool that you will use. The properties are immediately applied to any objects you subsequently create. Click the name of a graphic tool to see or modify its properties. Click the graphic tool icon, or right-click the name, to see other options.

When you select a drawing tool, the “Current Tool” name appears above the graphics property editor. Any properties you now set will become your default drawing properties for that tool.

If you select an existing graphics object from the viewer, “Selected Object” appears above the graphics property tree. Any properties you now set will apply only to the selected graphics object(s).

To set the drawing tool properties:

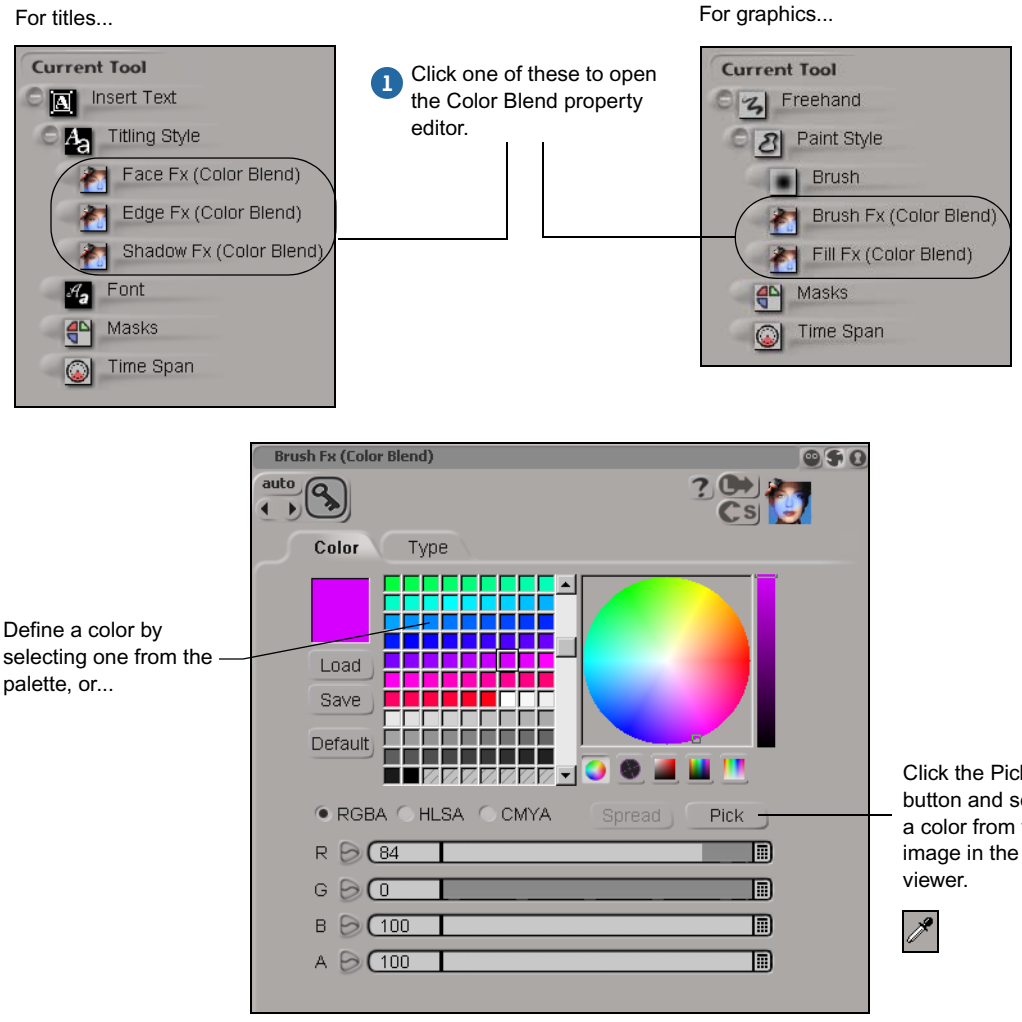


Note: Not all tools have an associated property editor.

Defining Color

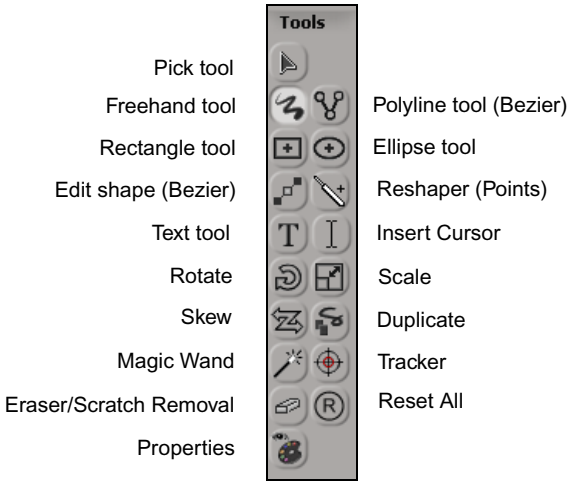
In Avid DS Nitris, color is considered to be an effect, called *Color Blend*, that you can apply to an image using the brush or fill properties of a stroke, or to the face, edge, or shadow properties of a title.

To define colors, you can pick a color from the palette or the color wheel in a property page, or use the color picker to select a color from an existing image.



Creating Graphics and Titles

The graphics toolbar includes the following tools.



When you first paint or create titles in the viewer, the graphics are displayed with the default properties. After creating graphics, you can select and edit them to change individual properties.

To create graphics or titles:

After selecting a drawing tool and adjusting its properties in the graphics property tree, use any of the following in the viewer:

- **Polylines:** click to create line segments. Press Esc to end the polyline or Ctrl to close the polyline.
- **Freehand strokes**: drag to create a freehand stroke. Once you release the mouse or pen, the stroke is complete.
- **Rectangles and ellipses**: Drag to create a rectangle or ellipse. To maintain the aspect ratio, press Shift and drag.
- **Titles**: Click to create a text box and type in the text for your title. Press Esc when you're done.

The graphics toolbar contains additional tools for editing graphic elements. In addition, the GFX1 through GFX4 toolbuttons open other graphic toolbars for editing and ordering graphics.

GFX1 though GFX4 toolbuttons

Subtopics

Using the Graphics Object View (GOV)

Changing the Properties of Objects

Using the Graphics Object View (GOV)

Each graphic in the viewer and its time span is represented by a corresponding object in the Graphics Object View (GOV). The most recently created object is on top. This lets you clearly see the timing relationships between all the objects in a graphics session and gives you the ability to manipulate them in the GOV.

A graphics session is the time span over which graphics objects appear; it is created when you:

- Switch to the Graphics layout or Graphics combo view.
- Apply the Graphics effect to a clip or track.

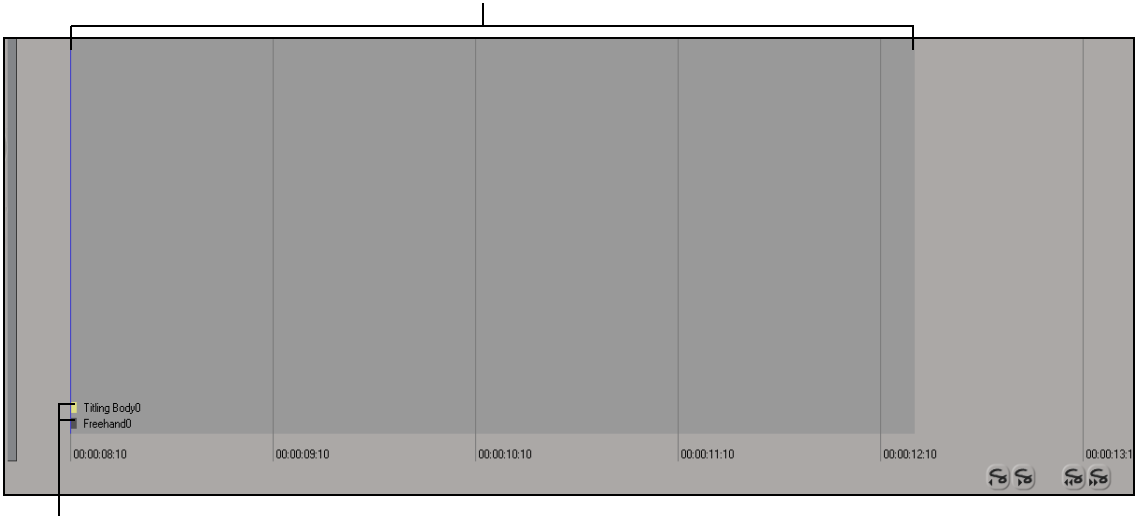
Once you're created graphics objects, you can select, delete, move, and trim (in time) them in the GOV.

To access the Graphics Object View:

- Select **View > Multi-Instance Views > Graphics Objects (GOV)**.

  The Graphics Object View and the current graphics session are displayed.

Graphics Object View



Related Topics

Graphics Object View (GOV)

Changing the Properties of Objects

After creating a graphics object, you can edit any of its properties. However, you must first select an object before you can move it or edit its properties or shape. When you select an object, the graphics property editor displays the properties of that object.

Select button

To edit a graphics object:

1. From the Tools toolbar, click the Select button.

   The graphics object you last created is automatically selected.

2. To select a different object, click an object in the viewer or GOV.
   Press Shift to select multiple objects.

   In the viewer, a yellow bounding box surrounds each selected object. For a single object, or if all graphic objects have the same properties, the graphics property editor displays the properties. For multiple graphic objects that do not share properties, the editor remains blank.

   In the GOV, selected objects are highlighted in yellow.

3. Use the graphics property tree to edit the properties of the stroke or title.

When you edit titles using the graphics property tree, the changes you make are applied to the entire contents of the text body.

To edit the individual letters in a text body, select the text body, click the Edit Text button in the Tools toolbar, and then select the letter(s) or word(s) you want to edit.

Finishing a Graphics Session

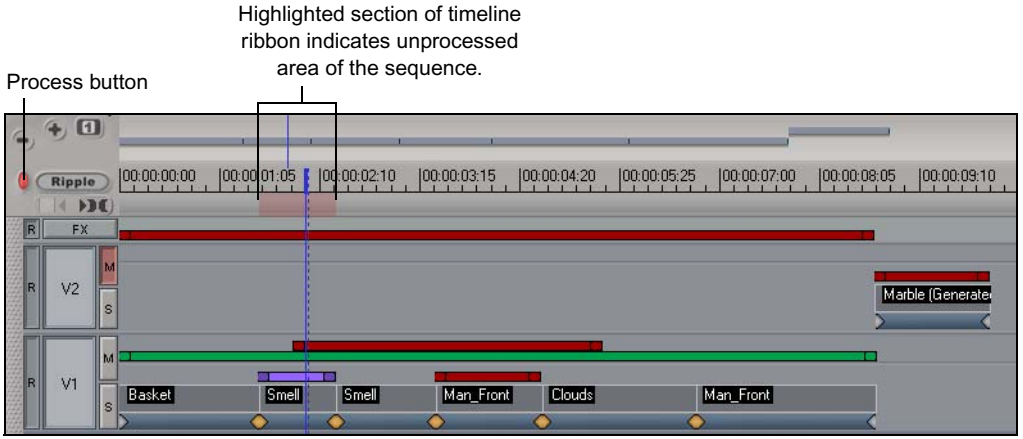
Once you've finished creating graphics and titles, you can process and then switch to any other layout. For more information, see "Processing Overview" on page 254.

Timeline button

To process graphics:

1. From the view switcher, click the Timeline button. In the Graphics layout, the view switcher is a vertical bar in the middle of the desktop.

   The timeline is displayed.



2. In the timeline controls, click the Process button.
3. In the Processing Options dialog box, select the appropriate options.
4. Click **OK** to begin processing.

   Once the effect is processed, you can scrub the clip to see the graphics or titles you created.
5. Save your sequence.

Related Topics

Processing Overview

Chapter 12
Outputting a Sequence

Outputting a sequence is the process of converting the digital media of your sequence into one of several output formats. You can output a sequence to tape, to a single file, to a series of files, or as a QuickTime movie.

This chapter takes approximately 20 minutes to complete.

- Outputting to Tape
- Outputting to File

Outputting to Tape

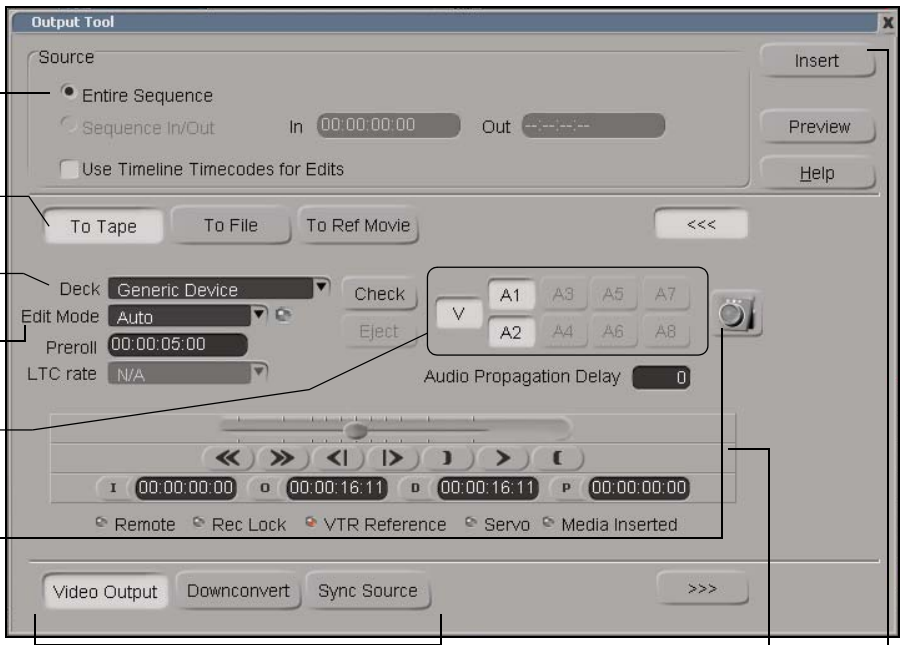
When outputting to tape, you'll be using the Output tool to record a sequence to a videotape deck.

Before you output to tape, do the following:

- Make sure your deck and the Avid DS Nitris system are correctly connected.
- To ensure fluid output, process all your effects, including any real-time effects. For more information, see "Processing" on page 256.

To output to tape:

1. Open **Sequence2.**
2. Select **View > Single-Instance Views > Output Tool**.
3. Select the material to output.
4. Click the **To Tape** button.
5. Select the external device and click the **Check** button.
6. Set the Edit Mode to Auto.
7. Select the tracks you want to output.
8. Set the Timeline/Deck button to **Deck**.
9. Specify video output settings, downconvert parameters, and sync source.
10. Use the transport controls to set the in-point where you want to start recording.
11. Click the **Insert/Auto** button to start recording.



Related Topics

Outputting to Tape

Outputting to File

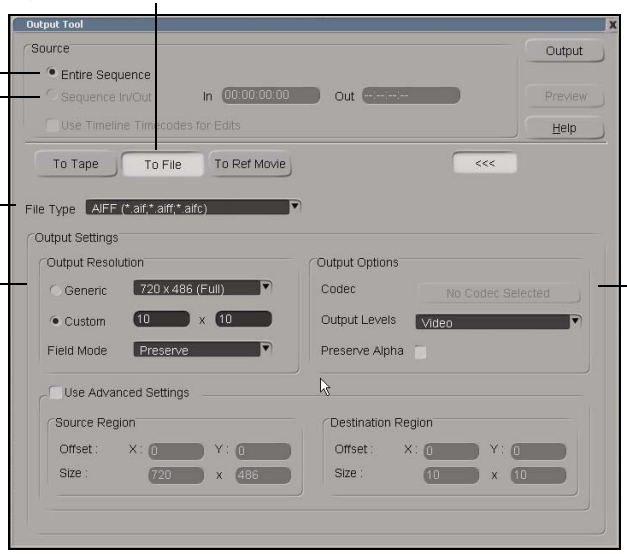
The Output Tool also lets you output a sequence as a single file (such as a QuickTime movie) or as a series of files (such as a sequence of DPX files). Avid DS Nitris supports a wide range of video and audio file formats.

Now you'll output your composite image to a graphic file.

To output a sequence to file:

1. Open **Sequence4**.
2. Select **View > Single-Instance Views > Output Tool**.
3. To output the sequence, select the **Entire Sequence** option.

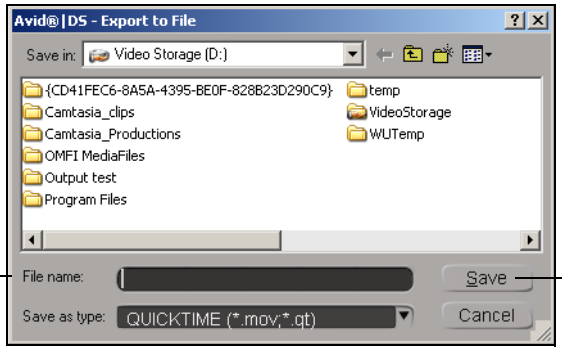
   To output a frame or series of frames, set in and out-points on the timeline, and select the **Sequence In/Out** option.
4. Click the **To File** button.



5. Select the file format.
6. Select a standard frame size or specify a custom size.
7. Select the file compression (if applicable).
8. Select the **Preserve Alpha** option if the sequence includes an alpha channel that you want to keep and the format supports alpha.

9 Click the **Output** button at the top-right corner to start the export.

The Export to File dialog box displays.



10 Type a file name.

11 Click the **Save** button.

Related Topics

Output File Formats

Outputting to File

Chapter 13
Compositing

This chapter describes the ways in which you can layer two or more images to create a new image. This is known as compositing.

This chapter takes approximately 60 minutes to complete.

- About Compositing
- Compositing Methods
- Creating a Basic Matte
- Simple Track Compositing
- Using Composite Container Clips

About Compositing

Compositing is the layering of clips or images to create a new integrated image called a *composite*. The underlying layers in a composite are only visible if your clip has a matte; a grayscale image that lets you isolate and protect specific parts of an image.

If an image already has a matte (called an *internal matte*), it is stored in its alpha channel. The alpha channel is one of the four components of an image: R (red), G (green), B (blue), and A (alpha). If an image does not have a matte, you can create one or use a matte from another image (called an *external matte*).

If a clip has a matte you want to use, you can simply import the alpha channel when capturing a clip.

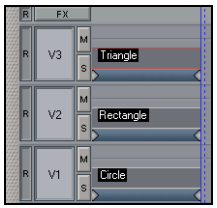
In Avid DS Nitris, foreground images are composited over a background image using a matte from the foreground image's alpha channel.

Compositing Methods

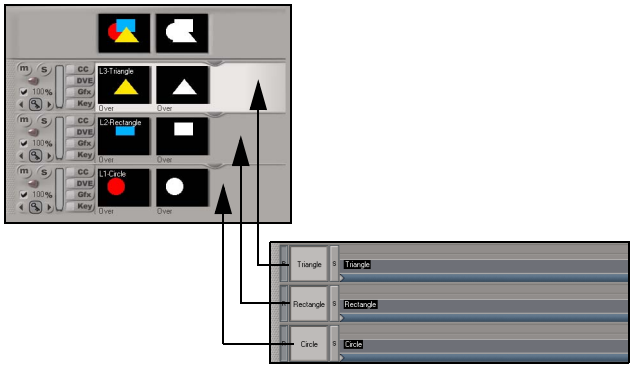
In Avid DS Nitris, there are three methods that you can use to create a composite, depending on how complicated your composite will be. Before you begin compositing, you should know which clips you want to use and how you want to composite them.

In this chapter, you'll learn how to create mattes, and perform composites using three different methods.

Method 1: Simple track compositing lets you use the video and background tracks to composite images. You can add as many video tracks to the timeline as needed.

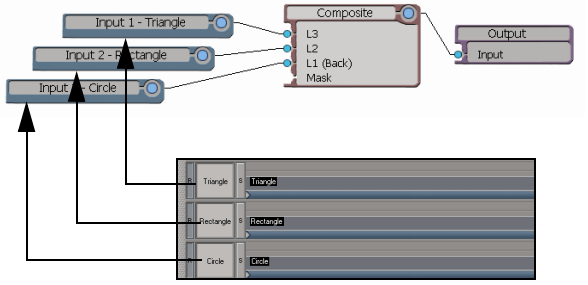


Method 2: Composite container clips let you create multiple layers and composites that can contain tracking, external mattes, or animation. You can also apply effects, such as color correction, DVEs, graphics, and keyers to each layer and blend composite operations between layers and mattes.



Clips on video tracks feed into layers in the Layers view.

Method 3: Effects Trees are useful when you want to reuse the treatment of an element repeatedly within a composite. In an Effects Tree, you can apply any combination of image effects. This lets you combine multiple images on one layer, which serves as the input to the layer above it.



Note: Effects Trees are an advanced topic that is discussed in detail in the Compositing and Graphics section—see “Using the Effects Tree to Composite”.

Related Topics

Using the Effects Tree to Composite

Creating a Basic Matte

A matte is a grayscale image that defines the transparency of an image when it is composited over another image. In Avid DS Nitris, there are several ways to create mattes.

Subtopics

Viewing the Alpha Channel

Keying out the Blue Background

Viewing the Alpha Channel

Before creating a composite, you should determine whether the clip already has a matte. A quick way to check whether a clip has a matte in its alpha channel is by using the Viewer Alpha Full button above the Record Viewer.

The alpha channel is one of the four channels (or components) of information that is contained in each pixel of an image. This channel specifies the transparency of each pixel, allowing portions of the foreground image to reveal or block out the background image when two images are composited.

If you have not yet captured the clip needed for this lesson, see Capturing from File.

To view the alpha channel of a clip:

1. Open a new sequence.
2. Place the **Rectangle** clip at the beginning of a video track on the timeline.

3. Move the position indicator over the clip, select the clip and click the Viewer Alpha Full button above the Record viewer.

   The matte is displayed in the alpha channel of the clip. It is displayed as a grayscale image. By default the viewer displays the matte opacity at 100%. You can select the percentage of the matte opacity by right-clicking the Viewer Alpha Full button.

   If a clip does not have a matte in its alpha channel, the entire channel would be white.

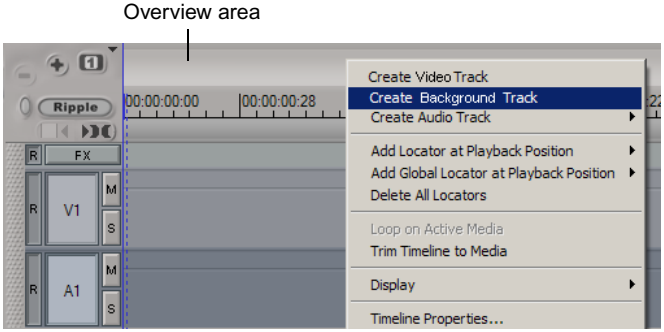
4. Click the Viewer Alpha Full button again.
5. Delete the **Rectangle** clip.

Keying out the Blue Background

Keying is an easy way to create a basic matte from a color in a foreground clip. You can create a key based on the HLS, YCbCr, or RGB color values, or on luminance values.In the following example, you'll be using the Blue-Green Keyer effect to create a matte based on a blue background color. You'll learn how to create a matte for a musician who was filmed against a blue screen.

To create a basic matte:

1. Right-click the overview area of the timeline and select **Create Background Track**.



   A background track appears under the V1 video track.
2. Place the **Musician** clip at the beginning of the V1 video track.
3. Place the **GiantWide-Bckg** clip at the beginning of the B1 background track.
4. Select the **Musician** clip and view the alpha channel.

   Notice that the clip has no matte. Therefore, you cannot successfully composite this clip over the background clip.

5. Click the Viewer Alpha button to see the musician in the viewer.
6. Apply the **Blue-Green Keyer** effect to the Musician clip.

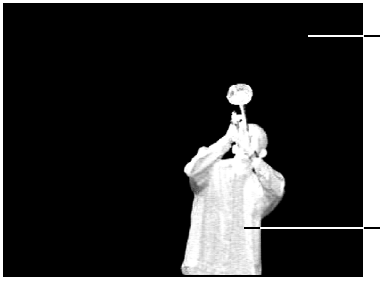
   The Blue-Green Keyer property editor displays.
7. Click the **Pick Key Color** button.

   The cursor changes to an eyedropper cursor when you move it over the viewer.

8. In the viewer, click the blue background color.

   Now you can see the background image in the viewer. In the property editor, the color you chose is displayed in the color swatch beside the Pick Key Color button.

9. In the property editor, select the **Output Matte** option to see the grayscale matte you created.



To make sure that the white foreground is completely white and the black background is transparent, you must clean the matte. The following procedure shows you how to do a simple clean-up.

To clean the matte:

1. Select the **Matte** property tab and make sure that the Output Matte option is still selected.
2. In the Map box, adjust the **Pick BG** (background) slider until you get a solid black color background in the viewer. This will make the background that you have keyed out completely transparent and ready for compositing over another clip.
3. Adjust the yellow **Pick FG** (foreground) slider until you get a solid white color in the foreground. This removes all semitransparent areas, ensuring that the foreground image is completely opaque.
4. To view the result, deselect the **Output Matte** option.

***Tip**: If you make a mistake, press Ctrl + Z to undo. If you're not satisfied with the matte, you can redo the entire procedure by clicking the **Reset** button.*

*To bypass the keyer and view the original clip, deselect the **Output Matte** and **Apply Key** options on the Key property page.*

5. Delete the clips on the timeline.
6. Delete the B1 background track.

Related Topics

About Keying

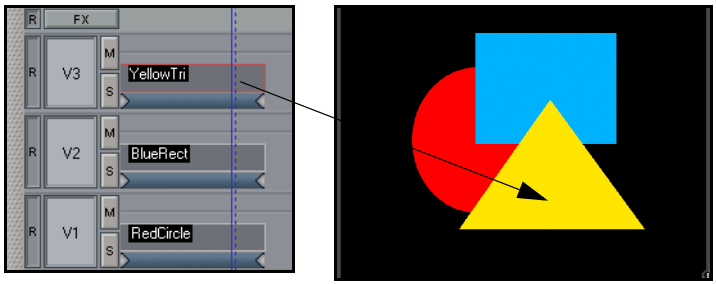
Using the Blue-Green Keyer

Fine-tuning the Matte

Simple Track Compositing

Simple track compositing on the timeline lets you use an unlimited number of video tracks in the Editing layout to create quick and simple composites. As you add clips to the tracks, the result is displayed in the viewer. Remember, the overlaid clip must contain a matte in its alpha channel for the composite to display in the viewer.

If your clip does not have a matte, you can create one. You will learn how to do this later in this chapter.



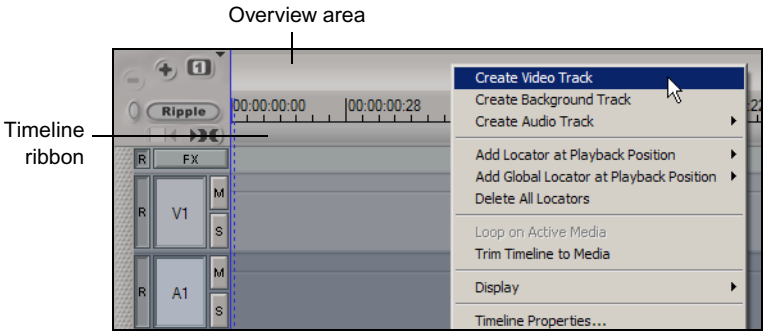
Tracks are composited in the order in which they appear in the timeline. The topmost video track is the top layer in the composite.

On the timeline, you can add, remove, or reorder video tracks, as well as hide one or more tracks to see the impact of each video track independently—see “Working with Tracks” on page 185.

If you have not yet captured the clips needed for this lesson, see Capturing from File.

To create a composite on the timeline:

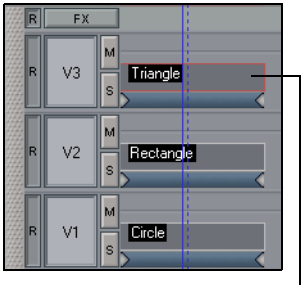
1. Place the **Circle** clip at the beginning of the video track. This will be the bottom-most layer of your composite.
2. Right-click the overview area of the timeline and select **Create Video Track**.



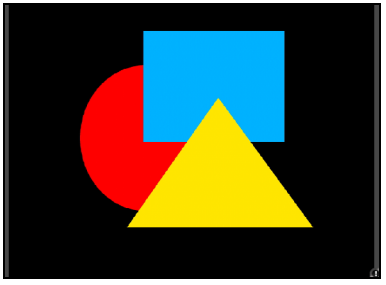
A new video track appears on the timeline above all the other tracks.

3. Place the **Rectangle** clip at the beginning of the new video track.
4. Drag the **Triangle** clip to the beginning of the timeline ribbon.

   A track containing the Triangle clip is automatically created at the top of the timeline.



The clip on this track is composited on top of the clips that fall within the same time span on the tracks below.



The result of composite corresponds to the video tracks and the order of the layers.

5. Place the position indicator over the clips to view the result in the viewer.
6. Save as **Sequence4**.

Tip: *If you have a clip on a video track and no clips on the video tracks below it, you can force the overlay to use the matte of the clip, so that it is composited over black. To do this, select the* ***Force Premultiplied Output*** *option from the Sequence Preferences dialog box. This behavior is similar to the Force Premultiplied Output command in the Layers view.*

Related Topics

Working with Effects

Using Composite Container Clips

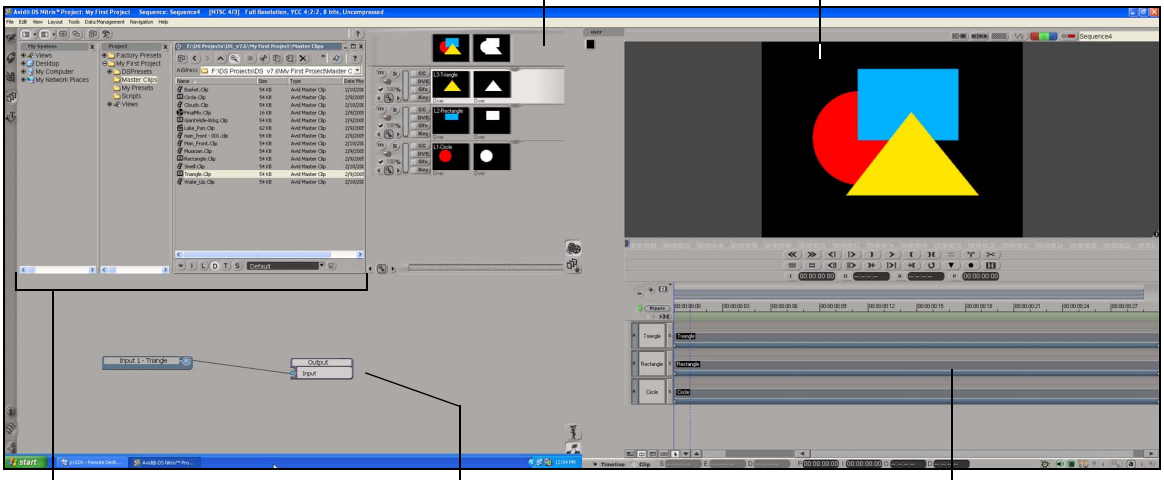
Working with layers in the Compositing layout lets you create complex composites that can contain tracking, external mattes, or animation. It is where you organize multiple layers of video clips and images. When compositing with layers, you are actually working within a composite container clip as soon as you switch to the Compositing layout.

Layouts are customizable; you can add, remove, reposition, and resize most of the elements in a layout. You can also create custom layouts from scratch. You can rearrange the views on the desktop, or add new views and toolbars.

You can also create an Effects Tree in which you can add multiple clips for compositing and multi-input effects.

Layers view is where you add clips and establish the order of clips that are placed on the composite container clip timeline.

Viewer displays the output of your sequence at the location of the position indicator.



Avid Explorer is where you can drag and drop clips to the Layers view, the composite container clip timeline, and the Effects Tree.

Effects Tree is where you can drag and drop input images and effect nodes. It is mostly used for complex compositing operations.

Composite container timeline holds all clips in your composite. You can also drag clips here.

A composite container clip lets you focus on the clips that you want to composite. When you create a composite container clip, you get a new timeline for layering clips on the video tracks of the Compositing layout. When you close the composite container clip, the result is displayed as a single clip on the timeline in the Editing layout; this is the *top timeline*.

You can reopen a container clip at any time to add, modify, or delete its contents. You can also apply effects on individual clips, as well as the entire composite container clip.

Compositing button

To create a composite container clip:

1. Make sure the position indicator is placed over the clips on the timeline.
2. From the taskbar, click the Compositing button.

   A composite container clip is automatically created and the Compositing layout is displayed. Two new buttons appear at the bottom of the taskbar; the top button lets you switch back to the top timeline in the Editing layout and the button beneath it represents the composite container clip that you are now working in.

3. All three clips are now in your composite container clip.

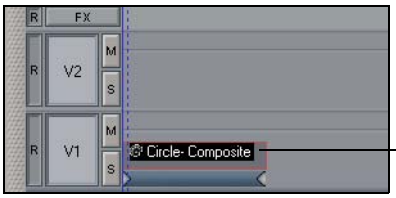
The content of the composite container is based on where the position indicator is on the timeline when you switched to the Compositing layout. If it is over a clip(s) on the timeline, this clip becomes the first layer. If the position indicator is over a transition, both clips become part of the composite.

To close a composite container clip:

- From the taskbar, click the Go to Top Timeline button at the lower end of the taskbar.

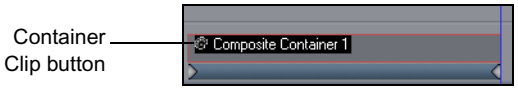
  The current container clip is closed and the top timeline is displayed.

  All composited clips are represented as a single container clip on the top timeline. To make any changes to the composite, reopen the composite container clip.



To reopen a composite container clip, do one of the following:

- Click the **Container Clip** button of the composite container clip on the timeline.



- Double-click the container clip to open it.

- Place the position indicator over the container clip and click the Compositing button on the taskbar.

  The composite container clip opens and the Compositing layout displays the contents of the container clip.

Tip: *If you notice unexpected results with your composited images, such as dark areas around the edges, it may be due to the premultiplication setting. For more information, see "Compositing with Premultiplied Images".*

Subtopics

The Layers View

Applying Effects to Layers

Viewing the Results of Composited Layers

Related Topics

Working with the Layers View

Using the Result Area

Using Composite Container Clips

Composite Container Property Editor

Applying Effects to Layers

Compositing with Premultiplied Images

Simple Track Compositing

Using Composite Container Clips

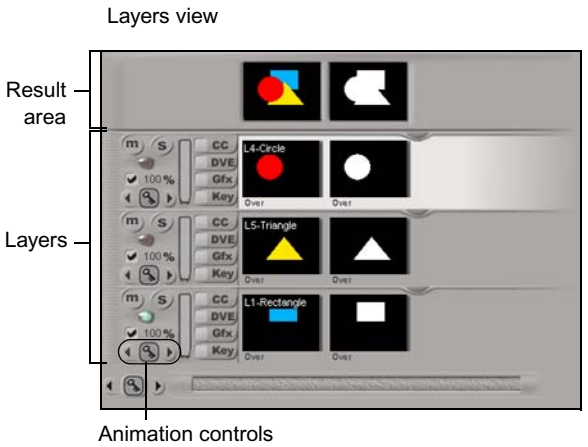
Using the Effects Tree to Composite

The Layers View

The Layers view in the Compositing layout lets you apply animation, tracking, or external mattes to your layered clips. You can also change the order and appearance of the composited clips.

You can do the following for each layer:

- Apply the Color Correction, DVE, Graphics, and Keyer effects.
- Apply one or more external mattes to individual layers.
- Apply compositing and blend operations between the RGB and alpha components of adjacent layers. This is an advanced topic that is not covered in this guide.



In this example, the layers were automatically created from the clips on the top timeline. You can, however, drag and drop other clips for your composite from Avid Explorer to the timeline, or to the Layers view.

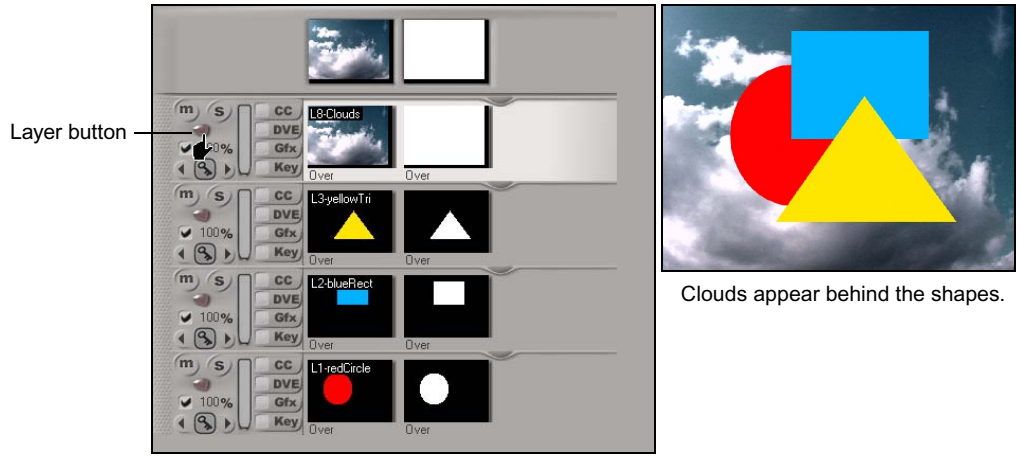
If you have not yet captured the clip needed for this lesson, see Capturing from File.

To create and view layers:

1. Drag the **Clouds** clip from Avid Explorer to an empty area at the top of the Layers view.

   A layer is created and a track is automatically created on the timeline. The clouds, however, are obscuring the shapes.

2. To rearrange the layers, drag the Clouds layer and place it at the bottom of the layers.



Tip: *If you notice unexpected results with your composited images, such as dark areas around the edges, it may be due to the premultiplication setting. For more information, see "Compositing with Premultiplied Images".*

Related Topics

Compositing

Result Area

Result Area Menu

Working with the Layers View

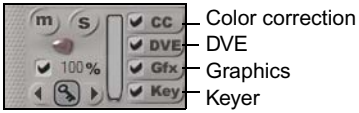
Using External Mattes in the Timeline and Layers View

Applying Blending Operations in the Layers View

Applying Effects to Layers

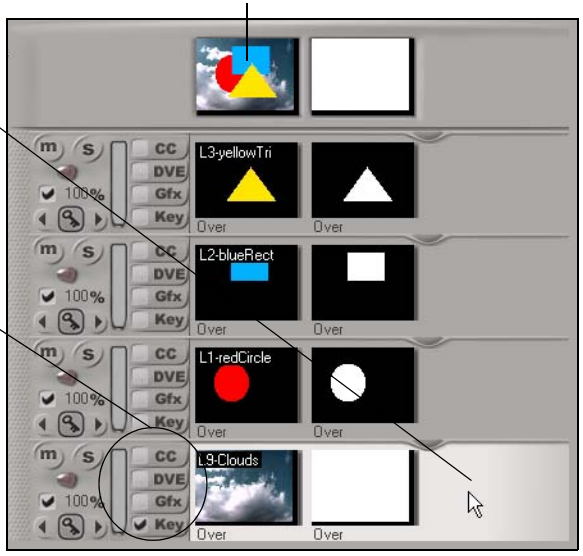
When you apply an effect to a layer, it affects the duration of all material on its corresponding track on the timeline. You can bypass an effect to view the composite without the effect. For more information, see "Bypassing Effects" on page 235.

You can apply four types of effects on each layer: Color Correction, DVE, Graphics and Keyer. Applied from bottom to top, the effects on each layer work on the original image and are independent of each other.



At processing time, the image is processed on the results of the preceding effect.

To apply an effect to a layer:



1. Select the layer on which you want to apply an effect.

   Note: When you select a layer, an Effects Tree displays in the area below the layers. Each layer has its own Effects Tree.

2. To apply an effect, select one of the options and click the button beside it.

   The Key and DVE effects open a property editor.

   The CC and Gfx effects switch to the Effects and Graphics layouts respectively.

   Tip: You can also open the floating Graphics combo view by pressing Ctrl and clicking the Gfx button.

3. Use any open property editor to edit and animate the effect. If you were switched to another layout, switch back to the Compositing layout by clicking the Compositing button on the taskbar.

4. Close any property editors that were displayed.

5. Save your sequence.

Viewing the Results of Composited Layers

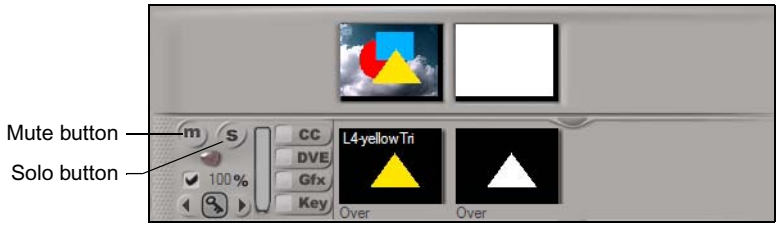
The viewer displays the resulting composite of all the layers. You can view each layer independently of the other layers by soloing or muting layers.

When you solo a layer, only that layer is displayed in the viewer. Soloing a layer has no effect on the processed result, which is useful when you want to view one layer without seeing the effects from other layers. You can only solo one layer at a time.

If there are several layers in your composite and you want to preview two or more layers and not the others, you can mute them. When these layers are muted, they are not displayed in the viewer. Muted layers are not included in the processed result either.

To mute or solo a layer in the Layers view:

- Click the Mute or Solo button on a layer.



Depending on your viewer's settings, the corresponding layer's RGB or alpha channels are displayed in the viewer.

To solo a layer on the timeline:

- Click the Solo button on a video track on the timeline.

Keep in mind that as you add layers when the Force Premultiplied Output option is ON, they are always composited on top of a black layer, which is under the bottommost layer. This is helpful when you want to composite one layer over black. For more information, see "Compositing Clips over a Black Background".

Related Topics

Using the Result Area

Using Composite Container Clips

Working with the Avid Explorer

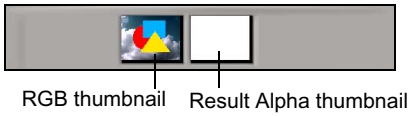
Working with the Layers View

Timeline

Transport Controls

Using the Result Area

The result area at the top of the Layers view displays the final composite of all your layers and Effects Trees. There is a thumbnail for the RGB and alpha channels, so you can see the resulting image and matte separately.



You can hide the result area if you need more working space. As an option, you can view the output of the result area in a separate floating viewer. This lets you view the output of your effect.

To use the result area:

- Right-click the result area and select one of the following:
  - **Display Result Area** to show or hide the result area.
  - **Open Viewer** to view the output of the result area in a separate, floating viewer that you can reposition anywhere on the desktop. Close the viewer when you're done.

Chapter 14
Conforming

Avid DS Nitris provides you with additional tools to finish projects that were created on other Avid editing systems, such as Media Composer. If your original media is stored on a shared storage device, such as an Avid Unity MediaNetwork system, Avid DS Nitris links directly to the media, so that you have immediate real-time playback.

You can use one of several file formats to transfer the sequence or project, and create logged clips. In Avid DS Nitris, you can later recapture the clips in an uncompressed or HD format, and you're ready to add the final touches to complete the project.

This chapter takes approximately 45 minutes to complete.

- Methods for Conforming
- Conforming a Project

Methods for Conforming

Conforming is the process of bringing a project from an offline environment into Avid DS Nitris, so you can continue the editing process. Avid DS Nitris supports a variety of conforming file formats.

Edit Decision Lists (EDLs) have long been the standard for conforming an offline session. An EDL is a detailed list of the edits contained in a sequence, including all the timecode and supported effects information. EDLs work well, but they are limited by the amount of effects information that can be transferred.

Open Media Framework (OMF) was developed to allow users to transfer edit information, as well as many effects from the offline to the online session. Although OMF is more powerful than EDLs, it still has some limitations.

As a result, a new format was developed called **Advanced Authoring Format (AAF)**. AAF was built on the strengths of the OMF format and was designed to avoid its limitations. Avid DS Nitris supports the AAF format for conforming single clips or simple sequences.

Avid File Exchange (AFE) files expand on the AAF technology to let you recreate complete projects, including all bins, edit information, and a wide variety of effects. You can use an AFE file to link to the media captured during an offline session. If your original media is stored on a shared storage device, such as an Avid Unity MediaNetwork system, Avid DS Nitris links directly to the media for immediate real-time playback.

For the latest information on the conform process, such as which versions of Avid editing products are supported and the level of support for effects and titles, consult the *Avid DS Nitris Conform Table*, which is available on the Avid DS Support Center web site and the Avid Knowledge Center.

Conforming a Project

Projects offlined on an Avid editing system, such as Media Composer, can be totally recreated in Avid DS Nitris using the AFE file format. After exporting your Media Composer project as an AFE file, you can move the clips or sequences directly onto the Avid DS Nitris timeline. AFEs bring over a wide variety of effects. If your original media is stored on a shared storage device, such as an Avid Unity MediaNetwork system, Avid DS Nitris links directly to the media, so that you have immediate real-time playback.

Avid DS Nitris will link to source media in the original project only.

You can practice the conform process by using the supplied sample project. The project includes a 7-second sequence, which is composed of three video clips, two audio tracks, a dissolve, and a picture-in-picture effect (DVE). The sequence was created on Avid Xpress Pro using DV25 MXF media. Information about the sequence was exported in an AFE file.

The Material Exchange Format (MXF) is an industry-standard container format that encapsulates both media and production metadata into a single file. MXF is supported as a common file format on Avid DS Nitris and other Avid applications, making it easier to share projects and media.

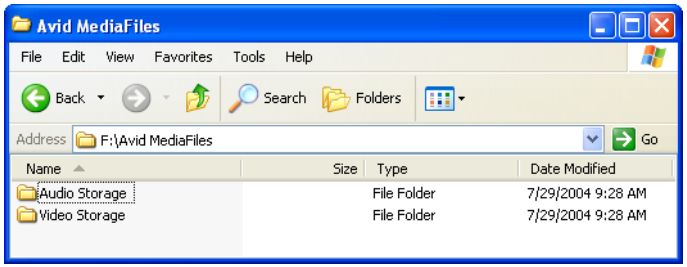
You'll be copying the media files to your media storages. This is one way to perform a conform; other ways include sharing media over an Avid Unity system or importing an AFE file and recapturing.

Defining Your Storages

Before you conform the project, you'll need to define the storages for the MXF files.

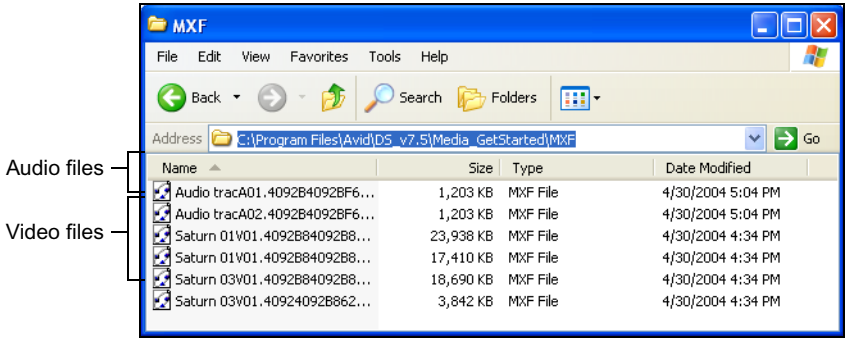
To create folders for your MXF files:

- Open a Microsoft Explorer window and create the following folders either on your local storage, or on an Avid Unity storage that you are sharing with other Avid systems:
  - \Avid MediaFiles\Video Storage
  - \Avid MediaFiles\Audio Storage



To copy the MXF media:

1. Open another Microsoft Explorer window and navigate to this folder: **C:\Program Files\Avid\DS_v*X*\Media_GetStarted\MXF**.



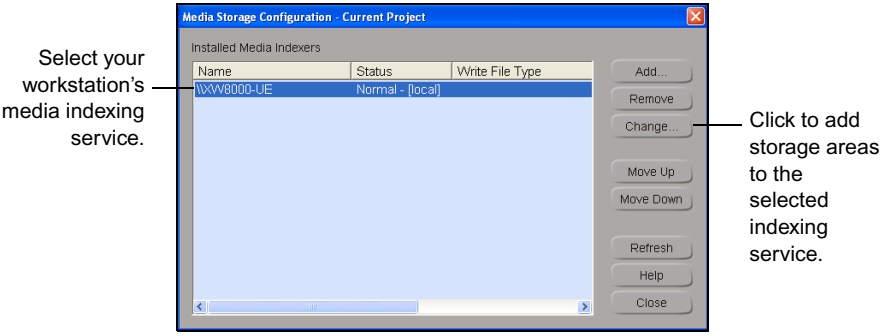
2. Copy the two audio files to the \Avid MediaFiles\Audio Storage folder.
3. Copy the four video files to the \Avid MediaFiles\Video Storage folder.
4. Close both Microsoft Explorer windows.

Next, you will point your workstation to these folders by configuring a storage connection in Avid DS Nitris.

To add MXF storage to your media indexing service:

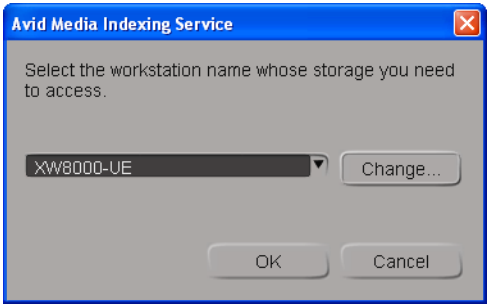
1. In Avid DS Nitris, select **Data Management > Configure Storages**.

   The Media Storage Configuration - Current Project dialog box displays the media indexing services that are configured for your workstation.



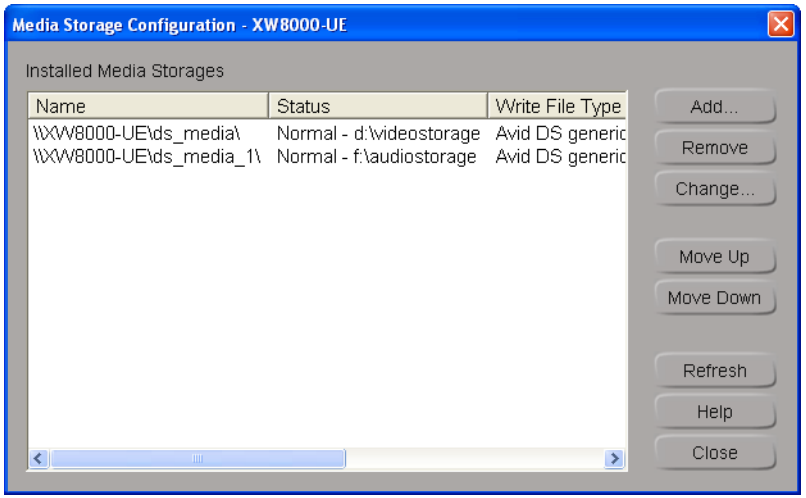
2. Select your workstation's media indexing service, and click the **Change** button.

   The Media Indexing Service dialog box is displayed.



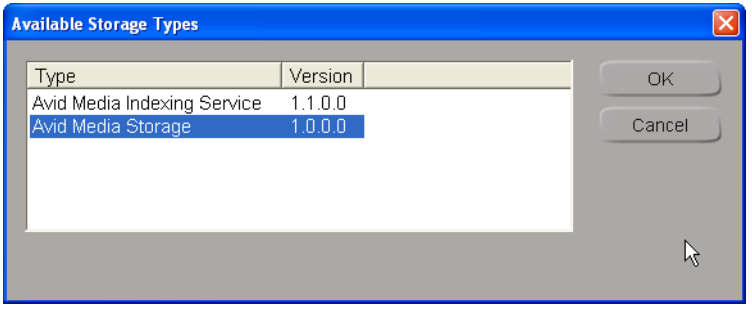
3. Leave the workstation name as is and click the **Change** button.

   The list of storage areas in this indexing service is displayed.



4. To add a new storage, click the **Add** button.

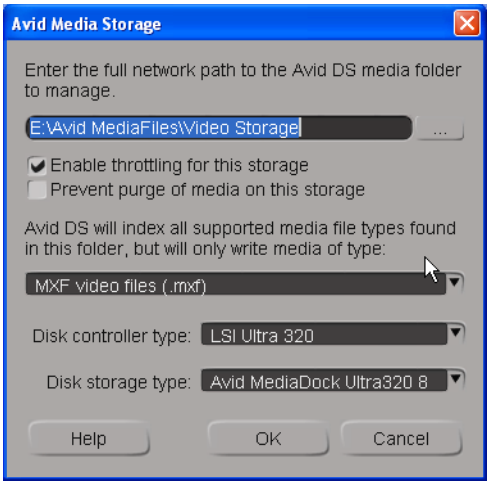
   The Available Storage Types dialog box displays.



5. Select **Avid Media Storage** and click **OK**.

   The Avid Media Storage dialog box displays.

6. For the video storage, enter the full Windows path name (*drive:\folder_name* or *workstation_name**folder_name*) where the storage area is located, or use the browse (...) button to find it. For example, D:\\Avid MediaFiles\Video Storage or \\DSStorage4\\Avid MediaFiles\Video Storage.



If you are configuring a folder on an Avid Unity system, then click the browse (...) button and locate the Avid Unity workspace folder. For example, \\AvidUnity\allocation\workspace\mediafolder. Do NOT use a drive letter.

7. Select the **Enable throttling for this storage** option if you are working in a workgroup where an Avid DS RP is installed. The Avid Throttle Manager allows for more efficient bandwidth management between your workstation, storage areas, and the Avid DS RP workstation.
8. Select **MXF video files (.mxf)** as the media type.
9. From the **Disk Controller Type** list, select the card that is installed in your workstation.
10. From the **Disk Storage Type** list, select the storage type that you are using.

    The disk options set the appropriate bandwidth for the application to use when transferring data to the storage. You may choose Generic Adapter and Generic Storage but these settings may not fully utilize bandwidth available to you. Therefore, choose the options according to your storage device to obtain the best performance for real-time effects.

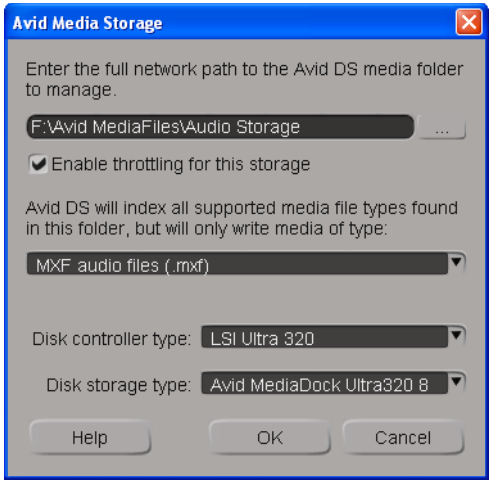
    Click the **Help** button for more information on these settings.

11. Click **OK**.

    The storage area is added to the Media Storage Configuration list.

12. To add the audio storage, click the **Add** button.

13. Select **Avid Media Storage** and click **OK**.



14. Enter the full Windows path name (*drive:\folder_name* or *workstation_name**folder_name*) where the storage area is located, or use the browse (...) button to find it. For example, D:\Avid MediaFiles\Audio Storage or \\DSStorage4\\Avid MediaFiles\Audio Storage.

15. Select the **Enable throttling for this storage** option if you are working in a workgroup where an Avid DS RP is installed. The Avid Throttle Manager allows for more efficient bandwidth management between your workstation, storage areas, and the Avid DS RP workstation.

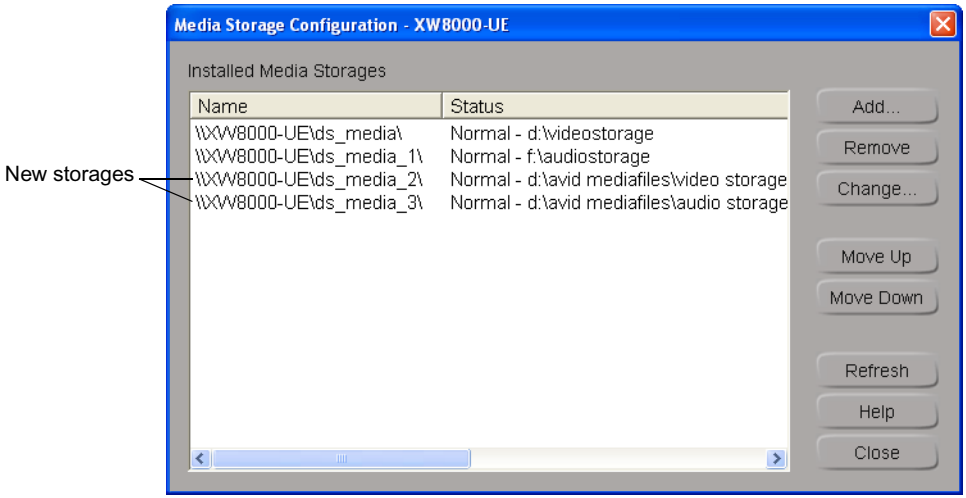
16. Select **MXF audio files (.mxf)**, as this is the media type.

17. From the **Disk Controller Type** list, select the card that is installed in your workstation.

18. From the **Disk Storage Type** list, select the storage type that you are using.

19. Click **OK**.

    The storage area is added to the Media Storage Configuration list.



These storages will be accessed and indexed in the order in which they are listed. Use the Move Up or Move Down buttons to move the MXF storage lower in the list.

20. Click **Close** and then **OK** to return to the Media Storage Configuration dialog box.
21. Click the **Close** button to save the configuration for the media indexing service.

By default, the media indexer sets any new storage areas to automatically have full read/write access by any user on the network. To restrict access to your media, you can change the share permissions through Windows.

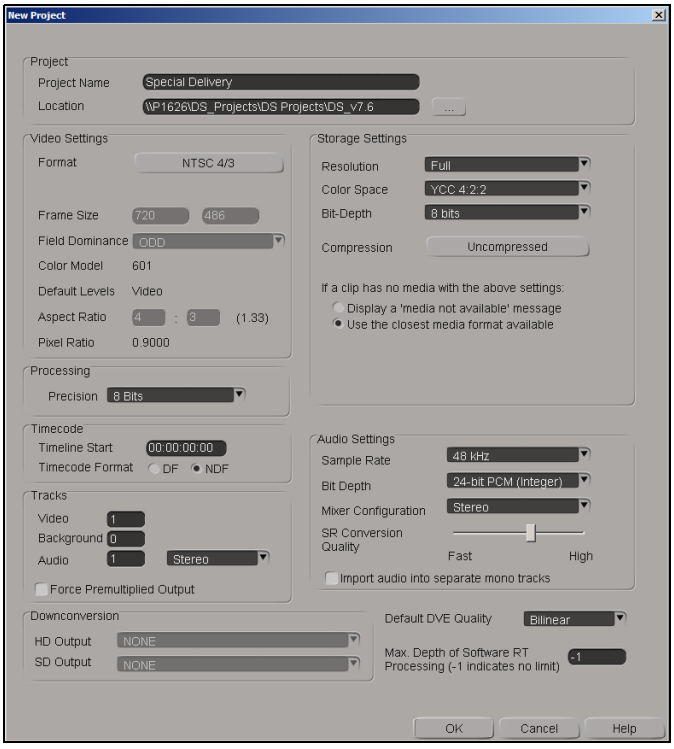
sharing folders and setting permissions$$

Conforming the Sequence

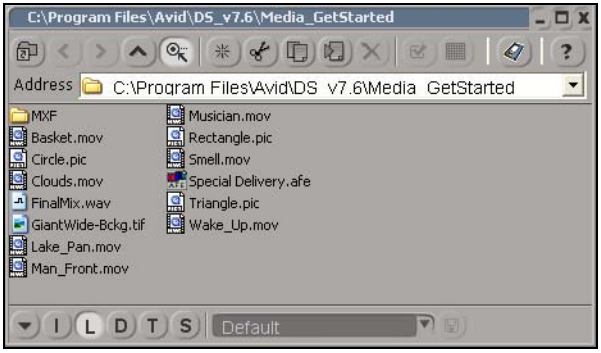
Now that your storages are defined, you can conform the project. You'll be starting a new project, and then opening the sequence created in Avid Xpress Pro.

To conform the sequence:

1. In Avid DS Nitris, select **File > New > Project** and name it **Special Delivery**.
2. Select NTSC 4/3 as the video format.
3. Accept the other defaults. Make sure to select the **Use the closest media format available** option.

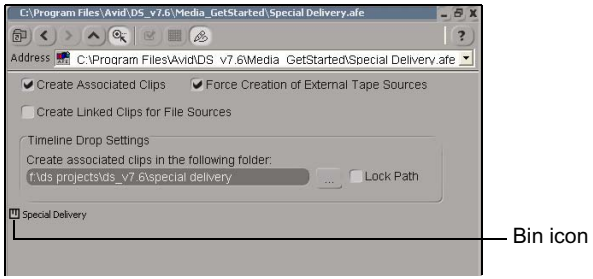


4. Click **OK**.
5. In Avid Explorer, use the My System panel to navigate to the **C:\Program Files\Avid\DS_v*X*\Media_GetStarted** folder.



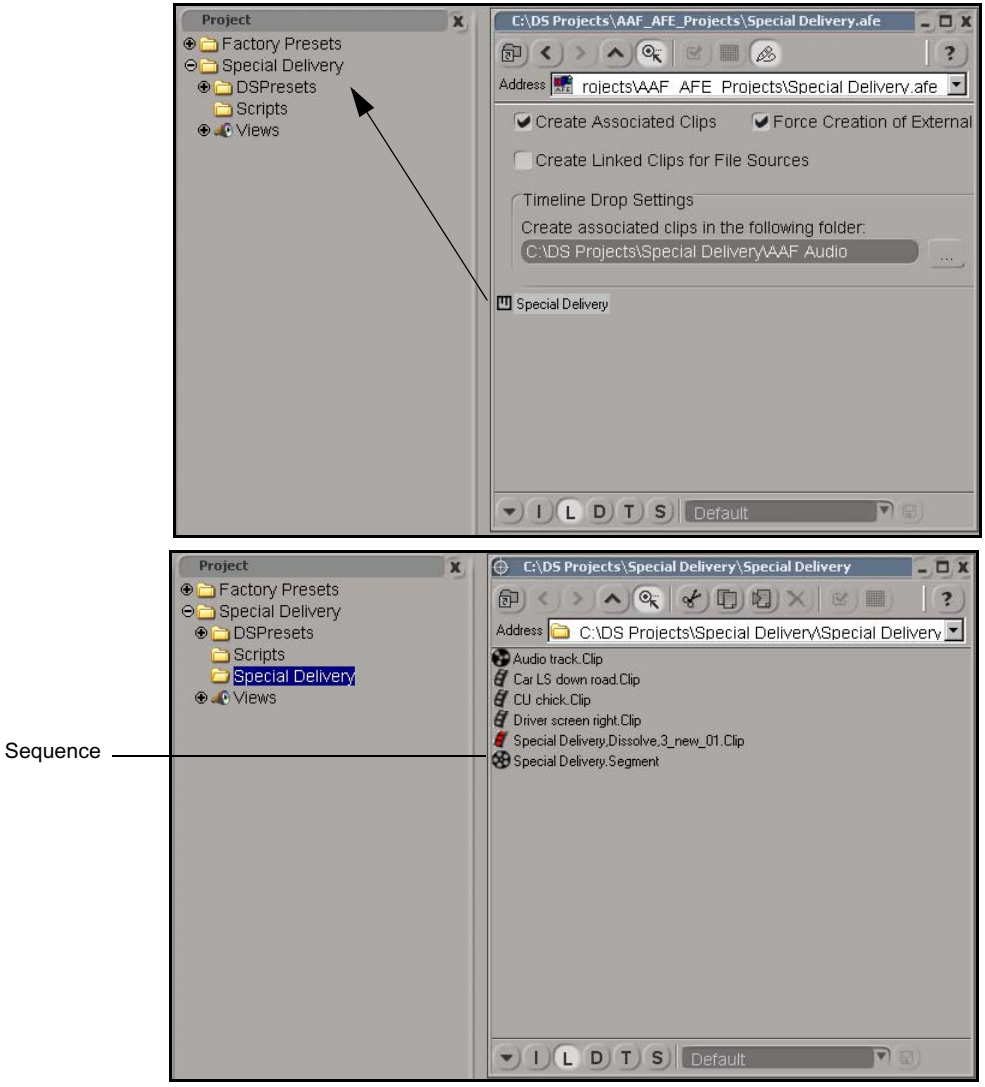
6. Double-click the **Special Delivery.afe** file.

   The AAF/AFE View opens and displays a copy of the original folder, called “Special Delivery.”

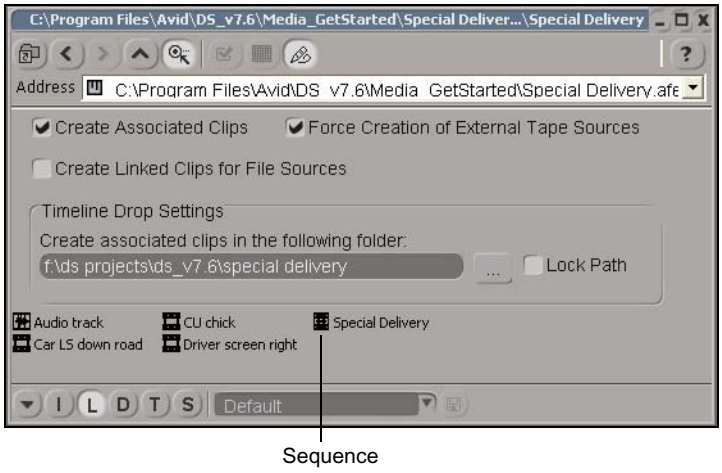


7. Drag the bin to a folder in the Avid Explorer.

   In this case, the sequence is already created. Note that the bin includes an offline clip for the dissolve effect. Avid DS Nitris does not use processed media during the conform process.

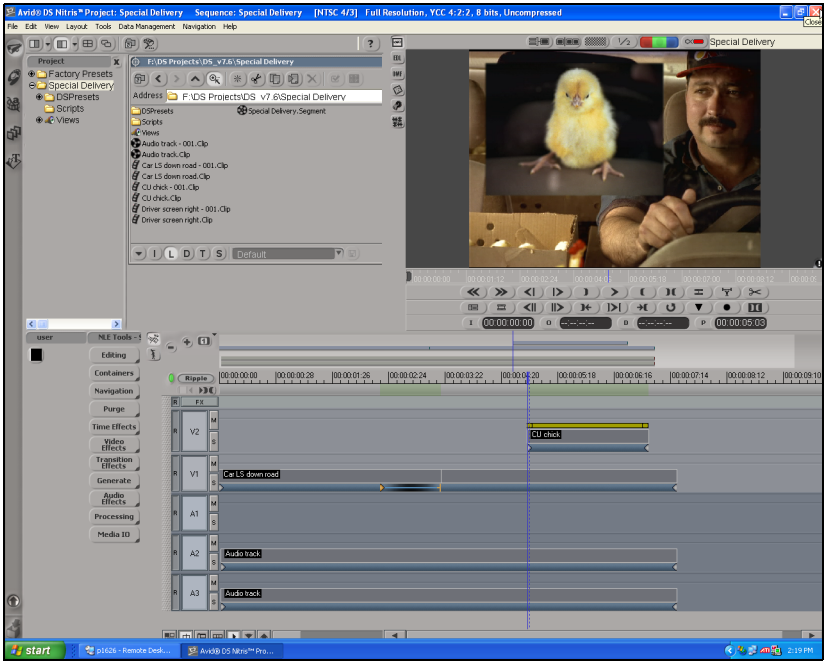


8. Double-click the Special Delivery bin icon to see the master clips and sequence inside it.



9. Leave the default settings as they are.
10. Drag the sequence to the first track on the timeline.

    Avid DS Nitris creates master clips in your project folder, and the sequence automatically links to the media on your storage device.



You can now edit the sequence in the same way as you edit any other Avid DS Nitris sequence.

11. Double-click the yellow DVE effect bar on the CU chick clip to open its property editor.

    A yellow bounding box surrounds the image in the viewer.

12. Scale down the size of the chick image and place it in the middle of the rear view mirror by doing one of the following:

    - Select one of the interactive tools in the DVE property editor and transform the image interactively in the viewer by repositioning the image box or adjusting its handles to change the dimensions.
    - Enter the values in the DVE property editor.

13. Save your sequence as **Special Delivery**.

If there are red sections on the timeline ribbon, you will need to process the DVE effect before you can play the sequence.

14. Play the sequence.

If you do not hear any audio, make sure the audio is set to 48 kHz in the Sequence Preferences dialog box. Select File > Sequence Preferences.

Installation and Administration

This section includes information for installation and administration.

- Setting up your Avid DS Environment
- Configuring Windows XP
- Installing Avid DS Software and Services
- Installing the Remote Processing Software
- The Avid DMS Broker
- Licensing Avid DS Software
- Managing Your Storage Areas

Chapter 1
Setting up your Avid DS Environment

The information in this section describes the various ways in which you can set up your post-production environment with Avid DS.

Whether you are installing a new system or upgrading from an existing system, you must ensure that your workstation(s) is prepared with the proper operating system, drivers, and network and storage connections.

The Avid DS Support Center web site http://www.softimage.com/avidds, has all the most recent software updates, hardware component and firmware drivers.

- Recovery Procedures for Avid DS

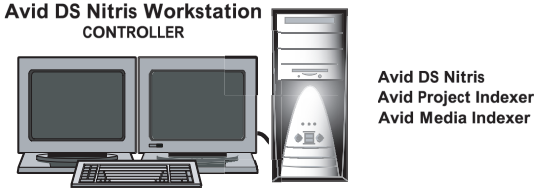
Installation Scenarios

Due to the various types of hardware platforms and Avid DS workgroup configurations, there are different installation checklists for upgrading your Avid DS workstation software. These checklists have specific steps that must be followed in the correct order. Each step will point you to an appropriate section with more detailed instructions. Return to the checklist each time that you complete a step.

This section shows different ways to set up your Avid DS workgroup, and where each of the various Avid DS software components or services should be installed.

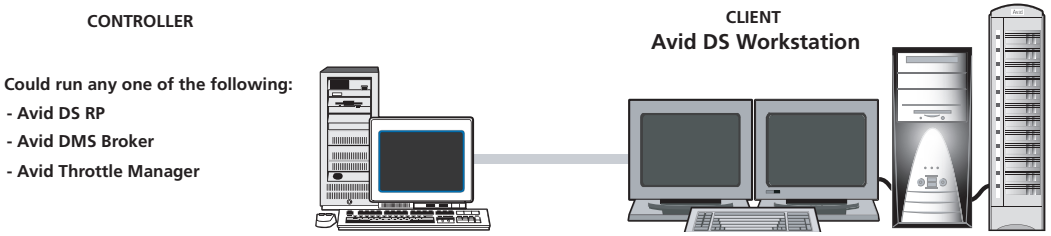
Installing a Standalone Avid DS Workstation

When you have a single Avid DS workstation that is running alone, you only need to install the Avid DS software. A single workstation is it's own controller running the project and media indexing services.



Setting up an Avid DS Workgroup

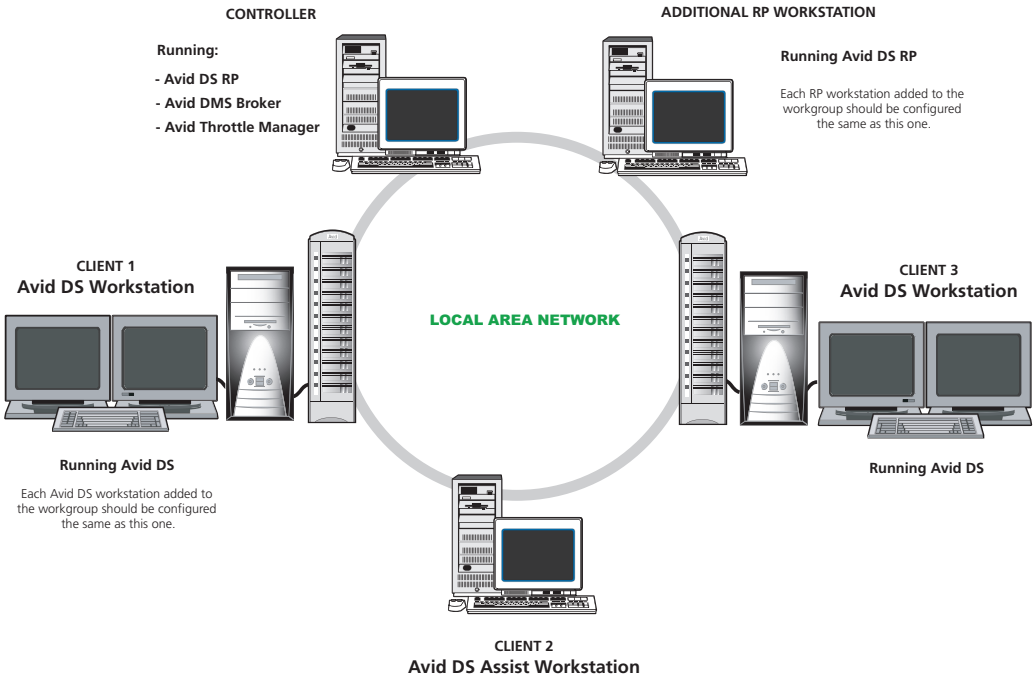
When you have two or more Avid DS workstations (even if one of them is an Avid DS RP workstation), then it is possible to connect them together in an Avid DS workgroup. In a workgroup, you can share projects and media between workstations or offload the media management and processing services to a dedicated workstation.



To optimize the operation of your workgroup, we recommend that you connect an ordinary machine (i.e. a non-Avid DS workstation) to your workgroup and designate it as the controller. The controller then manages all indexing and remote processing services, so that you can use your Avid DS workstations solely for editing tasks.

This workstation would have the same system requirements as an Avid DS RP—see "Minimal Requirements for Avid DS RP Workstation" on page 369.

In a more elaborate environment, you may have more than one RP workstation to provide services to several Avid DS workstations. (You can't run Avid DS RP and Avid DS simultaneously on a workstation.)



To properly configure an Avid DS workgroup, you should have a basic understanding of Windows user account management. All workstations should be connected to the same network so that they can access each other's project files and media when necessary.

You should also refer to "Planning your Storage Locations" on page 406, for the different ways that your media storage can be configured. If you are using Avid Unity MediaNetwork as your storage, you may use it in any one of these workgroup scenarios.

Installing New Avid DS Workstations

Use the following checklists when installing new Avid DS workstations.

1. Checklist: Preparing a New Avid DS Workstation
2. Checklist: Installing a Standalone Workstation

   or

   Checklist: Installing Multiple Workstations

Checklist: Preparing a New Avid DS Workstation

Before you start to install the Avid DS software, you must prepare your workstation(s) with the proper operating system, drivers, and network and storage connections.

This checklist only applies to workstations on which you are installing Avid DS. It is not required if you are only installing Avid DS RP on the workstation—see "Install Avid DS RP on the appropriate Workstations" on page 321.

Follow these steps in the order that they are listed. Each time you link to another topic within a step, make sure you return to the checklist after you have completed that procedure. Use the Previous View button in your Adobe Reader to return to the previous topic.

☑	Step	Refer to this section
☐	Read the online release notes and pre-installation instructions on the Avid DS Support Center web site.	Go to http://www.softimage.com/avidds and select **Download > Software**.
☐	Request an Avid DS license for each workstation on which you are going to install Avid DS.	"Requesting a License File" on page 402.
☐	Make sure the workstation is properly connected to any necessary peripheral and storage devices.	"Site Planning" in the Avid DS System Setup Guide. in the Help.
☐	Start the workstation.	

☑	Step	Refer to this section
☐	On new Avid DS systems, the Windows XP operating system is already installed, but you may need to enter your Windows XP product ID for license confirmation. You will be asked to create a user account (other than Administrator). After setting up a user account, switch to the administrator account to install Avid DS. 1. Press Ctrl+Atl+Del twice to get the Windows login dialog. 2. Type administrator for the **User ID** and leave the **Password** field blank. 3. After you log in as administrator, add a password for the administrator, so that the Avid DS indexing services function properly.	"Creating User Accounts" on page 345. Microsoft Windows online help. Click **Start > Help and Support**.
☐	The workstation MUST have an unique IP address. Make sure that you have a valid network connection for your Avid DS workstation whether it is connected to a network or running alone. *If you are running a standalone workstation, and don't have a valid network connection, you need to simulate one by creating a loopback connection.*	"Configuring the Network Connection" on page 336. "Installing the Microsoft Loopback Adapter on aStandalone Station" on page 338.
☐	Create user accounts for each person that will use the workstation. • If you are part of a Windows Workgroup... • If you are part of a Windows Domain...	 "Microsoft Windows Workgroups: Account Management" on page 340. "Microsoft Windows Domains: Account Management" on page 341.
☐	Name your workstation to uniquely identify it within your Avid DS workgroup.	"Naming your Workstation" on page 342.

☑	Step	Refer to this section
☐	You must turn off 'simple file sharing', or other Avid DS software components will not be allowed to access the shared folders for data and media. From Windows Explorer, select **Tools > Folder Options... > View**. Under Advanced settings, deselect the **Use simple file sharing (Recommended)** option.	
☐	Use some type of network timing software to maintain synchronization between the workstations within a workgroup.	
☐	Install the necessary drivers for your workstation. When installing the drivers, reboot your workstation each time you are asked to do so. *If you purchased a new Avid DS Nitris system, the drivers and firmware needed to run Avid DS Nitris are already installed on your system.*	Use the Avid DS Nitris Software & Drivers DVD, or download the the latest drivers from the Avid DS Support Center web site: http://www.softimage.com/avidds (see Download area).
☐	If the workstation has a local storage device, make sure the stripe volume has been created.	"Striping your Drives" on page 426.
☐	You are now ready to install Avid DS on your workstation(s). Use the appropriate checklist for installing:	
	• a single standalone Avid DS workstation	"Checklist: Installing a Standalone Workstation" on page 317.
	• more than one Avid DS and/or Avid DS RP workstation(s) connected together	"Checklist: Installing Multiple Workstations" on page 318.

Checklist: Installing a Standalone Workstation

If you have a single Avid DS workstation that is running alone, you will only need to install Avid DS.

Follow these steps in the order that they are listed. Each time you link to another topic within a step, make sure you return to the checklist after you have completed that procedure. Use the Previous View button in your Adobe Reader to return to the previous topic.

☑	Step	Refer to
☐	Make sure that you have fully prepared your workstation(s) for the install.	"Checklist: Preparing a New Avid DS Workstation" on page 314.
☐	Login to the workstation.	
☐	Install Avid DS.	"Installing Avid DS Software Components" on page 350. Use the Avid DS Nitris Software & Drivers DVD, or download the software from the Avid Download Center http://www.avid.com/support/downloadcenter/index.asp
☐	Install the latest Avid DS upgrades and/or fixes (if any). Follow the online instructions to install software updates, and then reboot your workstation.	Download the latest upgrades and/or fixes.
☐	Create the license file for this workstation.	"Installing the Registered License File" on page 403.
☐	Any new storage areas automatically have full read/write access by any user on the network. To restrict access to your media, you can change the share permissions through Windows.	"Sharing Folders and Setting Permissions" on page 343.
☐	Configure the media storage areas on each Avid DS workstation. By default, the Avid DS installation configures one audio and one video storage on each workstation. Check your storage device configuration to set the Disk Controller Type and Disk Storage Type correctly.	"Configuring your Storage Locations" on page 415.
☐	Set the path to your projects folder.	"Establishing the Project Folder" on page 424.

☑	Step	Refer to
☐	Test Avid DS by starting it and creating a new project. *If you receive a Project Indexer message when you create a new sequence, contact Avid DS Support Center immediately to resolve the problem.*	"Creating a New Project" in the *Avid DS Nitris Getting Started Guide*.

Checklist: Installing Multiple Workstations

If you are upgrading an existing Avid DS workgroup, then follow the instructions in this section. The order in which you install the Avid DS software and services is critical, especially when configuring RP workstations.

Install the Controller

Follow these steps in the order that they are listed. Each time you link to another topic within a step, make sure you return to the checklist after you have completed that procedure. Use the Previous View button in your Adobe Reader to return to the previous topic.

☑	Step	Refer to
☐	Determine the workgroup configuration that you are going to use.	"Installation Scenarios" on page 312.
☐	In a workgroup, you must first install the controller.	"Installing the Avid DS Controller" on page 356. Use the Avid DS Nitris Software & Drivers DVD, or download the software from the Avid Download Center http://www.avid.com/support/downloadcenter/index.asp
☐	If you installed the DMS Broker on this workstation:	
☐	1. Atttach the DMS dongle to the workstation.	"Attaching the Dongle" on page 381.
☐	2. Start the DMS Broker.	"Starting the DMS Broker" on page 383.
☐	After the controller has been installed, you can install and connect other workstations in the workgroup.	Follow the checklist below on how to "Install Avid DS on the appropriate Workstations".

Install Avid DS on the appropriate Workstations

Follow these steps in the order that they are listed. Each time you link to another topic within a step, make sure you return to the checklist after you have completed that procedure. Use the Previous View button in your Adobe Reader to return to the previous topic.

☑	Step	Refer to
☐	Make sure you have fully prepared each Avid DS workstation(s) for the install.	"Checklist: Preparing a New Avid DS Workstation" on page 314.
☐	Login to the workstation.	
☐	Run the Avid DS Setup and install Avid DS. *In a workgroup environment, the controller must be installed before you install Avid DS on the workstations.*	"Installing Avid DS Software Components" on page 350. Use the Avid DS Nitris Software & Drivers DVD, or download the software from the Avid Download Center http://www.avid.com/support/downloadcenter/index.asp
☐	Install the latest Avid DS updates and/or fixes (if any). Follow the online instructions to install these software updates, and then reboot your workstation.	Download the latest upgrades and/or fixes.
☐	Create the license file on each workstation where Avid DS is installed.	"Installing the Registered License File" on page 403.
☐	Any new storage areas automatically have full read/write access by any user on the network. To restrict access to your media, you can change the share permissions through Windows.	"Sharing Folders and Setting Permissions" on page 343.
☐	Configure the media storage areas on each Avid DS workstation. By default, the Avid DS installation configures one audio and one video storage on each workstation. Check your storage device configuration to set the Disk Controller Type and Disk Storage Type correctly.	"Configuring your Storage Locations" on page 415.
☐	Set the path to your projects folder.	"Establishing the Project Folder" on page 424.
☐	If you are using Avid Unity as your storage, install the Avid Unity MediaNetwork software on each client workstation.	"Checklist: Installing Avid DS with Avid Unity" on page 422.

☑	Step	Refer to
☐	Test Avid DS by starting it and creating a new project. *If you receive a Project Indexer message when you create a new sequence, contact Avid DS Customer Service immediately to resolve the problem.*	"Creating a New Project" in the *Avid DS Nitris Getting Started Guide*.
☐	Test remote processing on an Avid DS RP workstation (if you have one in your workgroup). 1. Start Avid DS RP on the controller, and check the messages in the interface to make sure that no error is displayed. 2. Start Avid DS on any workstation in the workgroup. 3. Create a sequence, apply an effect on a short clip and send the job to be processed remotely. After processing is complete, verify that the processed effect plays back correctly on the timeline.	"Processing" in the *Avid DS Nitris Getting Started Guide*. *Select the **Process Remotely** option in the Processing dialog box.*

Install Avid DS RP on the appropriate Workstations

After the controller has been installed, you can install Avid DS RP on the workstations that will serve as remote processing workstations.

Follow these steps in the order that they are listed. Each time you link to another topic within a step, make sure you return to the checklist after you have completed that procedure. Use the Previous View button in your Adobe Reader to return to the previous topic.

☑	Step	Refer to
☐	Run the Avid DS Setup and install Avid DS RP.	"Installing Avid DS RP" on page 372. Use the Avid DS Nitris Software & Drivers DVD, or download the software from the Avid Download Center http://www.avid.com/support/downloadcenter/index.asp
☐	Test remote processing on the newly installed RP workstation. 1. Start Avid DS RP and check the messages in the interface, to make sure that no error is displayed. 2. Start Avid DS on any workstation in the workgroup. 3. Apply an effect on a short clip and send the job to be processed remotely. After processing is complete, verify that the processed effect plays back correctly on the timeline. *If you have more than one RP workstation in your workgroup, Avid DS will direct your request to the first available RP workstation. You can test individual RP workstations by closing Avid DS RP on the other RP workstations.*	"How Do I Process?" in the *Avid DS Nitris Getting Started Guide*. *Select the **Process Remotely** option in the Processing dialog box.*

Upgrading Existing Avid DS workstations

This section describes how to perform a software upgrade on either a Compaq EVO W8000, HP xw8000, or Avid Nitris DNA™ workstation.

If you only need to reinstall hardware component drivers or system firmware, refer to the Avid DS Support Center web site at http://www.softimage.com/avidds for the most recent updates.

If you are upgrading from a version earlier than v7.5, refer to the Avid DS Support Center web site for detailed instructions.

If you have an Equinox HP xw8000, and would like to upgrade your hardware to an Avid Nitris DNA system, contact your Avid DS Customer Service respresentative for instructions on changing your hardware boards. You must perform the hardware upgrade before installing the Avid DS v8.x software.

Use the following checklists when upgrading your Avid DS workstations.

1. Checklist: Preparing your Workstation for an Upgrade
2. Checklist: Upgrading a Standalone Avid DS Workstation

   or

   Checklist: Upgrading a Workgroup with Multiple Avid DS Workstations

Checklist: Preparing your Workstation for an Upgrade

Before you upgrade your software, it is very important to archive your existing projects and save your Avid DS user preferences. You can then update your system drivers and firmware, and lastly, upgrade your software.

Follow these steps in the order that they are listed. Each time you link to another topic within a step, make sure you return to the checklist after you have completed that procedure. Use the Previous View button in your Adobe Reader to return to the previous topic.

☑	Step	Refer to
☐	Read the online release notes and Readme instructions on the Avid DS Support Center web site.	Go to http://www.softimage.com/avidds and select **Download > Software**.
☐	Request an Avid DS license for each workstation on which you are going to install Avid DS.	"Requesting a License File" on page 402.

☑	Step	Refer to
☐	Archive your existing projects. You must NOT directly open projects from earlier versions of Avid DS without first archiving them. Once a sequence is opened in v8.0, it cannot be opened in a previous version. Therefore, it's best to archive your projects before upgrading. All media from v7.x onwards is compatible with v8.x, so you don't need to archive the media. Caches, however, are not compatible and will have to be reprocessed in v8.x.	"Archiving Projects" in the Help.
☐	Save your current Avid DS layouts and preferences.	"Saving your Avid DS Nitris System Settings" on page 364.
☐	Uninstall your previous version of Avid DS as well as any plug-ins.	"Removing Avid DS" on page 328.
☐	All workstations must be upgraded to Windows XP Service Pack 2, or Windows Professional x64 Edition and Service Pack 1.	http://www.softimage.com/avidds **Home** page
☐	Install the latest Windows XP hot fixes from the Microsoft web site.	http://v4.windowsupdate.microsoft.com/en/default.asp
☐	Download the latest drivers and firmware files for your workstations. Install these files as instructed on the web site.	Avid Download Center: http://www.avid.com/support/downloadcenter/index.asp
☐	After the operating system and necessary hardware drivers have been updated, use the appropriate checklist below to install the software on:	
	• a single standalone Avid DS workstation	"Checklist: Upgrading a Standalone Avid DS Workstation" on page 324.
	• more than one Avid DS and/or Avid DS RP workstation(s) connected together	"Checklist: Upgrading a Workgroup with Multiple Avid DS Workstations" on page 325.

Checklist: Upgrading a Standalone Avid DS Workstation

If you have a single Avid DS workstation that is running alone, you will only need to install Avid DS. The Project Indexer and Media Indexer are automatically installed.

Follow these steps in the order that they are listed. Each time you link to another topic within a step, make sure you return to the checklist after you have completed that procedure. Use the Previous View button in your Adobe Reader to return to the previous topic.

☑	Step	Refer to
☐	Make sure that you have fully prepared your workstation for the install.	"Checklist: Preparing your Workstation for an Upgrade" on page 322.
☐	Insert the Avid DS Software and Drivers DVD into your drive, OR Download the latest Avid DS software and updates from the web.	Avid Download Center: http://www.avid.com/support/downloadcenter/index.asp
☐	Install the necessary Avid DS components on this workstation. If there are any fixes for this version, install them as well.	"Installing Avid DS Software Components" on page 350.
☐	Create the license file for this workstation.	"Installing the Registered License File" on page 403.
☐	Test Avid DS by starting it and creating a new project. If you receive a Project Indexer message when you create a new sequence, contact Avid DS Support Center immediately to resolve the problem.	"Creating a New Project" on page 130 of the *Avid DS Nitris Getting Started Guide*.
☐	Configure the Media Storage. By default, the Avid DS installation configures one audio and one video storage on each workstation. If you had existing storage, you will notice that your storage areas are now shared using ds_media names (e.g. ds_media, ds_media_1, ds_media_2). Determine the physical storage devices/drives to which these correspond, and that you are capturing your media to the correct location. You should also check your storage device configuration to set the Disk Controller Type and Disk Storage Type correctly.	"Configuring your Storage Locations" on page 415.

☑	Step	Refer to
☐	Restore your Avid DS layouts and preferences that you saved from your previous version.	"Saving your Avid DS Nitris System Settings" on page 364.

Checklist: Upgrading a Workgroup with Multiple Avid DS Workstations

If you are upgrading an existing Avid DS workgroup, then follow the instructions in this section. The order in which you install the Avid DS software and services is critical, especially when configuring RP workstations.

This checklist assumes that you are keeping your existing workgroup configuration. If you need to change the configuration of your workgroup (for instance, if you need to designate a different workstation as the controller), see "Managing a Workgroup" on page 331.

If you want to keep one or more workstations running earlier versions of Avid DS, then you must create a separate workgroup for these workstations.

Use these steps to upgrade each workstation. Follow the steps in the order that they are listed. Each time you link to another topic within a step, make sure you return to the checklist after you have completed that procedure. Use the Previous View button in your Adobe Reader to return to the previous topic.

☑	Step	Refer to
☐	Make sure that you have fully prepared your workstation for the install.	"Checklist: Preparing your Workstation for an Upgrade" on page 322.
☐	Insert the Avid DS Software and Drivers DVD into your drive, OR Download the latest Avid DS software and updates from the web.	 Avid Download Center: http://www.avid.com/support/downloadcenter/index.asp
☐	Install the Controller	
☐	First, install the necessary Avid DS components on the controller. If there are any fixes for this version, install them as well.	"Installing the Avid DS Controller" on page 356.
☐	If the DMS Broker is installed on this workstation:	

☑	Step	Refer to
☐	Make sure the DMS dongle is attached to the workstation.	"Attaching the Dongle" on page 381.
☐	Obtain a new license for the dongle.	."Updating the Dongle" on page 382
☐	Start the DMS Broker.	"Starting the DMS Broker" on page 383.

Install the Other Workstations

☐	Install Avid DS on each workstation.	
☐	Create the license file for each workstation.	.
☐	Test Avid DS by starting it and creating a new project. If you receive a Project Indexer message when you create a new sequence, contact Avid DS Support Center immediately to resolve the problem.	"Creating a New Project" on page 130 of the *Avid DS Nitris Getting Started Guide*.
☐	Configure the media storage areas on each Avid DS workstation. By default, the Avid DS installation configures one audio and one video storage on each workstation. Check your storage device configuration to set the Disk Controller Type and Disk Storage Type correctly.	"Configuring your Storage Locations" on page 415.
☐	If you are using Avid Unity as your storage, install the Avid Unity MediaNetwork software on each client workstation.	"Checklist: Installing Avid DS with Avid Unity" on page 422.
☐	Test remote processing on an Avid DS RP workstation (if you have one in your workgroup). 1. Start Avid DS RP on the controller, and check the messages in the interface to make sure that no error is displayed. 2. Start Avid DS on any workstation in the workgroup.	

☑	Step	Refer to
	3. Create a sequence, apply an effect on a short clip and send the job to be processed remotely. After processing is complete, verify that the processed effect plays back correctly on the timeline. *If you have more than one RP workstation in your workgroup, Avid DS will direct your request to the first available RP workstation. You can test individual RP workstations by closing Avid DS RP on the other RP workstations.*	"Processing" on page 256 of the *Avid DS Nitris Getting Started Guide*. Select the **Process Remotely** option in the Processing dialog box.
☐	Restore your Avid DS layouts and preferences that you saved from your previous version.	"Saving your Avid DS Nitris System Settings" on page 364.

Removing Avid DS

Checklist: Removing Avid DS

If you need to uninstall the Avid DS software, you MUST first remove any plug-ins or codecs that were installed on your system.

If you uninstall Avid DS before uninstalling the plug-ins, the uninstall procedure will fail.

Follow these steps in the order that they are listed. Each time you link to another topic within a step, make sure you return to the checklist after you have completed that procedure. Use the Previous View button in your Adobe Reader to return to the previous topic.

☑	Step	Refer to
☐	Save your Avid DS layouts, presets, preferences, toolbars, and key command maps.	"Saving your Avid DS Nitris System Settings" on page 364.
☐	Remove all the Avid DS plug-ins or codecs. 1. Click the **Start** button, and select **Settings > Control Panel > Add/Remove Programs**. 2. In the Currently Installed Programs list, check for any installed plugs-ins. 3. Select the plug-ins one at a time, and click the **Change/Remove** button. Repeat this step until they are all removed. *If you cannot remove some plug-ins, continue with the next one until completion, and then manually delete the \Plug-in folder.*	http://www.avid.com/partners/avx/displayPartners.html for a list of Avid DS plug-in vendors.
☐	Remove the necessary drivers and firmware via **Settings > Control Panel > Add/Remove Programs.**	

☑	Step	Refer to
☐	Remove Avid DS. 1. Click the **Start** button, and select **Settings > Control Panel > Add/Remove Programs**. 2. In the Currently Installed Programs list, select the Avid DS software that you want to remove. 3. When the setup program starts, select the **Remove** option, and click the **Next** button. 4. Select **Yes** to remove all components. 5. When all components are removed, click **Yes** to restart the workstation.	

Recovery Procedures for Avid DS

In the event of a complete system failure, the Avid DS Support Center web site provides details on the recovery process for your particular system.

If you have an HP workstation, you can rebuild the C: partition of your Avid DS Nitris workstation using the HP Recovery Manager. The recovery manager will rebuild your workstation with the Windows XP operating system and drivers, as well as any project data from the last recovery point that you made. It will not install the Nitris board drivers and firmware.

The first user to log on to the HP workstation will be prompted to create the necessary recovery CDs and a recovery point. Wait until after you have installed all the necessary Avid DS components, and then follow this checklist:

☑	Step	Refer to this section
☐	Create an operating system CD.	Go to http://www.softimage.com/avidds and select **Documentation > Recovery Procedures.**
☐	Create an HP Restore Plus CD.	
☐	Create an HP Supplementals CD.	
☐	Create a recovery point. This step should be done at key intervals during the year.	

In the event of a system or hard drive failure, refer to the HP recovery procedures to recover your operating system and data. The procedures are available on the HP CD as well as on the HP web site.

Managing a Workgroup

If, at any point, you need to change the controller of your workgroup, connect more workstations, or create a new workgroup, then you can refer to the following sections.

Adding a Workstation to a Standalone Avid DS Workstation

To connect new workstations (either Avid DS or Avid DS RP) to a standalone workstation, you need to set up an Avid DS workgroup. In a workgroup, at least one workstation must be designated as the controller.

If you are connecting an RP workstation, we strongly recommend that you make your RP workstation the controller of the workgroup. This offloads the project indexing tasks from the Avid DS workstation onto a dedicated RP workstation.

Follow the instructions in "Checklist: Installing Multiple Workstations" on page 318.

Connecting Other Workstations in the Workgroup to the Controller

If you are installing a new workstation in the workgroup, then follow the checklist for "Install Avid DS on the appropriate Workstations" on page 319. (Assuming that you have already installed the controller for the workgroup).

If you already have an existing workstation with the necessary Avid DS components installed, and you simply want to connect it to the workgroup, then follow the instructions below.

To connect a standalone workstation to a workgroup:

1. On the workstation that you want to connect to the workgroup, click the **Start** button and select **All Programs > Avid > Avid DS 8 > Configure DS Workgroup**.
2. Click **Join workgroup**.
3. Select **Join a different DS Workgroup**, and click the **Next** button.
4. In the left pane, select the name of the appropriate Avid DS Workgroup on the network and click the **Next** button.
5. Validate the User Account and Password to authenticate the Avid indexing services (These must match the Controller User Account and Password entries). Click **Next**.
6. Do these same steps for any other workstation that you want to connect to the workgroup.

Designating a New Controller for the Workgroup

To designate a different workstation in the workgroup as the controller, you must first separate your existing controller from the workgroup.

To designate a new controller:

1. Separate the existing controller from the workgroup by following the instructions for "Separating a Workstation from the Workgroup" on page 332.
2. On the workstation that will be the new controller, click the **Start** button and select **All Programs > Avid > Avid DS 8 > Configure DS Workgroup**.
3. Select **Install Avid DS Workgroup Controller**.

Depending on the type of workgroup you are configuring, you may need to select other options in this setup—see "Installation Scenarios" on page 312.

4. Enter the name of the workgroup.

   When the installation is complete, this workstation will be the new controller of the workgroup.
5. You can now connect the other workstations to this workgroup—see "Connecting Other Workstations in the Workgroup to the Controller" on page 331.

Separating a Workstation from the Workgroup

To separate a workstation from the workgroup:

1. On the workstation that is to be separated, click the **Start** button and select **All Programs > Avid > Avid DS 8 > Configure DS Workgroup**.
2. Click **Work standalone** and click the **Next** button.

   This workstation is now no longer part of the workgroup.

Restarting a Workgroup

When restarting all workstations in an Avid DS workgroup, it is always good practice to start the controller workstation first. Once it is running, then others may be started.

If the controller is the only workstation that needs to be restarted, then one or more of the other client workstations may not remain connected to the Avid DS workgroup. As a result, access errors may occur. If this happens, restart the workstation in question.

If you have the DMS Broker in your workgroup, you also need to restart the Avid DMS Broker—see "Starting the DMS Broker" on page 383.

Chapter 2

Configuring Windows XP

Avid DS Nitris is supported on both Windows XP Professional and Windows Professional x64 Edition.

Configuring the Network Connection

If you are installing a standalone Avid DS workstation with no network connection, then ignore this section, and see "Installing the Microsoft Loopback Adapter on aStandalone Station" on page 338. This simulates an active network connection.

If you are on a Microsoft Windows domain, then do only steps 1 to 4 to set up network connections on each of the workstations.

If you are part of a Microsoft Windows workgroup, follow all these steps to set up network connections on each of the workstations.

The Avid Project Indexer will not operate correctly if the network adapter or connection is not set properly.

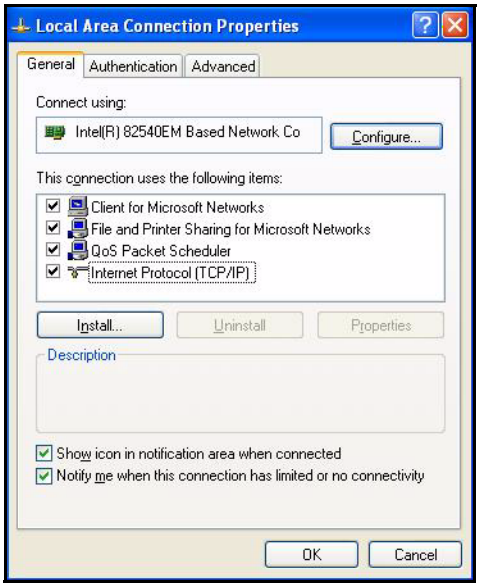
To configure the network connection on Windows XP:

1. On the Windows desktop, right-click the **My Network Places** icon and select **Properties**.

   The following window displays.

2. Right-click the **Local Area Connection** icon and select **Properties**.

   A dialog box similar to the following displays.



The TCP/IP network protocol must always appear at the top of the list of protocols.

3. Double-click the TCP/IP protocol and click **Properties**.
4. Do one of the following:
   - Windows workgroup: select **Use the following IP address**.
   - Windows domain: select **Obtain an IP address automatically**.
5. On a private network, enter a valid IP address from your Internet Service Provider and the correct Subnet Mask.
6. Enter the Gateway address if required. Otherwise, leave it blank.
7. Click **OK**.
8. Repeat these steps for all workstations in the Windows workgroup.

To confirm that all workstations are part of the workgroup:

1. On the Windows desktop, right-click the **My Network Places** icon.
2. Click **Computers Near Me**.

   You should see all the workstations that you just configured to be part of the workgroup. If not, restart the workstation to reinitialize the network adapter card.

Using Two Network Cards

If any of the workstations are configured with two active network cards, the Avid indexing services require small modifications to work properly.

1. Open the C:\Winnt**slp.conf** file with the Windows Notepad application.
2. Locate this line at the bottom of the file:

   ```
   net.slp.isBroadcastOnly = false
   ```

3. Change ‘false’ to ‘true’.
4. Save the file and restart the workstation to reset the indexing services.

If the Avid DS RP workstation chooses the slower network adapter for processing, you can force Windows to use the fastest network adapter by doing the following:

1. Open the **C:\winnt\system32\drivers\etc\hosts** file with the Windows Notepad application.
2. At the bottom of the file, under the default 127.0.0.1 localhost line, declare the fast network adapter IP Address and computer name (example: 200.200.200.1 DS1).
3. Save the file and restart the workstation.

   If that does not resolve the problem, open a Command Prompt window, type **ROUTE PRINT** and press Enter.

   The result should display your two network adapters’ IP addresses. If you see only one address returned, you have a networking conflict to resolve.

   Do not use the same IP class for both adapters. For example, the following is *not* valid:

   `100.100.100.1` and `100.100.100.2`

   The following *is* valid:

   `100.100.100.1` and `200.200.200.1`

Installing the Microsoft Loopback Adapter on aStandalone Station

If your Avid DS workstation will not be operating on a network, the Microsoft Loopback adapter must be installed and configured with a static IP address as directed here.

Before you begin, make sure that your workstation is disconnected from any network:

- the Local Area connection must be disabled (click Network Connections desktop icon), and
- the network cable must be disconnected.

To install the Microsoft LoopBack adapter:

1. Go to the Control Panel and double-click the **Add Hardware** icon.

   The Welcome to the Add Hardware Wizard displays.

2. Click the **Next** button.

   The wizard searches for installed components.

3. Select **Yes, I have already connected the hardware** and click the **Next** button.
4. Select **Add a new hardware device** and click the **Next** button.
5. Select **Install the hardware that I manually select from a list (Advanced)** and click the **Next** button.
6. Select **Network Adapters** and click the **Next** button.
7. First select **Microsoft** in the list on the left, then select **Microsoft loopback adapter**, and click the **Next** button.
8. Click the **Next** button again, and click the **Finish** button.

To test the Microsoft LoopBack adapter:

- In a Command Prompt window, type **`PING "computername"`** (where *computername* is the name of the workstation).

  The result should be:

  ```
  Reply from 127.0.0.1: bytes=32 time<1ms TTL=128
  ```

127.0.0.1 is the default Microsoft XP loopback address.

Microsoft Windows Workgroups: Account Management

A workgroup configuration is usually most appropriate for smaller facilities. The only difference is between a workgroup and a domain is that the Windows account management for a workgroup is decentralized and requires more complicated security configurations for the Avid DS software components.

When an Avid DS workgroup operates within a Windows workgroup, do the following:

- When setting up accounts, log on with the local administrator account. For example: **administrator or <computer_name>\administrator**

After you log on, you must set a password for the administrator account.

- A user account must be created for each person on each Avid DS workstation. Each account must have the same username and password on all workstations. For example, if the Avid DS workgroup belongs to a Windows workgroup called POST, and if Alice, Bob, and Charlie are Avid DS operators, then the following accounts must be created:

  Alice
  Bob
  Charlie

- Add the user account to the **Administrators** group, on each of the workstations in the Avid DS workgroup.

  For example:

  If a new Avid DS user, Mikayla, needs to be given access to the workgroup, then simply create a new account (Mikayla) on *each* workstation, and add this account to the Administrators group on each workstation.

  If an existing user, Bob, must be removed from the Avid DS workgroup, then remove Bob from the Administrators group on *each* workstation.

- Enter a unique name for each workstation in the workgroup—see "Naming your Workstation" on page 342.
- Configure the network connection on each workstation—see "Configuring the Network Connection" on page 336.

Microsoft Windows Domains: Account Management

A domain configuration is usually most appropriate for larger facilities where the Avid DS workstations are part of an existing corporate network. In a domain, the Windows account management is centralized and simplifies security configuration of all the Avid DS software components.

When an Avid DS workgroup operates within a Windows domain, do the following:

- When setting up accounts, log on with a valid domain and user account with local administrative privileges (**<*domain_name*>\userid**)
- Each person that will use an Avid DS must be given a separate Windows user account within the domain. For example, if the Avid DS workgroup belongs to a domain called POST, and if Alice, Bob, and Charlie are Avid DS operators, then the following accounts must be created:

  POST\Alice
  POST\Bob
  POST\Charlie

  Domain accounts must be set up by your network administration personnel. Avid does not provide nor support domain networking issues, as network environments differ from one company to the next.
- Add each user account to the **Administrators** group, of all workstations in the Avid DS workgroup.

By administrators group, we mean the local administrator of the workstation, not the Domain administrator. The Avid DS services and hardware require administrative privileges to run on Windows.

  For example:

  Once these accounts are properly configured, it becomes quite easy to add and remove new users from the workgroup. If a new Avid DS user, Mikayla, needs to be given access to the workgroup, then simply create a new account (POST\Mikayla) and add this account to the Administrators group.

  If an existing user, Bob, must be removed from the Avid DS workgroup, then simply remove POST\Bob from the Administrators group.
- Make sure there is a proper network connection on each workstation. Your network administrator should perform this step.

Naming your Workstation

If your workstations are members of a Windows workgroup, each workstation should be given a unique name.

Also, it is better to give different names to the workstation, the Windows workgroup, and the Avid DS workgroup to avoid confusion.

To set your workstation name on Windows XP:

1. Click the **Start** button and select **Settings > Control Panel**.
2. Double-click the **System** icon.
3. Select the **Network Identification** tab, and click the **Properties** button.
4. Under **Computer Name**, type in a unique name for this workstation.
5. Select Member of: **Workgroup**.
6. For the workgroup name, type **Workgroup** or the name of your company.

The workgroup name must be the same on all workstations.

Sharing Folders and Setting Permissions

The Avid DS Setup program creates folders to hold project data and media files. By default, these folders will inherit security permissions from the parent folder. In a default installation, these folders are automatically shared, and the default permissions give full access to everyone.

These permissions may be changed as needed:

Shared folder name	Shared path	Description
\DS_Projects	F:\DS Projects\DS_v8.x	Avid DS Nitris project folder
\ds_media	D:\VideoStorage	Avid DS Nitris media storage
\ds_media_1	F:\AudioStorage	Avid DS Nitris media storage

If a user creates new media folders or stores project data in other folders, then Avid DS automatically shares those folders. The share permissions and security of these folders should also be verified.

For media and project folders, if permissions are not set properly on the share or the folder, you will get an error message.

Sharing Folders in a Windows Workgroup

To disable simple file sharing:

1. Open an Explorer window and select **Tools** from the menu.
2. Select **Folder Options**.
3. Select the **View** tab.
4. Under **Advanced Settings**, deselect **Use simple file sharing (Recommended)**.
5. Click **Apply**, and then **OK** to exit.

   Now you can share folders over the network.

To set folder permissions:

1. Right-click the folder and select **Properties**.
2. On the Sharing tab, select the **Share this folder** option.
3. Enter the Share name.

4. Enter a comment: ‘Avid DS project for shared projects; DS Media storage for shared media’.
5. Click **Permissions**.
6. Select **Full Control**, then click **Apply** and **OK**.

Do not store or create projects outside of an existing DS Projects folder. For example:

F:*projectname* ***is not valid***

However,

F:\DS Projects*projectname* ***is valid (where F:\DS Projects is shared)***

F:\DS Projects\DS_v8.x*projectname* ***is valid (where F:\DS Projects\DS_v8.x is shared)***

Additionally, the Avid Project Indexer does not allow a shared project folder to reside within another shared project folder. You will get an error message from the indexer if you do so.

Sharing Folders in a Windows Domain

To share folders and set permissions on a computer that is part of a Windows domain:

1. In Windows Explorer, right-click the folder and select **Sharing and Security**.
2. Select **Share this folder**, and click the **Permissions** button.
3. Select **Full Control**, then click **Apply** and **OK**.
4. Add the user that runs the Project Indexer and allow full control.

Creating User Accounts

You can change your password, and create and modify user accounts by accessing the Windows XP Computer Management console, which lets you define security features, such as permissions, rights, accounts, user groups, and audit policies.

Avid recommends that all users within the Avid DS Workgroup have accounts in the Administrators group on each workstation in the workgroup.

When creating user accounts, make note of whether your workstation is part of a Windows workgroup or domain network.

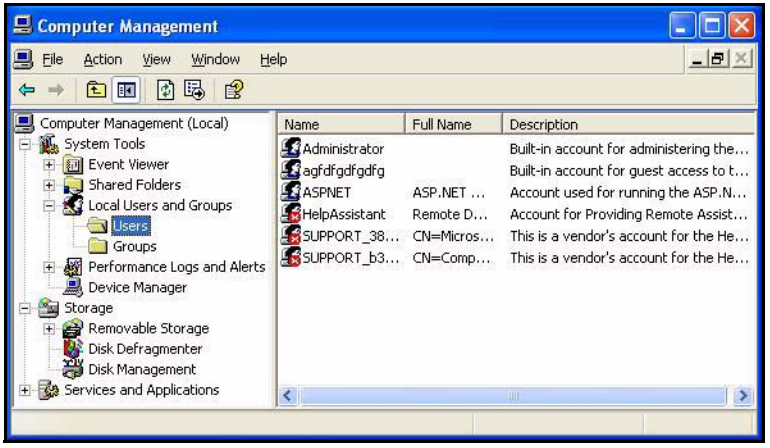
- If it is part of a Windows workgroup, log on with the local administrator account. For example:
  administrator or ***computer_name*\administrator**

The administrator account must have a password.

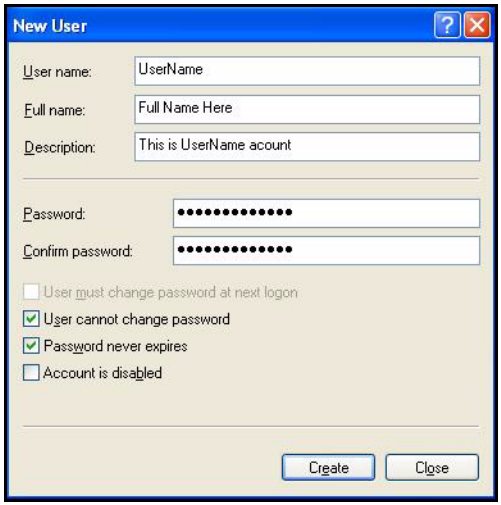
- If it is part of a Windows domain, log on with a valid domain and user account with local administrative privileges. For example:
  domain_name**userid

To create a user account:

1. On the Windows desktop, right-click the **My Computer** icon and select **Manage**.



2. Use the tree (left) to navigate to **System Tools > Local Users and Groups > Users**.
3. Select **Action > New User**.



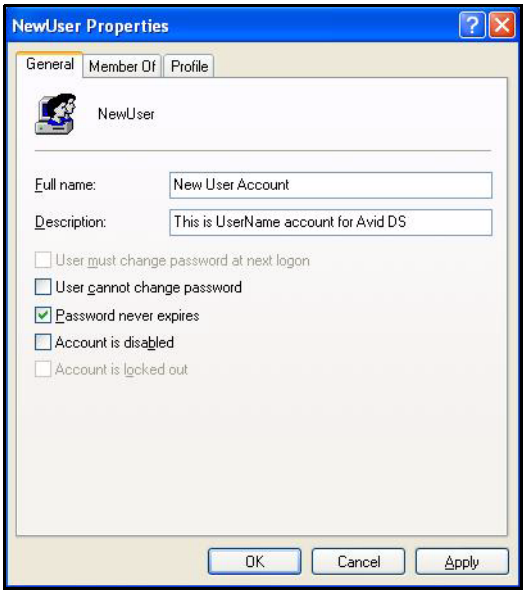
4. Enter the new user information and click the **Create** button.
5. Repeat step 4 until you're finished adding new users and click the **Close** button.

   The new user accounts display in the Computer Management console.

To modify an account:

1. In the Computer Management console, navigate to **System Tools > Local Users and Groups > Users**.
2. Double-click the user account you want to edit.

   The Properties dialog box for this user account displays.



3. Select the **General** tab to specify password options.
4. Select the **Member Of** tab to add the user to groups.

All Avid DS users must be members of the Administrators group.

5. Click **OK** when you're finished.

Chapter 3

Installing Avid DS Software and Services

This section describes how to install the various Avid DS products and services.

Before you begin installing Avid DS, all the operating system updates, required device drivers, and the stripe volume (for local storage), must be configured correctly—see “Setting up your Avid DS Environment” on page 311.

Installing Avid DS Software Components

To install Avid DS, you must log on with an account that has Administrator privileges.

To install Avid DS software components:

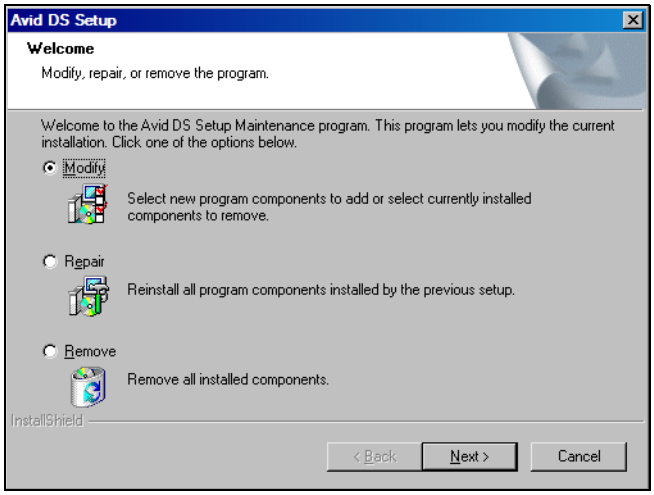
1. Use the Avid DS Nitris Software & Drivers DVD, or download the Avid DS Nitris software from the Avid Download Center.

The installers for the software are also available from the Avid Download Center at http://www.avid.com/support/downloadcenter/index.asp.

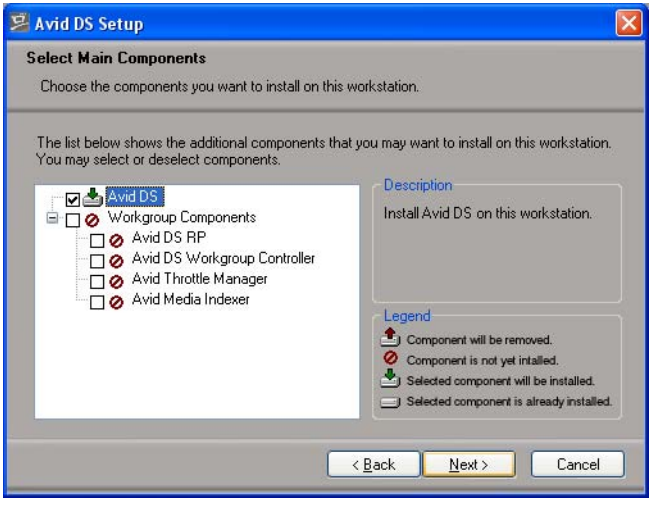
2. Double-click the Setup.exe file. You have the following choices:
   - **Avid DS Software**: to install Avid DS Nitris, Avid DS RP, Avid DMS Broker, the controller, and/or other services.
   - **Drivers and Support Utilities**: to install hardware drivers for your workstation.
   - **Avid Codecs**: to install Avid codecs, plug-ins, and other utilities.
3. Click the **Avid DS Software** button.
4. Select **Avid DS 32-bit Edition** or **Avid DS 64-bit Edition**.
5. Select **Install Avid DS**.
6. When the Avid DS Installation Wizard displays, click the **Next** button.

   Each time you run the Avid DS install program, it automatically detects your hardware and any previously installed Avid DS software.

   If you already have Avid DS installed, the following Welcome dialog will display to let you remove any unecessary components, or install additional components.



7. Select one of the above options and click **Next**.
8. In the Select Main Components dialog box, select or deselect any component by clicking the checkbox beside it.



Refer to the Legend for an explanation of the icons that appear beside each component.

With existing installations, note the following:

- If you deselect a component, it will be uninstalled.
- Components that are already installed, will not be reinstalled. If you need to reinstall any existing components, then choose the Repair option from the Welcome dialog.

After you select the components, a summary is displayed of the software components that will be installed or removed. If you are satisfied with the choices, proceed with the installation.

If you are installing the workgroup controller, go to "Installing the Avid DS Controller" on page 356.

9. In the License Agreement dialog box, read the End User License Agreement and accept the terms of the agreement to continue the installation.
10. In the Customer Information dialog box, enter your name and company name, and click the **Next** button.
11. In the Reseller or Dealer Information dialog box, enter the requested information and click the **Next** button.
12. Choose the default destination location to install Avid DS and click **Next**.
13. If you are installing Avid DS on a client workstation, you will be asked if you want to **Work Standalone** or **Join Workgroup**.
    - Click **Work Standalone** if you only have one Avid DS workstation that will run on its own.
    - Click **Join Workgroup** if you want this workstation to be part of an Avid DS workgroup. You can then remain in the existing workgroup or join a different workgroup. If you decide to **Join a Different Workgroup**, then you will be asked to select the name of the workgroup that you want to join.
14. When the Service Configuration window displays, enter the login profile of the user account that will run the Avid DS services on this workstation.

    You must specify the computer name before the user id (that is, *computer_name\userid*).

If your workstation is part of a Windows domain, then you need to specify the domain name before the user id (domain_name\userid).

15. Click the **Next** button.

    The second Service Configuration window displays.

    ▶ If you are part of a Windows *workgroup*, then you only need the Administrator in this list.

- If you are part of a Windows *domain*, then all user names must be configured with the domain name (domain_name\userid). If these user accounts are not configured correctly, then the services will not work.

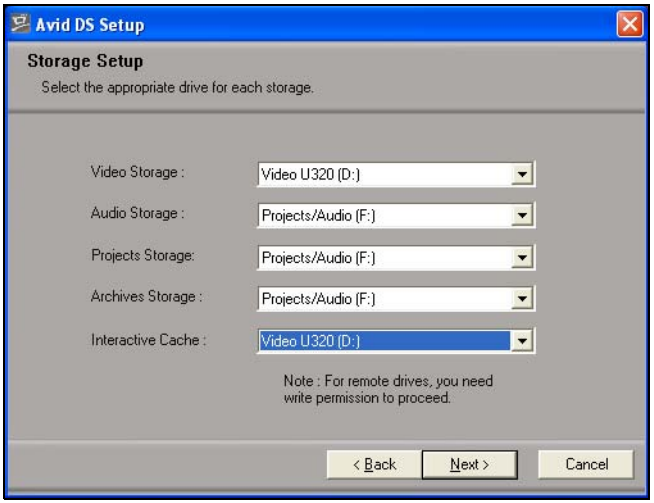
For more information on domain versus workgroup accounts, see "Microsoft Windows Workgroups: Account Management" on page 340 or "Microsoft Windows Domains: Account Management" on page 341.

16. Determine the users or group that you want to access the Avid DS workgroup.
    - To give everyone full read/write permissions, click **Allow Everyone.**
    - To add new users or a new group, do the following:
    - Click the **Add** button.
    - Add individual user IDs/group names in the **Add Names** box.
    - Select the **Type of Access** for each user/group.
    - To remove a user or group:
    - Select a name from the list, and click the **Remove** button.
    - To change user or group privileges:
    - Select a name from the list and click **Change.**
    - Select the **Type of Access** for the user.
17. Click the **OK** button to save the user access permissions.
18. Click the **Next** button.
19. When the Start Copying Files dialog box displays, review your installation settings and if you're satisfied, click the **Next** button.

If you need to change options, use the Back button to go as far back as you need to change the options.

A progress indicator displays while the Avid DS files are copied to your system.

20. The Storage Setup dialog box displays.

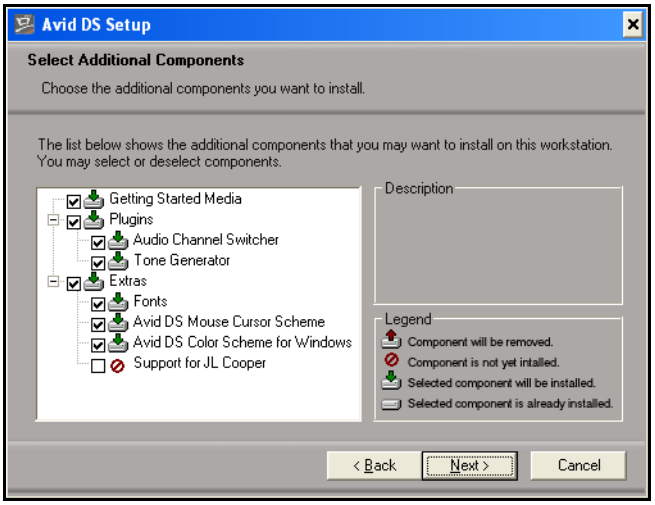


- **Video Storage**: Select the actual drive letter for your video media.

*If you are connected to Avid Unity, select **None** even if it is available in this list. It will need to be added later via the Storage Configuration dialog in Avid DS (using the full UNC path name).*

- **Audio Storage**: Select the actual drive letter for your audio media.
- **Projects Storage**: Select the actual drive letter for your projects and presets storage area.
- **Archives Storage**: Select the actual drive letter for your archives storage area.
- **Interactive Cache**: Select the actual drive letter for your interactive cache storage area. The interactive cache location must be either one of the local video storage drives, or a drive partition other than your local system partition (An RP workstation will also return processed media to this location).

21. Change the storage locations if necessary, and click the **Next** button.
22. Select any additional components that you need to install.



23. When the Start Copying Files dialog box displays, review your installation settings and if you're satisfied, click the **Next** button.

If you need to change options, use the Back button to go as far back as you need to change the options.

A progress indicator displays while the Avid DS files are copied to your system.

24. Click the **Finish** button.
25. Close the Avid DS Setup window by clicking the close (X) button in the top-right corner.
26. Restart your workstation if prompted.

If you are installing any updates or fixes, you must restart your workstation. Avid DS must first register all its original files prior to a new addition.

Installing the Avid DS Controller

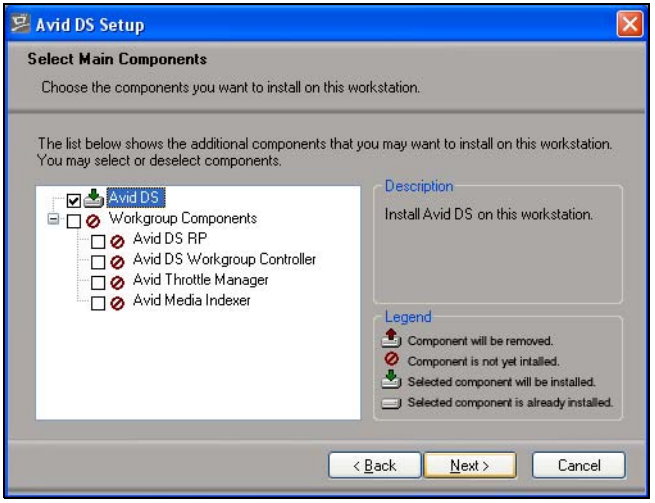
Follow this procedure if you need to install the Avid DS workgroup controller. You must log on with an account that has Administrator privileges.

To install the workgroup controller:

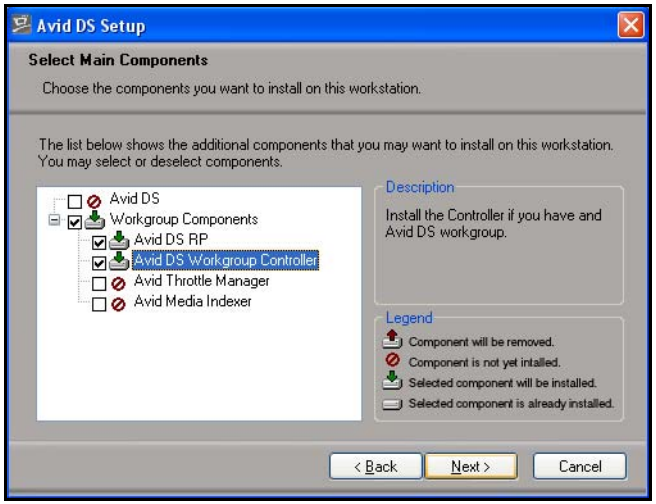
1. Use the Avid DS Nitris Software & Drivers DVD, or download the Avid DS Nitris software from the Avid Download Center.
2. Double-click the Setup.exe file and from the main menu, click **Avid DS Software**.
3. Select **Avid DS 32-bit Edition** or **Avid DS 64-bit Edition**.
4. Select **Install Avid DS**.
5. When the Avid DS Installation Wizard displays, click the **Next** button.

The Avid DS install program allows you install, reinstall, and remove any Avid DS software components.

If Avid DS is not installed on a workstation, the following dialog displays:



6. In the Select Main Components dialog box, select **Workgroup Components** and, if necessary, expand the tree to see all subcomponents that can be installed.



7. Deselect Avid DS. We do not recommend that you install Avid DS on the controller as this workstation is designated to run the administrative services like Avid DS RP and Avid DMS Broker.

   Other software components that can be installed on the controller:

   - Avid DS RP—see "Installing Avid DS RP" on page 372.
   - Avid DMS Broker: If you have one or more RP workstations in your workgroup—see "About the Avid DMS Broker" on page 376. (The DMS Broker setup must be run separately.)
   - Avid Throttle Manager—The Throttle Manager is only required when you have an Avid DS RP workstation in your workgroup—see "Avid Throttle Manager" on page 374.

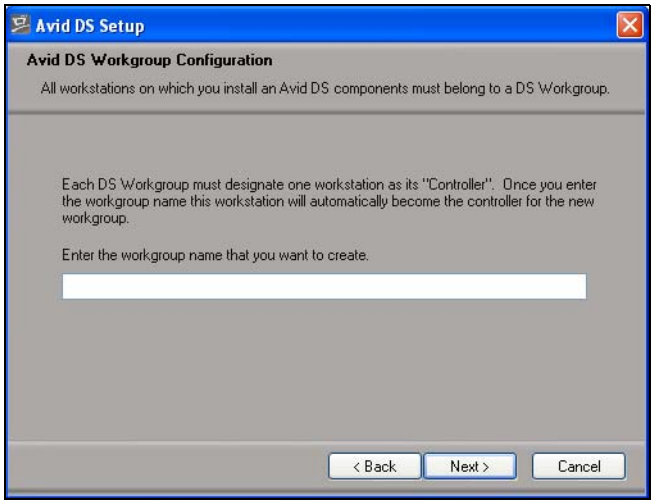
8. Click the **Next** button.
9. In the License Agreement dialog box, read the End User License Agreement and accept the terms of the agreement to continue the installation.
10. In the Customer Information dialog box, enter your name and company name, and click the **Next** button.
11. In the Reseller or Dealer Information dialog box, enter the requested information and click the **Next** button.
12. Choose the default destination location to install any Avid DS software and click **Next**.
13. Avid DS checks if this workstation was previously a controller.

    If it was a controller, then choose:

    - **Keep existing workgroup configuration** to keep the current workgroup settings.

- **Create a different DS workgroup** if you want to create a new workgroup with this controller.

If this is the first time that you are installing the controller software on this workstation, then enter a unique workgroup name to which this controller will belong, and click the **Next** button.



14. If you have one or more RP workstations in your workgroup, you must install and start the Avid DMS Broker before installing Avid DS. For more information, see "Installing Avid DMS Broker" on page 378.

    You need to tell Avid DS where the DMS Broker resides:

    - Click **Use local Avid DMS Broker** if the broker is on this workstation.
    - Click **Use remote Avid DMS Broker** to use the broker that has been installed on another workstation in your workgroup. (You will be required to specify the workstation where it is installed.)
    - Click **Do not use Avid DMS Broker** if you do not need the broker.

15. When the Service Configuration window displays, enter the login profile of the user account that will run the Avid DS services on this workstation.

    You must specify the computer name before the user id (that is, *computer_name\userid*).

If your workstation is part of a Windows domain, then you need to specify the domain name before the user id (domain_name\userid).

16. Click the **Next** button.

The second Service Configuration window displays.

- If you are part of a Windows *workgroup*, then you only need the Administrator in this list.
- If you are part of a Windows *domain*, then all user names must be configured with the domain name (domain_name\userid). If these user accounts are not configured correctly, then the services will not work.

For more information on domain versus workgroup accounts, see "Microsoft Windows Workgroups: Account Management" on page 340 or "Microsoft Windows Domains: Account Management" on page 341.

17. Determine the users or group that you want to access the Avid DS workgroup.
    - To give everyone full read/write permissions, click **Allow Everyone.**
    - To add new users or a new group, do the following:
    - Click the **Add** button.
    - Add individual user IDs/group names in the **Add Names** box.
    - Select the **Type of Access** for each user/group.
    - To remove a user or group:
    - Select a name from the list, and click the **Remove** button.
    - To change user or group privileges:
    - Select a name from the list and click **Change.**
    - Select the **Type of Access** for the user.
18. Click the **OK** button to save the user access permissions.
19. Click the **Next** button.
20. When the Storage Setup dialog box displays, accept the default settings and click **Next**.
21. When the Start Copying Files dialog box displays, review your installation settings and if you're satisfied, click the **Next** button.

If you need to change options, use the Back button to go as far back as you need to change the options.

A progress indicator displays while the Avid DS files are copied to your system.

22. If you want to install the DMS Broker, return to the main menu and select Avid DMS Broker.

***Important**: You MUST install and start the DMS Broker before setting up the other workstations in the workgroup.*

Loading Plug-Ins

Avid provides some plug-ins for use with Avid DS Nitris. These plug-ins are automatically installed whenever Avid DS Nitris is installed on your workstations.

Should you remove these plug-ins and then need to reinstall them, follow the instructions below.

To reinstall plug-ins:

1. Use the Avid DS Nitris Software & Drivers DVD, or download the Avid DS Nitris software from the Avid Download Center.
2. Double-click the Setup.exe file and from the main menu, click the **Avid DS Nitris Software** button.
3. Select **Avid DS 32-bit Edition** or **Avid DS 64-bit Edition**.
4. Select **Install Avid DS**.
5. From the Welcome dialog box, choose **Modify**.
6. In the Select Main Components dialog box, choose **Avid DS** and click the **Next** button.
7. Follow the online instructions until you see the Additional Components dialog. Select **Plugins** and click **Next**.
8. Complete the installation.

***Important**: Any plug-ins that you install on your client workstation should also be installed on the RP workstation to ensure compatibility. The same applies to any third-party plug-ins.*

Avid DS Nitris supports AVX 1.0 and native Avid DS plug-ins. For a list of compatible third-party plug-ins, refer to the Avid DS Support Center web site. Contact the vendor directly for compatibility with this version of Avid DS Nitris.

Avid DS Nitris also supports VST audio plug-ins. For details contact Avid DS Customer Service.

Installing and Removing Fonts

Avid DS Nitris includes 500 fonts from the Bitstream typeface library in the \Fonts folder of the Avid DS Nitris Software and Drivers DVD.

Avid DS Nitris supports the following typeface formats:

- Type 1
- TrueType (PC-formatted)

Avid DS Nitris does not require any additional software to access TrueType fonts, but does require Adobe Type Manager (ATM) software to access Type 1 fonts.

Installing too many fonts on your workstation can noticeably degrade computing performance. Keep the number of fonts installed on your workstation to the minimum necessary to complete your projects.

***Important**: Any fonts that you install on an Avid DS workstation should also be installed on the RP workstation to ensure consistency between processed results in titles and graphics.*

Installing and Removing Type 1 Fonts

Type 1 font support in Avid DS Nitris is available only if you have the Adobe Type Manager or Adobe Type Manager Deluxe software (version 4.0 or later) installed and active. Consult the documentation that came with the Adobe Type Manager or Adobe Type Manager Deluxe software for instructions on how to install and remove Type 1 fonts.

Installing and Removing TrueType Fonts

TrueType font support in Avid DS Nitris does not require any additional software.

To install TrueType fonts:

1. Click the **Start** button and select **Settings > Control Panel > Fonts**.

   The Fonts window displays.

2. From the File menu, select **Install New Font**.
3. Whe Add Fonts dialog box displays, use the Folders and Drives lists to navigate to the folder that contains the TrueType fonts you want to install. On the Avid DS Nitris CD, they're in the \Fonts folder.

   The available TrueType fonts in the selected folder display in the List of Fonts list.

4. Select the fonts to install from the **List of Fonts** list, as follows:
   - To select a single font, click the name of the font.

- To select a range of fonts, click the name of the first font. Then Shift-click the last font in the range.
- To select all fonts in the directory, click **Select All**.
- To switch the selection of a font, press the Ctrl key and click a font name.

5. (Optional) You can use the selected fonts from their current folder by deselecting the **Copy fonts to Fonts folder** option. This will save disk space on your local workstation.

   By default, fonts will be added to your workstation's local disk space. If you are adding several fonts, consider using the fonts from their current locations to save local disk space.

6. Click **OK**.

   The selected fonts are installed on your system.

7. If Avid DS Nitris is currently running on this workstation, restart it to access the newly installed fonts.

To remove TrueType fonts:

1. Click the **Start** button and select **Settings > Control Panel > Fonts**.

   The Fonts window displays.

2. Select the fonts to remove.
3. Press Delete.

   You are prompted to confirm the deletion of the selected fonts.

4. Click **Yes**.
5. Close the Fonts and Control Panel windows.
6. If Avid DS Nitris is currently running, restart it to update the list of available fonts.

Installing Non-European Fonts

If you are working with a non-European, customized Windows operating system, such as Windows XP Japanese, you can use the DSFontSetting.exe application, which is distributed with Avid DS Nitris. You can use this application to change the default font used in Avid DS Nitris dialog boxes or reset it to default.

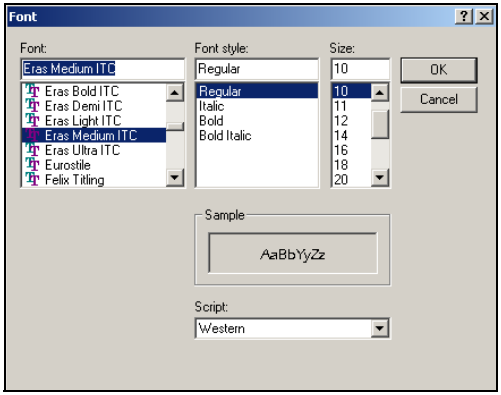
The new font is used only in dialog boxes; menus and toolbar buttons are not affected by this new information. You can customize the menu font size through the Windows Appearance tab of the Desktop Properties.

For non-European languages, Avid DS Nitris selects a font (by default) that comprises the European character set and is part of the character set of the foreign Windows system, such as Windows XP Japanese. However, the chosen font is very small and does not display properly, especially in dialog boxes. For regular systems, the default font for dialog boxes is Arial 11.

This application does not ensure that the font will fit properly in the dialog box. Whenever the new selected font is too large for the various text contents of the dialog box, a smaller default font will be used as in previous versions. You must be careful to choose a font that still contains a European character set, since the displayed text is still English. This new feature is not restricted only to Asian systems; any customer of any country can change the Avid DS Nitris default font. However, layouts work best with the default font (Arial 11). Each time a new font is set or reset, you must restart Avid DS Nitris before it takes effect.

To install non-European fonts

1. Browse to the **C:\Program Files\Avid\DS_7.*x*** folder.
2. Double-click the **DSFontsettings.exe** file.
3. From the Settings menu, you can select one of two options:
   - **Reset Font** to reset the fonts to their default setting.
   - **Set DS Font** to choose the Font and size you want to use in the dialog click. Click **OK**.



Some Tips

- For best results, use a font size between 8 and 14 points.
- If the font selected is a little too big to be displayed in its designated area, it will be substituted by the default font size.

- If the font size is really too big, the layout will not appear correctly, and you may need to refresh the screen.

Saving your Avid DS Nitris System Settings

Before uninstalling Avid DS Nitris, save your preferences and presets by exporting them to a convenient folder. Then, after you've upgraded, you can import the presets into your new version of Avid DS Nitris.

Do not save your preferences to a network folder.

Saving your Preferences

The Preference Management dialog box in Avid DS Nitris lets you import and export preference sets. A preference set is a collection of Avid DS Nitris layouts, toolbars, combo views, and/or key maps. Importing and exporting preference sets lets you share customized controls with other users.

When you import or export a preference set, its internal hierarchy is preserved. For example, if you export an entire layout, any toolbars contained in the layout are automatically exported with it.

Preference sets with the same name are appended with a number to differentiate them.

When you export a preference set, you can only include the layouts and keymaps that you customized. You can export any toolbar.

To export a preference set:

1. Select **Layout > Import/Export Preferences**.
2. In the Preference Management dialog box, select the **Export Preferences** tab.
3. Select the invidual controls that you want to export (or **Select All**). Use the Type list to switch between the layouts, toolbars, and keymaps in the preference sets.
4. Click **Export** to export the selected controls.
5. Do one of the following:
   - In the **File Name** text box, enter the path to the folder in which you want to save the preference sets.
   - Use the Avid Explorer to navigate to the folder in which you want to save the preference sets.
6. Enter a name for the preference set in the File Name text box and click **OK**.

To import a preference set:

When you import a preference set, you can import all of the controls in the set, or you can select only the controls that you need.

When you import an entire layout from an existing preference set, its components are automatically imported as well. Some types of layouts are unsupported and cannot be imported.

Also, you cannot import preferences from a network drive.

1. Select **Layout > Import/Export Preferences**.
2. In the Preference Management dialog box, select the **Import Preferences** tab.
3. Do one of the following:
   - In the **File Name** text box, enter the name and location of the preference sets that you want to import.
   - Click **Browse**.

   The Import Preferences dialog box displays.
4. Locate the preference sets that you want to import and click **OK**.
5. Select the controls that you want to import. Use the Type list to switch between the layouts, toolbars, combo views, and keymaps preference sets.
6. Click the **Select All** button to select all controls.
7. Click the **Import** button to import the selected controls.

   You will be prompted to restart Avid DS Nitris when the import is complete.

   If you imported a layout, additional layout buttons appear in the taskbar.

Saving your Avid DS Deck Presets

To export deck presets:

1. In the top panel of the Deck Configuration view, right-click and select **Export Deck Presets**.
2. Select the folder into which you want to export the presets.
3. Click the **Select** button to begin the export.

To import deck presets:

1. In the top panel of the Deck Configuration view, right-click and select **Import Deck Presets**.
2. Select the folder from which you want to import the presets.

3. Click the **Select** button to begin the import.

Chapter 4

Installing the Remote Processing Software

This chapter describes how to install software on an Avid DS Remote Processing workstation.

Processing, or rendering, is a normal and necessary part of the Avid DS workflow, as with any system that handles complex compositing and effects. Unfortunately for editors, artists, and their clients, processing takes up time and resources on the workstation being used, and can present frequent and lengthy interruptions to the creative process.

Instead of waiting for Avid DS to process your effects, you can send a processing job to a remote workstation that is running Avid DS RP and continue working on your sequence.

You can install the remote processing software on any number of workstations in your workgroup. When you send a job to be processed remotely, your job is routed by the Avid DMS Broker to the first available RP workstation. Avid DS RP processes the effects, returns the cache media to the Avid DS client storages, and notifies the client workstation when the job is complete.

This version of Avid DS RP cannot accept processing requests from earlier versions of Avid DS.

Remote Processing Concepts

Before you begin configuring your workstations for remote processing, there are a few terms you need to understand:

Client Workstation: This is the workstation on which Avid DS is installed. The *client workstation* is where the processing request is initiated. The request is sent to the remote processing workstation, and the result is eventually returned to the client.

Remote Processing Workstation: This is the workstation where Avid DS RP is installed. The RP workstation handles requests from client workstation(s) and updates the clients' timeline as each request is processed.

Each RP workstation keeps a log of the jobs that have been processed on that station. The log provides full details on each job sent to that station for processing. A shortcut to access this log (ds_server_log.txt) is available on the RP workstation desktop.

Minimal Requirements for Avid DS RP Workstation

The remote processing workstation must meet the following requirements:

- Supports Windows XP Professional and Windows XP Profession x64 Edition operating system.
- Intel Pentium 4 (single or dual CPU; MMX enabled).

AMD processors are now supported.

- 1.5 GB RAM (x86) and 4 GB RAM (x64 Edition)
- 1 GB of hard drive space
- SVGA monitor with a recommended resolution of 1280×1024
- Network card with a minimum of Gigabit Ethernet (1000 Mbps)
- Network protocol: All of the workstations being used for your workgroup must reside on a network that uses the TCP/IP protocol. Each workstation must be able to see the others over the network.
- OpenGL for 3D DVE: In Avid DS Nitris, only the 3D DVE layout uses OpenGL. An Avid DS RP workstation does not require an OpenGL card to process OpenGL effects. However, these effects will process significantly faster if the RP workstation has an OpenGL card.

It is recommended that you use the same type of OpenGL card in both the RP workstation and the client workstation.

Network Hardware and Remote Processing Performance

To optimize your network hardware and the performance of remote processing:

- The recommended minimum speed of your network card is Gigabit Ethernet and full duplex capability as this speed matches that of the client workstation.

The HP workstation uses an on-board Gigabit Ethernet adapter.

- A network switch is the best way to isolate the remote processing traffic from a corporate network. We recommend a minimum bandwidth of Gigabit Ethernet and full duplex capability, however, a gigabit switch is preferable. For the highest quality components, purchase brand name products, such as 3Com, Cisco, etc.

Hubs are not recommended.

- Use 24AGW gauge network cable (category 5 and up). Connectors must be assembled properly, with a minimal length of unshielded wire on both ends.

CPU Usage on Avid DS RP Workstations

In some cases, you may find that the CPU usage on the RP workstation or the client workstation is low during processing. This may be more obvious when the RP workstation is a faster machine, and in some cases the CPU usage may be lower on the RP workstation than on the client workstation. This is a normal occurrence.

CPU usage is an indicator of processor activity. The faster the processor, the faster it completes its job (processing the current frame). If the CPU has to wait for the next frame read from disk to start processing the frame, the CPU usage is lowered.

This is normal, and it depends on the effect being processed. For simple light effects, such as color correction, the processing is fast enough that the CPU is actually idling most of the time. This appears as a low CPU usage value. These effects are said to be “I/O-bound”, meaning that the read/write operations for each processed frame are more significant than the actual processing. Because Avid DS is fully multi-threaded, the processing itself and the I/O operations are done in parallel. However, if the CPU is idling most of the time, a low CPU usage value is to be expected.

Most native Avid DS effects support multi-threading and, in addition to this, processing jobs can be divided among the CPUs available in the workstation. For example, when a blur effect is processed on a dual-CPU workstation, half the frame is processed on one CPU while the other half is processed on the other. This dramatically improves the overall processing time.

Some third party effects (such as all AVX effects) do not support multi-threading. In these cases, because only one of the CPUs is being used, the CPU usage never goes above 50%.

To verify if an effect is single or multi-threaded:

1. Click the **Start** button and select **Run.**
2. In the Run window, type **perfmon** to run the Performance Monitor.
3. Add one counter for each CPU Time.

For multi-threaded effects, the two curves move together while processing. In single-threaded effects, they move in opposite directions.

CPU usage can be affected by the RP license (single or dual). An RP license for one processor will force the RP workstation into single-thread mode, and the CPU usage will never exceed 50%.

CPU usage usually appears higher on the client workstation (if it has the same processor type as the RP). This is because the read/write operations are faster on the client (local storage). As a result, the processor spends less time waiting for input frames before processing them.

Installing Avid DS RP

To install Avid DS RP, you must log on with an account that has Administrator privileges.

If you have one or more RP workstations in your workgroup, you must install and start the Avid DMS Broker before installing Avid DS—see "Installing Avid DMS Broker 5.0" on page 379.

To install Avid DS RP:

1. Use the Avid DS Nitris Software & Drivers DVD, or download the Avid DS Nitris software from the Avid Download Center.
2. Double-click the Setup.exe file and from the main menu, click the **Avid DS Software** button.
3. When the Avid DS Installation Wizard displays, click the **Next** button.
4. In the Select Install Components dialog box, choose **Avid DS RP** as one of your options.
5. Click the **Next** button.
6. In the License Agreement dialog box, read the End User License Agreement and accept the terms of the agreement to continue the installation.
7. In the Customer Information dialog box, enter your name and company name, and click the **Next** button.
8. In the Reseller or Dealer Information dialog box, enter the requested information and click the **Next** button.
9. Choose the default destination location to install Avid DS and click **Next**.
10. If this is a *client* workstation, then you will need to choose the workgroup to which you want to join.

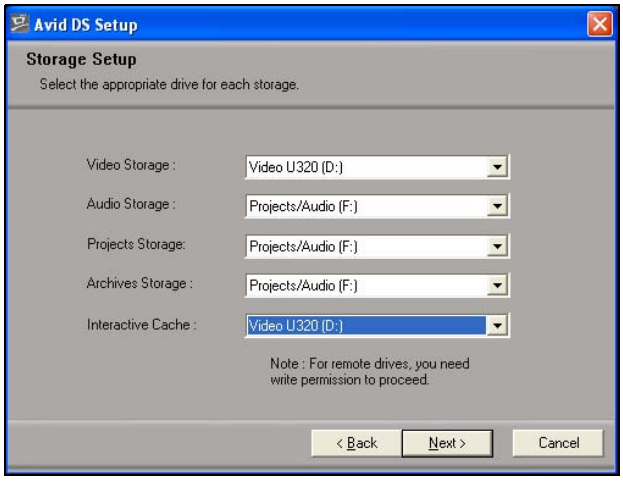
    If this workstation is the *controller*, then choose:

    - **Keep existing workgroup configuration** to keep the current workgroup settings.
    - **Create a different DS workgroup** if you want to create a new workgroup with this controller.
11. When the Service Configuration window displays, enter the login profile of the user account that will run the Avid DS services on this workstation.

    You must specify the computer name before the user id (that is, *computer_name\userid*).

If your workstation is part of a Windows domain, then you need to specify the domain name before the user id (domain_name\userid).

12. The Storage Setup dialog box displays.



On an RP workstation, set the **Projects Storage** to the actual drive letter where you will store your projects and presets. All other options (Video/
Audio Storage, Archives and Interactive Caches), can be set to None.

If you are connected to Unity, do not select the Unity storage to store your projects. The Unity is only for media storage.

13. Change the storage locations if necessary, and click the **Next** button.
14. Install any plug-ins and fonts that you may require for titling and graphics work on your Avid DS client workstation(s). The RP workstation also requires these fonts and plug-ins to process your Avid DS requests.
15. When the Start Copying Files dialog box is displayed, review your installation settings and if you're satisfied, click the **Next** button.

If you need to change options, use the Back button to go as far back as you need to change the options.

A progress indicator is displayed as the Avid DS RP files are copied to your system.

16. Click the **Finish** button.

Avid Throttle Manager

The Throttle Manager is only required when you have an Avid DS RP workstation in your workgroup. The Throttle Manager is part of the Avid DS Services options and can only be installed on the Avid DS RP or workstation that will be the controller for the DS Workgroup.

Do not install the Avid Throttle Manager on a workstation running the Avid DS software.

On an Avid DS workstation, playback, capture, and output to tape are critical operations which require guaranteed bandwidth between the workstation and its storage. During these operations, the Throttle Manager will pause any RP workstations using the same storage for processing in order to maintain that bandwidth. Once the playback, capture, or output to tape operation is complete, the Throttle Manager restarts the processing on the RP workstations.

For instance, if you want to play back your sequence on the timeline, the Avid Throttle Manager temporarily suspends any processing requests to an RP workstation, or capture or output from/to a deck, to allow for the full bandwidth to be used for real-time playback. Once the sequence playback is complete, the Avid Throttle Manager resumes the other processes.

The Avid Throttle Manager also manages the bandwidth to shared storage locations for each workstation in the Avid DS workgroup. For example, since an Avid DS client workstation and an RP workstation can share the same storage, the Throttle Manager manages access to shared storages, so that the RP workstation doesn't interfere with the client workstation during critical times such as playback, capture, and output to tape.

The Throttle Manager can only be installed on a Windows XP workstation.

Chapter 5
The Avid DMS Broker

This chapter describes how to install, configure and use the Avid DMS Broker.

If you have one or more RP workstations in your workgroup, you must install the Avid DMS Broker as this service is responsible for directing the remote processing requests within an Avid DS workgroup.

About the Avid DMS Broker

Avid DS v8 uses the Avid DMS Broker to distribute and monitor any remote processing requests in the workgroup.

When an Avid DS Nitris workstation submits a job for remote processing, the DMS Broker routes the processing job to the first available RP workstation. The RP workstation then starts to process the job, and reports the progress to the DMS Broker. When the job is complete, the RP workstation copies the processed media (caches) to the appropriate Avid DS client storage and notifies the DMS Broker that the job is complete (You can view the DMS Web page to monitor the RP jobs.). The caches generated from the processing are automatically linked back to your current project.

The main DMS Broker window displays current information about the status of the Broker including the computer name for the system on which the Broker resides. The DMS Broker uses the computer name to identify itself on the network. Any RP workstations in the Avid DS workgroup are configured to use this computer name when sending out RP requests.

The DMS Administration Tool is a Web-based application that is accessed through a browser. It communicates with the DMS Broker's built-in Web server. This communication allows you to manage Distributed Media Services through a browser from anywhere using the Internet.

The DMS Administration Tool performs two types of functions:

- Provides detailed information based on lists of jobs, encoders, profiles, and users.
- Provides controls for managing and canceling jobs, and creating or deleting users.

System Requirements

The DMS Broker software should not reside on the same computer as Avid DS. The DMS Broker software should be installed on a dual-processor machine if you are also using it as the RP workstation.

The DMS Broker runs on Windows 2000 or Windows XP.

If you are using an Avid Unity shared storage in your workgroup, then the DMS Broker is only qualified to run on Windows 2000.

The DMS Broker requires the following minimum specifications, running a Windows-based operating system:

- Pentium® III class processor 1.2 GHz or faster
- 512 MB of RAM

- 800 x 600, 16-bit display
- Microsoft® Internet Explorer 5.5 or later

Installing Avid DMS Broker

If you are upgrading your Avid DS Workgroup from a previous release, you must first remove the previous version of the Avid DMS Broker before continuing—see "Removing Avid DMS Broker 2.1" on page 378.

If you are installing the DMS Broker for the first time, go to "Installing Java v1.4" on page 378.

Removing Avid DMS Broker 2.1

To install and use the Avid DMS Broker 5.0 with Avid DS 8.0, you must first remove Avid DMS Broker 2.1 and update the dongle (application key).

To remove Avid DMS Broker:

1. From the **Start** menu, select **Control Panel**.

   (The Control Panel is located under Settings if you are using the Windows Classic menus).
2. Double-click **Add or Remove Programs**.
3. Select Avid DMS Broker and click the **Change/Remove** button.
4. When the Broker is removed, restart the workstation.

Remove the dongle (application key) and do not reconnect it to a USB port until you install the new DMS Broker.

To remove residual Broker files:

1. Browse to the C:\Program Files\Avid folder.
2. Delete the **ProEncode** folder.

To remove Java v1.2:

Since Avid DMS Broker 5.0 requires Java v1.4, you can safely remove Java v1.2.

Important: Java v1.3 is required for the Avid Storage Manager application and you should keep this version.

Installing Java v1.4

Avid DMS Broker 5.0 requires Java v1.4 to operate correctly.

To install Java 1.4:

1. Use the Avid DS Nitris Software & Drivers DVD, or download the Avid DS Nitris software from the Avid Download Center.
2. Run the Avid DS Setup program, and select **Avid DMS Broker** from the menu.
3. Select **Java v1.4**.
4. Select **Run** twice to launch the installer.
5. After its install, and if your workstation is connected to the internet, Java may prompt you for an update. We do not recommend that you install any updates as they have not been tested with Avid DMS Broker 5.0.

Installing Avid DMS Broker 5.0

The latest Avid DMS Broker requires the installation of the Microsoft SQL database. This will automatically be installed during the Avid DMS Broker installation.

Proceed with a default installation and do not change the default options.

Do not connect the dongle (application key) to a USB port until you install the DMS Broker.

To install the Avid DMS Broker:

1. Double-click the Setup.exe file and from the main menu, click the **Avid DS Software** button.
2. When the Avid DS Installation Wizard displays, click the **Next** button.
3. In the Select Main Components dialog box, choose **Avid DMS Broker**.

You can check the state of the icon beside the DMS Broker to determine if it has already been installed on this workstation.

4. Click the **Next** button.
5. When the Service Configuration window displays, enter the login profile of the user account that will run the Avid DS services on this workstation.

   You must specify the computer name before the user id (that is, *computer_name\userid*).

If your workstation is part of a Windows domain, then you need to specify the domain name before the user id (domain_name\userid).

6. When the Start Copying Files dialog box displays, review your installation settings and if you're satisfied, click the **Next** button.

If you need to change options, use the Back button to go as far back as you need to change the options.

7. The DMS Broker install program will now run.
8. Choose **United States** for the country in which you purchased this product.
9. When the installation is complete, click **Finish**.

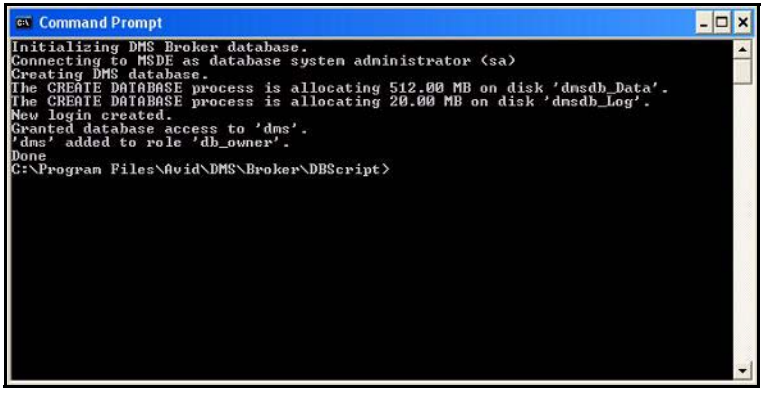
After the install is complete, you MUST start the DMS Broker before setting up the other workstations in the workgroup.

Configuring the Microsoft SQL Database

Before you start the Avid DMS Broker, you must run two batch files to complete the Microsoft SQL database configuration.

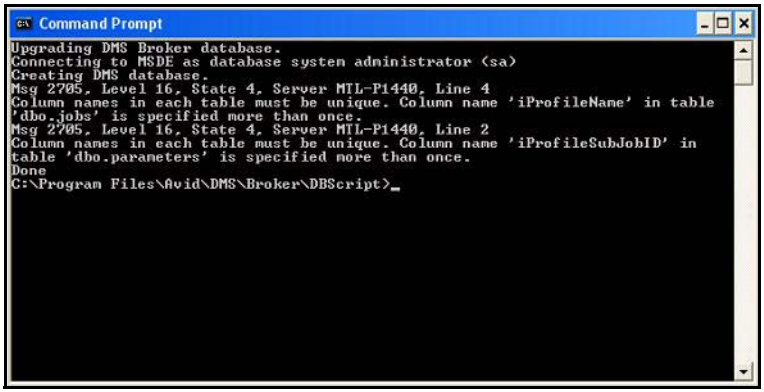
1. From the **Start** menu, select **All Programs > Accessories > Command Prompt**.
   If the Command Prompt does not open on the C: partition by default, type C: and press Enter.
2. Type cd "Program Files\Avid\DMS\Broker\DBScript" and press Enter.
3. Type DBInstall and press Enter.

   The registered information displays.



4. Next, type **DBUpgrade** and press **Enter**.

   The registered information displays.



The Microsoft SQL database is configured and ready to be used by the Avid DMS Broker.

Attaching the Dongle

The dongle, also known as the application key, allows the DMS Broker software to run on your system. It also lets you access only the number of RP workstations for which you have purchased licenses.

Make sure you install the DMS Broker before connecting the application key (dongle) to the USB port.

To attach the application key:

1. On the workstation that will run the DMS Broker, locate an available USB port.
2. Connect the dongle to the USB port.
3. Windows automatically detects a “USB dongle SuperPro” device.

   The Found New Hardware Wizard displays.
4. Keep the **Install the software automatically (Recommended)** option, and click **Next**.

   “Rainbow USB SuperPro” is detected and installed by Windows.
5. When the Completing the Found New Hardware Wizard dialog box displays, click **Finish**.

Do not lose the application key. Your DMS software does not function without it. If you lose your application key, you must purchase another key from Avid.

6. If the dongle is programmed for Avid DMS Broker 2.1, you need to update the dongle for Avid DMS Broker 5.0—see “Updating the Dongle” on page 382.

Updating the Dongle

If you were using a previous version of Avid DMS Broker, your USB dongle requires an update.

1. Run the Dongle Dumper (located in the /DMS_Broker/utility folder on the Avid DS Nitris Software and Drivers DVD) to extract the required information from your dongle.
2. Copy this information in the Avid DS License Request Form.

   The license form is available on http://www.softimage.com/licensing/request
3. Submit the license request.

   The dongle update package will be emailed to you from Avid.
4. When you receive the dongle update package, save it in a folder on the workstation where the dongle is attached.
5. Double-click the DongleUpdater.exe file.

   This reprograms the dongle for Avid DMS Broker 5.0.
6. Click the **Update (DMS Broker)** button.
7. Click **Quit** to exit the utility.

Starting the DMS Broker

After the DMS Broker dongle is installed, you can start the service.

The installation process automatically creates an Administrator account and uses the computer name of this workstation as the DMS broker name. Any client workstations in the Avid DS workgroup use this computer name when sending or processing RP requests. Similarly, you do not need to add any Avid DS users to the DMS Broker configuration as these will automatically be created when a user sends a processing request.

To start the DMS Broker:

1. Click the **Start** button, and select **Programs > Avid > DMS Broker**.

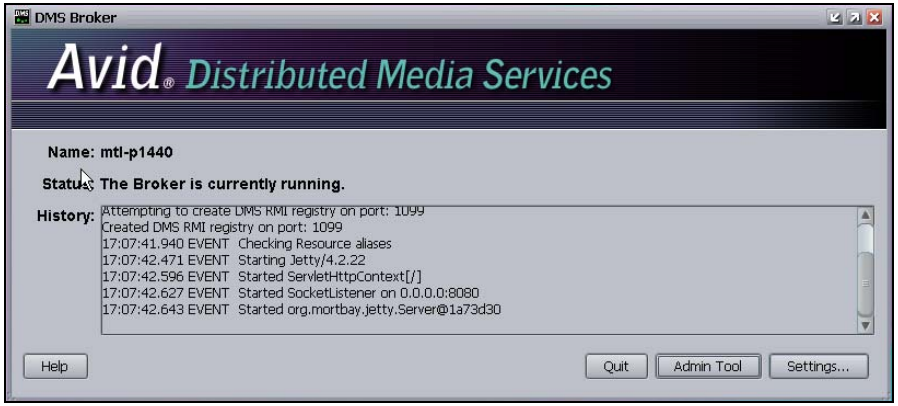
   The welcome dialog displays.

2. Click **Ok**.

   The Broker Settings dialog displays. For Avid DS, you do not have to fill out this dialog.

3. Click **Ok**.

   You will receive the following message: “The Broker is currently running.”



4. Leave the service running; you can minimize the interface.

Using the DMS Administration Tool

The DMS Administration Tool performs two types of functions:

- Provides detailed information about DMS, based on lists of jobs, encoders, and users
- Provides controls for managing DMS such as canceling jobs, and creating or deleting users

Administrators can perform the following tasks:

- View details on any job
- Delete jobs submitted by any user
- Purge the jobs list of every user

Regular users can only perform administrative tasks on their own jobs.

The DMS Administration Tool may be used on any Windows-based computer that has an Internet connection to the workstation running the DMS Broker.

To open the DMS Administration Tool:

1. Do one of the following:

- In the DMS Broker window, click the **Admin Tool** button.
- In Avid DS, click on the RP button in the bottom right of the status bar.
- Open a Web browser, either on the computer running the DMS Broker or on another networked computer. You must use Internet Explorer 5.5 or higher.

2. Type a URL for the DMS Broker in the following form:

   http://*computername*:8080

   The *computername* is the name of the computer where the DMS Broker software runs. For instance, a URL for the Broker may appear as follows:

   http://broadcastPE:8080

The DMS Broker name is found in the Name field of the DMS Broker window. The numeric part of this URL following the colon (:) is the port number, 8080.

A firewall must allow connections to and from the system running the DMS Broker using port 8080 in order to run the DMS Administration Tool.

3. Press the Enter key. The DMS Administration Tool login screen displays.
4. Enter your User Name and Password. For more information, see "The Users Page" on page 397.

5. Click the **Login** button. If the User Name and password are accepted, the DMS Jobs page will display. For more information, see "The Jobs Page" on page 388.

Changing the Password

The DMS Administration Tool is installed at the same time as the DMS Broker. The default login for the DMS Administration Tool is the login name Administrator, with a blank password. This account should be given a password after installing the Broker software.

Non-administrators can see and edit only their own user's page. When using Media Browse, a user must be created which matches the Media Browse user designated for DMS.

To change the Administration Tool password:

1. Open the DMS Broker (Select **Start** > **Programs > Avid > DMS Broker**), and click on the **Admin Tool** button in the DMS Broker dialog.

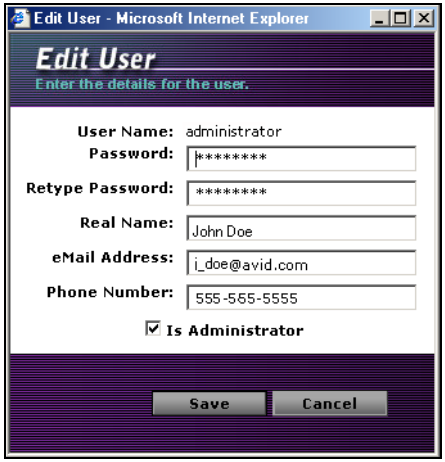
   The DMS Administration Tool login screen displays in the web browser.

2. Type Administrator in the **User Name** text box. You must login as an administrator to change the administrator password.

   The Password text box is blank by default.

User names and passwords are case sensitive.

3. Click the User Name link for the user you want to edit. The Edit User window displays.



4. Type a password in the **Password** text box. Then, type it again in the **Retype Password** text box.

Passwords are case sensitive and can contain only letters, numbers, and underscores. They can be up to 255 characters. While passwords are optional, Avid recommends a password for the Administrator account. If you forget the Administration password, it must be reset. Contact Avid Customer Support.

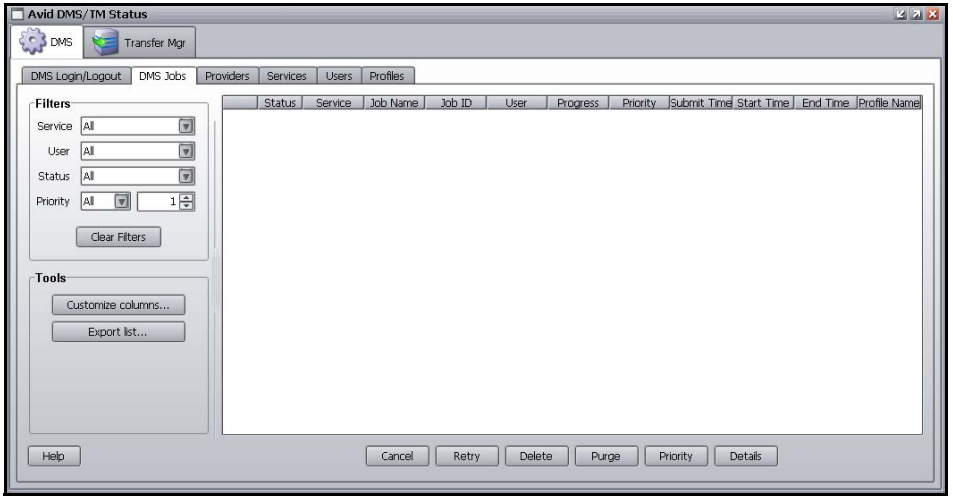
5. Type a **Real Name** as you want it to appear on the Users page.
6. (Optional) You may enter an e-mail address and a phone number.
7. If the user you are editing is an administrator, select the **Is Administrator** check box.
8. Click **Save**.
9. Close the Users page by closing the browser window.

Configuring Users in the DMS Broker

The user profile on an Avid DS workstation is automatically added to the DMS Administration Tool the first time a remote processing job is sent from that user.

You may create additional users from the DMS Users page. You must be logged in as an administrator to create users.

When you login, the DMS Jobs page displays.



To create users:

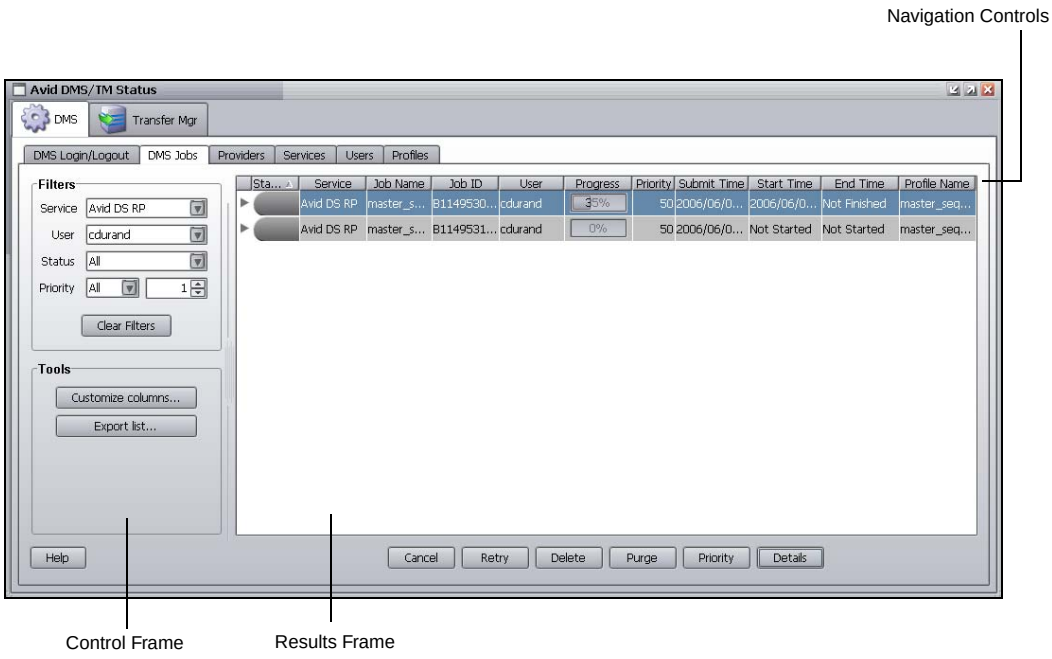
1. Click the **Users** tab. The Users page displays.
2. Click the **Add** button. The Create User window displays.

3. Type in the user name.
4. Type a password in the **Password** text box. Then, type it again in the **Retype Password** text box.
5. Type a **Real Name** as you want it to appear on the Users page.
6. (Optional) You may enter an e-mail address and a phone number.
7. If the user you are editing is an administrator, select the **Is Administrator** option.
8. Click **Save**.

For more information, see "The Users Page" on page 397.

DMS Administration Tool User Interface

The DMS Administration Tool user interface is made up of the following areas:



Area	Description	Section Reference
Jobs tab	Displays the status and other information about jobs submitted to the DMS Broker. Lets you cancel or retry jobs, depending on your level of privilege.	See "Customizing the Jobs List" on page 390.
Providers tab	Displays information about systems that are running Avid DS or Avid DS RP in the same Avid DS workgroup as the DMS Broker.	See "The Providers Page" on page 394.
Profiles tab	Reserved for future use.	
Services tab	Displays a list of services and service information. Lets you install and delete services.	See "The Services Page" on page 396.
Users tab	Displays a list of user accounts. Lets you create and delete accounts, depending on your level of privilege.	See "The Users Page" on page 397.
Navigation Controls	The navigation controls appear on the Jobs page and determine what jobs are displayed.	See "Navigation Controls" on page 389.
Control Frame	The Control frame displays different options, depending on the mode in which you are working.	
Results Frame	The Results Frame displays information based on the user's login profile and the options selected in the Control Frame section. A user logged in as an Administrator is allowed to view all of the jobs in a queue, and other users are only allowed to view their own jobs.	

The Jobs Page

The Jobs page displays information about jobs submitted to the DMS Broker, and allows the user to cancel, delete, and retry jobs.

To open the Jobs page:

- Open the DMS Administration Tool.

  The Jobs page displays by default after you log in to the DMS Administration Tool.

The following table describes the information displayed on the Jobs page.

Jobs Page Column	Description
Status	The colors and icons in the display indicate the status of the job: • Yellow bar with no icon = Job is processing. • Green bar with Check Mark icon = Job is completed. • Gray bar with Stop icon = Job has been canceled. • Caution icon = Job has failed with an error. • Gray bar with no icon = Job is pending or is in a queue.
Service	The name of the service to which the job was sent.
Job	The file name submitted by the client to DMS. This may have a suffix (determined by the particular service) appended to it.
User	The name of the user who submitted the job. For instance, Proxy Transcode jobs display the Media Browse user name.
Progress indicator (%)	The percentage of the job completed.
Start Time	The date and time that the job was sent.
End Time	The date and time that the job was completed.

Navigation Controls

The navigation controls appear on the Jobs page and determine what jobs are displayed. The DMS Administration Tool displays jobs in blocks of fifteen jobs. It also organizes jobs into groups of 100. Use the navigation controls to view the list of jobs.

To view the previous fifteen jobs or the next fifteen jobs:

- Click the **Previous** or **Next** button.

To view the previous group or the next group of 100 jobs:

- Click the **Previous Group** or **Next Group** button. The DMS Administration Tool displays the first 15 jobs of the group.

To view the beginning or the end of the entire list:

- Click the **First** or **Last** button. The DMS Administration Tool displays the first 15 or the last 15 jobs of the list.

Customizing the Jobs List

By default, the Jobs page displays all jobs that the DMS Broker is currently monitoring. You may customize your view to show only your jobs, to show jobs for a specific service, or to show only jobs in a selected state.

To customize the Jobs list:

1. Open the DMS Administration Tool. For more information, see "Using the DMS Administration Tool" on page 384.

   The Jobs page displays by default after you log in to the DMS Administration Tool.
2. In the Control frame of the Jobs page, click the **Service** list, and select a service.
3. Click the **User Name** list, and select All Users or a specific user name.

Users with Administrator privileges are allowed to cancel or delete any job. Users not having administrator privileges may only cancel or delete jobs submitted by that user.

4. In the Control frame, click the Status pop-up menu, and select one of the following:
   - **All States:** Displays all jobs with their current status
   - **Processing:** Displays only jobs that are currently being processed
   - **Completed:** Displays only jobs that have been successfully processed
   - **Canceled:** Displays only jobs that have been canceled by a user with administrator privileges
   - **Error:** Displays only jobs that have stopped with an error
   - **Pending:** Displays only jobs that are waiting to be processed
5. Click the **Filter** button.

In the Results frame, the Jobs page displays jobs that meet the criteria you selected.

Updating the Jobs list

The Jobs list is automatically updated to show the progress and status of a job.

If any jobs have been added or deleted since opening the Jobs page, the Refresh button is enabled in the upper right portion of the interface.

To update the Jobs list, do one of the following:

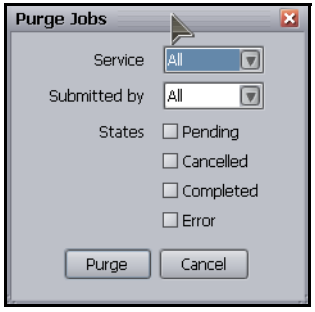
- Click the **Refresh** button, if available.
- Click any navigation button.

Purging the Jobs List

The purge function is only available to users with administrator privileges.

To purge the Jobs list:

1. Log on as a user with administrator privileges.
2. On the Jobs page, click the **Purge** button. The Purge Jobs dialog box displays.



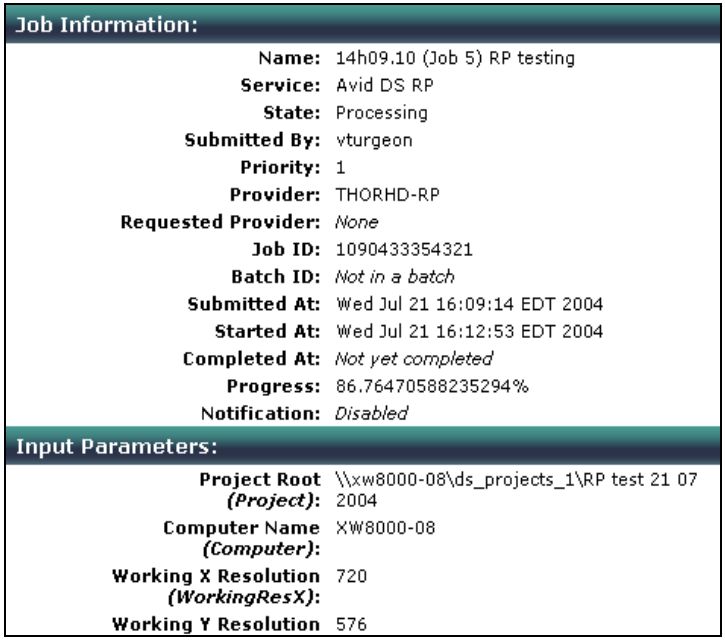
3. Click the **Service** list, and select the applicable service.
4. Click the **Submitted By** list, and select a particular user or Any User, depending on the jobs you want to purge.
5. Select which **States** of jobs you want to purge.
6. Click the **Purge** button.

The Jobs list no longer contains the jobs you selected. If a purge fails, a dialog box opens with a list of the jobs that failed to delete and a reason for the failure.

Viewing Details About a Job

To view details about a job:

- On the Jobs page, click the hyperlinked job name that appears in the Job column. The Job Details window displays in a separate browser window.



You must be logged in as the job owner or an administrator to see these details.

The following table provides descriptions of the type of job information displayed in the Job Details window.

Entry	Description
Job Information	
Name	The name of the file submitted by a client to DMS. It may include information appended to the file name, depending on the service requirements.
Service	The DMS service for which the job was submitted; for instance, Avid DS RP or ProEncode.
State	The current state of the job.
Submitted By:	The user name associated with the job, as submitted by the client.
Priority	The priority of the job, as submitted by the client.
Provider	(Not used by Avid DS) The name of the encoder, as registered with the DMS Broker.

Entry	Description
Requested Provider	(Not used by Avid DS) The name of the provider requested, if one was specified.
Job ID	A number automatically generated by the DMS Broker.
Batch ID	(Not used by Avid DS) The number of the batch containing the job.
Submitted At	The date and time the job was submitted by the client to the DMS Broker.
Started At	The date and time the DMS Broker picked up the job.
Completed At	The date and time the job was reported as complete.
Progress	The percentage of the job that has been processed.
Notification	(Not used by Avid DS) Displays whether notification of job completed or job error is enabled or disabled.

Canceling a Job

Jobs may be canceled during the Pending or the Processing state. A user may only cancel jobs that have been submitted under their DMS user name. An administrator may cancel any job.

When a job is canceled, it may take a short time for the job to actually stop and the status change to be reflected. It is also possible that a job may finish before it can be canceled. In this case, you may receive a dialog stating that the DMS Broker was unable to cancel the job.

To cancel a job:

1. Open the DMS Administration Tool.
2. On the Jobs page, click the hyperlinked job name that appears in the Job column.

   The Job Details window opens in a separate browser window.
3. Click the **Cancel** button. A dialog box displays and asks if you are sure you want to cancel the job.
4. Click **OK** to cancel the job.

The job remains in the Jobs list but the state changes to canceled.

Deleting a Job

To delete a specific job or all jobs on the Jobs page:

1. Open the Jobs page, select the specific job(s) to delete by clicking the checkbox next to the name of the job(s). You may select all of the jobs by clicking the **Select All** button.
2. Click the **Delete** button.

Retrying a Job

You may retry a job that is in the canceled state.

To retry a job:

1. On the Jobs page, click the hyperlinked job name that appears in the Job column.

   The Job Details window opens in a separate browser window.
2. Click the **Retry** button.

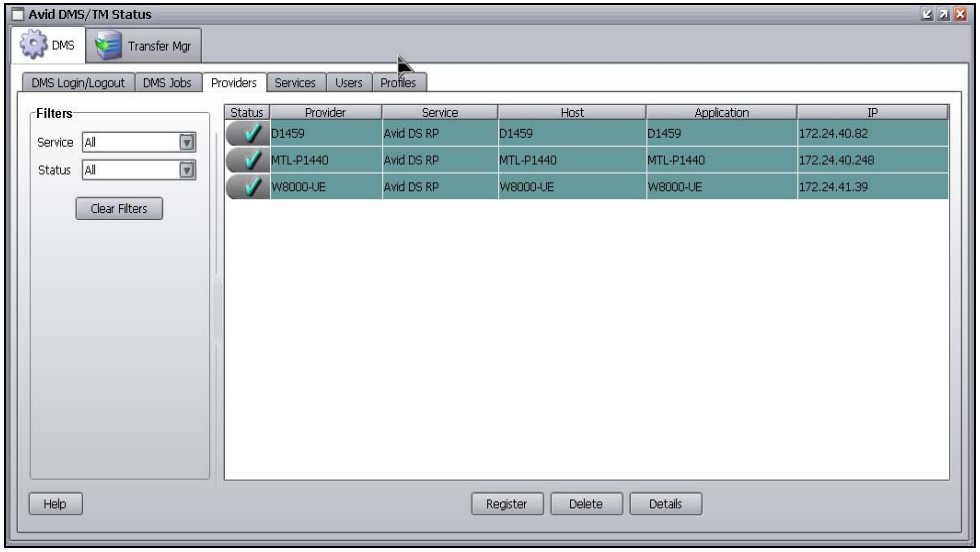
The DMS Broker changes the state to Pending and places the job in the queue for the next available RP workstation.

The Providers Page

The Providers page displays information about workstations that are running Avid DS RP and are registered with the DMS Broker. You may also view specific provider details and capabilities.

To open the Providers page:

- In the mode selector, click **Providers**. The Providers page displays.



The following table describes the information displayed on the DMS Providers page.

Providers Page	Description
Provider Name	The name of the workstation, as registered with the DMS Broker.
Service	The name of the DMS service that has been registered.
Host Name	The computer name of the provider.
Application Name	The name of the service provider application.
Status	Indicates whether or not the workstation is connected to the DMS Broker.

Customizing the Providers Display

By default, the Providers page displays all Avid DS and Avid DS RP workstations that are registered with the DMS Broker (and within the same Avid DS workgroup as the DMS Broker). You can customize your view to show only the connected providers or providers of a particular service.

To customize the Providers display:

1. In the mode selector, click **Providers**. The Providers page displays.
2. In the Control frame of the Providers page, click the **Service** list, and select the applicable service.
3. Click the **Connection Status** list, and select **All Providers** or **Connected**.
4. Click the **Filter** button.

In the Results frame, the Providers page displays providers that match your selections.

Deleting Providers

If a workstation is connected to the DMS Broker, the workstation may not be deleted until it has been disconnected and all processing jobs are stopped.

You must be logged in as an administrator to delete any workstations.

To delete a Provider:

1. In the mode selector, click **Providers**. The Providers page displays.
2. Click the check box to the left of the provider's name, and click **Delete**.

   A dialog box opens and asks if you are sure you want to delete the provider.
3. Click **OK**.

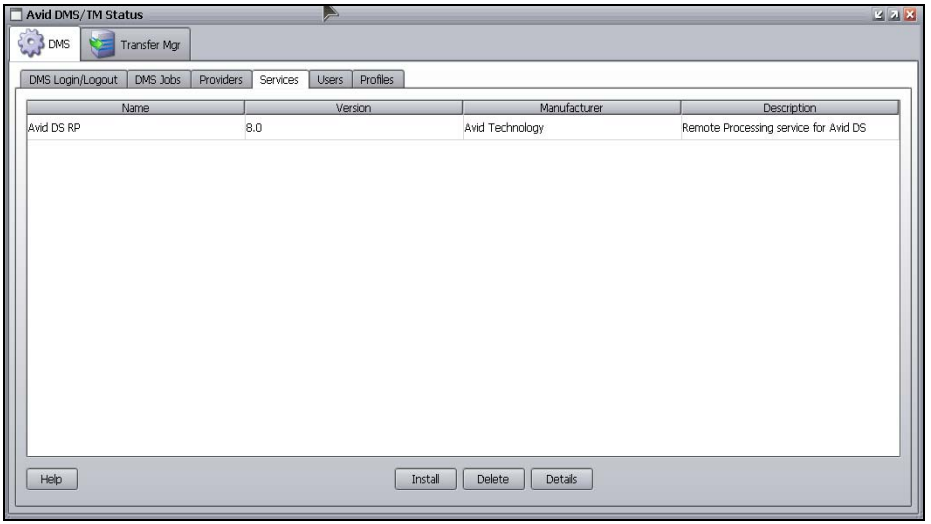
   The provider is no longer registered with the DMS Broker and needs to be reregistered.

The Profiles Page

The Profiles page is reserved for future use.

The Services Page

The Services page displays information about the Distributed Media Services that are installed and allows the user to install new services or delete services that were previously installed.



To display information about a specific service:

1. Click **Services** in the mode selector. The Services page displays.
2. In the Results frame of the Services page, click the name of the service about which you want information.

The specific information displayed on the Service Details page differs for each installed service.

The Users Page

The Users page lets you create and manage user accounts.The default login for the DMS Administration Tool is the user name Administrator, without a password. Avid recommends assigning a password to this account after installing the DMS Broker. For more information, see "Changing the Password" on page 385.

To open the DMS Users page:

- In the mode selector, click **Users**. The Users page displays with user accounts listed in the User Name column.

Setting Up User Accounts

To set up a user account:

1. Click the **Add** button. The Create User window displays.
2. Type a user name in the **User Name** text box.

User names and passwords are case sensitive and can contain only letters, numbers, and underscores. They may be up to 255 characters.

3. (Optional) You may assign a password by typing a password in the **Password** text box. Then, type it again in the **Retype Password** text box.
4. Click the **Save** button.

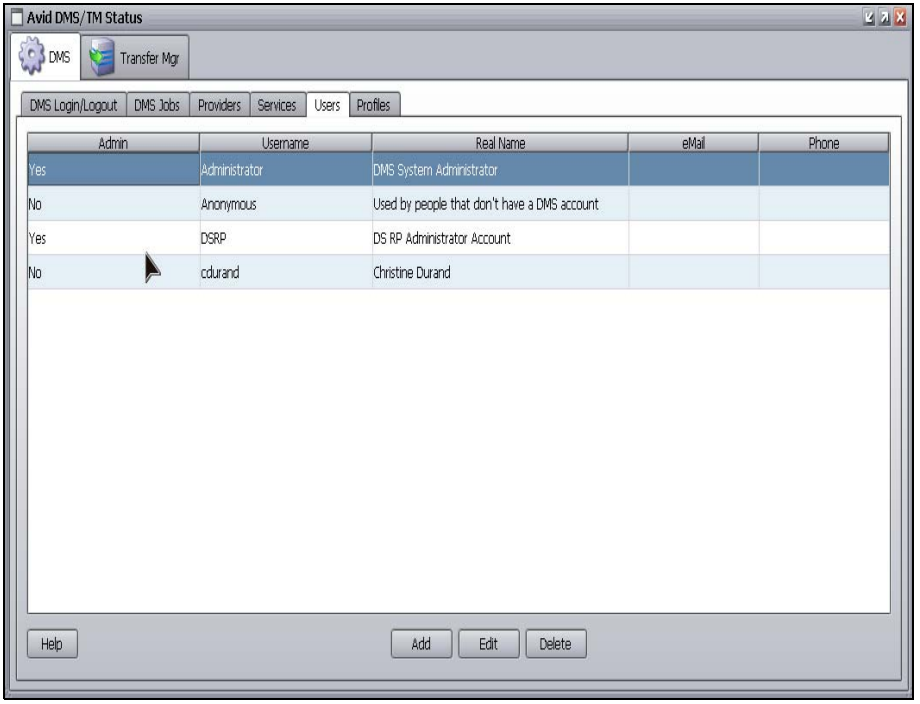
Deleting User Accounts

You must be logged in as an administrator to delete user accounts.

To delete a user account:

1. In the mode selector, click Users.

   The Users page displays.



2. Click the check box to the left of the **User Name** for each account you want to delete.
3. Click the **Delete** button.

   A dialog box opens and asks if you are sure you want to delete the user account.
4. Click **OK**.

Reassigning Passwords

To reassign a user password:

1. Log on as an administrator.
2. Open the DMS Administration Tool and click **Users**. The Users page displays.
3. In the User Name column, click the link for the user you want to edit. The Edit User window displays.
4. Type a password in the **Password** text box. Then, type it again in the **Retype Password** text box.
5. Click the **Save** button.

To delete and re-create all accounts:

1. On the Users page, click the **Select All** button.
2. Click the **Delete** button.

   A dialog box opens and asks if you are sure you want to delete the user accounts.
3. Click **OK**.

The user accounts are deleted. To re-create user accounts, see "Setting Up User Accounts" on page 397.

The user "Administrator" cannot be deleted. If you try to delete Administrator, you will receive an error message.

If a user forgets his or her password, a new one must be assigned. If you forget the Administration password, it must be reset. Contact Avid DS Customer Support.

Chapter 6

Licensing Avid DS Software

You can install your Avid DS software before licensing the product. However, you will not be able to run an Avid DS product, until you have a registered license. Avid DS will only start if the dongle identification number matches the information in the license file.

This chapter describes how to license an Avid DS, Avid DS Assist Station, or Avid DS RP workstation.

Requesting a License File

Avid DS uses a software license that is linked directly to the system where you have Avid DS installed. The license is an encoded string generated from the IDs of different hardware components on your system. Each workstation needs its own license file.

The licensing system allows you up to three hardware component changes. After you make the third hardware change, you will be notified that you need a new license.

To generate your license ID:

1. Go to the Avid DS Support Center web site http://www.softimage.com/avidds and click **Licensing**.
2. Follow the online instructions to generate a Dongle ID, and submit a license request to Avid.

You must provide all the information requested in order to obtain your license in a timely manner.

Avid DS Customer Service does not generate permanent licenses. However, if your license is incorrect or if you haven't received it within 72 hours of your request, Customer Service can generate a limited one-week license.

3. If you have other workstations in your workgroup for which you need to install licenses, click the **Back to License Request** button, and repeat the licensing instructions.

Installing the Registered License File

1. When you receive your registered license from Avid, you need to save it to a folder (C:\DSLicense) on the workstation where you generated the Dongle ID.
2. Click the Windows **Start** button and select **All Programs > Avid > Avid DS v8 > Licensing Instructions**.
3. Follow the online instructions to install your license for this workstation.

Chapter 7
Managing Your Storage Areas

This section contains information on the storage connected to your Avid DS workstation and/or workgroup. It provides guidelines on the configuration and maintenance of your storage areas.

In this information, the general term "Avid editing system" refers to Avid applications other than Avid DS Nitris, such as Symphony™, Media Composer®, Film Composer®, Avid Xpress®, and NewsCutter®.

Planning your Storage Locations

Your Avid DS workstation typically includes a base tower with a storage device (disk array). The video media is stored on the drives in the storage device, while all software, projects, and audio media are stored on the local drive in the base unit. For more information on the software and project folders on your local disk, see "About your Local Storage Area" on page 430.

If your Avid DS workstation is operating on its own, then the storage configuration is simple. You just need to configure the storage device(s) connected to your workstation.

If your Avid DS workstations are connected in a workgroup, you can share media located on your storage device, and also use media on storage devices that belong to other workstations in your workgroup. Configure the appropriate storage devices for each workstation (local and remote).

Later you will learn how Avid DS uses the indexing services to manage these storage areas more efficiently.

Subtopics

The Avid Indexing Services

Workgroup with Private Projects and Storage

Workgroup with Private Projects and Centralized Storage

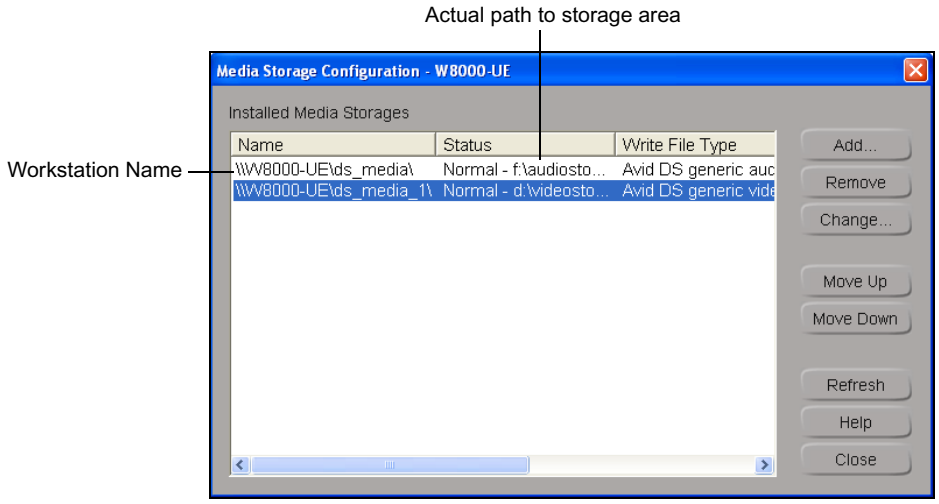
Workgroup with Shared Projects and Storage

The Avid Indexing Services

The Avid Media Indexer and the Avid Project Indexer manage your projects and media more efficiently. These services actively monitor and index the storage areas that you've defined to allow for improved performance, better sharing of media across a network, and better interaction between Avid DS and an Avid DS RP (remote processing) workstation.

The *Media Indexer* can manage media of different formats, such as video, audio, source, cache, .gen files (the native Avid DS format), .omf files (the native Symphony and Media Composer format), and .mxf files (industry-standard format that encapsulates media and production metadata into a single file).

Each workstation has its own media indexer which indexes the audio and video storage areas on that workstation. The media indexing service on a workstation contains a list of storage areas that the workstation requires. These storages are accessed and indexed in the order in which they are listed.



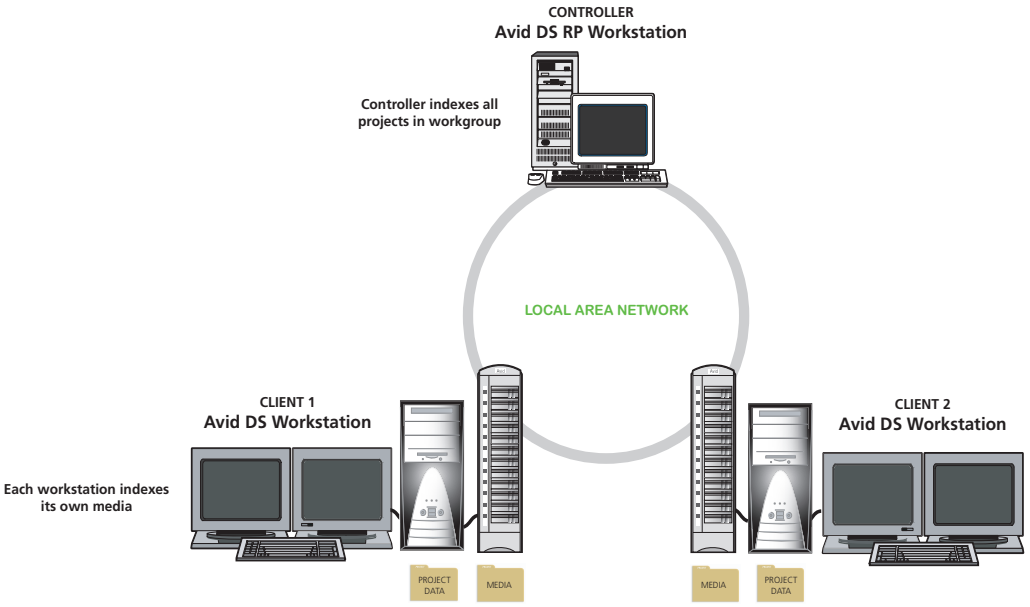
In a workgroup, the *Project Indexer* works with the media indexing service on each workstation and keeps an up-to-date index of the location of all media. So, for example, when the Purge command is executed from any workstation within the Avid DS workgroup, the correct media for the selected project is purged.

The following sections show the different workgroup setups, and explain how your media indexing services should be configured in each situation.

Workgroup with Private Projects and Storage

This scenario is best used when you do not anticipate much sharing of media between workstations.

Each Avid DS workstation has its own local storage for project files and media.



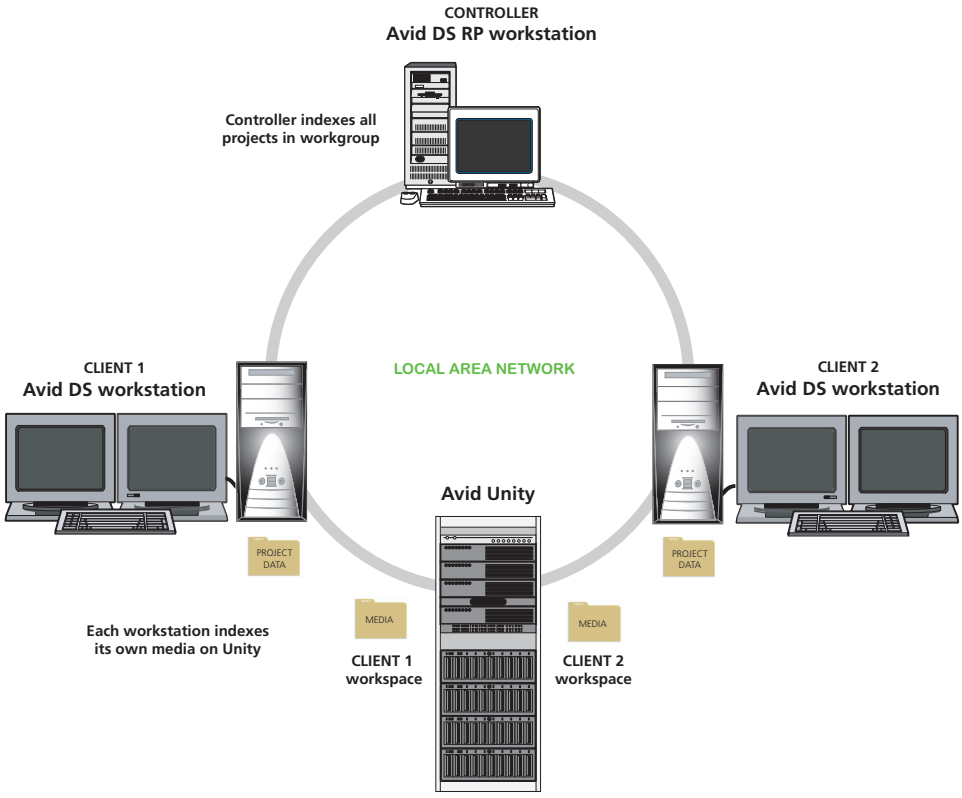
For each Avid DS workstation, configure a media indexing service with video and/or audio local storage. For example:

- local video storage - d:\videostorage
- local audio storage - f:\audiostorage

An RP workstation does not need a media indexing service since it processes directly to the Avid DS client storage area. It just needs permission to access the storage devices on each Avid DS workstation so that it can return processing requests.

Workgroup with Private Projects and Centralized Storage

This configuration is very similar to the one for "Workgroup with Private Projects and Storage" on page 408, except that workstations are using a shared central storage instead of their local storage. If you don't anticipate much sharing of media, but would like all media for your workgroup to be on one storage device (that is an Avid Unity storage), then use this centralized storage scenario.



Should you require sequences or media from any other workstation, you can import the sequence/clip and link to media on that workstation's Unity workspace. You will also need to change the share permissions on that workspace to access the media.

If the Avid DS workstations need to share projects and media on a more consistent basis, we recommend that you follow "Workgroup with Shared Projects and Storage" on page 411.

Before configuring the storage areas inside Avid DS, the Avid Unity storage needs to have a workspace for each Avid DS client (An RP workstation does not need a workspace since it processes directly to the Avid DS client workspace). The Avid Unity administrator can limit the permissions for each workspace to the client to which the media belongs.

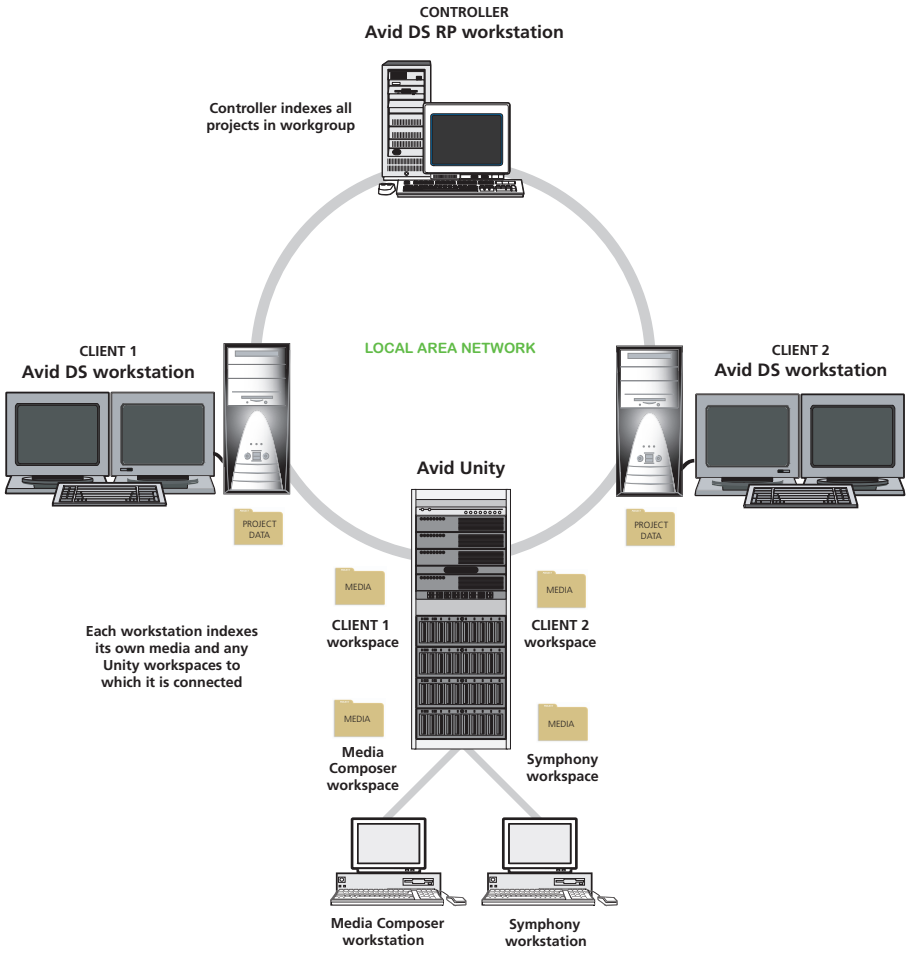
The RP workstation also needs permission to access the Unity workspaces for each Avid DS workstation (for remote processing requests). For more information, see "Checklist: Installing Avid DS with Avid Unity" on page 422.

For each Avid DS workstation, configure a media indexing service with the client's audio/video workspaces on Avid Unity.

- Unity video storage - *Unity**allocation**workspace_name*\videostorage
- Unity audio storage - *Unity**allocation**workspace_name*\audiostorage

Workgroup with Shared Projects and Storage

In this scenario, media storage is also centralized on an Avid Unity storage. Use this scenario if you anticipate that there will be a large need to share projects and media between workstations.



Before configuring the storage areas inside Avid DS, the Avid Unity storage needs to have a workspace for each Avid DS client (An RP workstation does not need a workspace since it processes directly to the Avid DS client workspace). The Avid Unity administrator can limit the permissions for each workspace to the client to which the media belongs.

The RP workstation also needs permission to access the Unity workspaces for each Avid DS workstation (for remote processing requests). For more information, see "Checklist: Installing Avid DS with Avid Unity" in the *Installation and Administration* section.

The Avid DS workstations can also directly access media created on other Avid editing systems, and stored on an Avid Unity workspace.

For each Avid DS workstation, configure a media indexing service with the client's audio/video workspaces on Avid Unity.

- Unity video storage - *Unity**allocation**workspace_name*\videostorage
- Unity audio storage - *Unity**allocation**workspace_name*\audiostorage

If you need media from another Avid DS client's workspace, then add a similar storage connection to that client's media indexing service.

If you need media from another Avid editing system's (Media Composer or Symphony) storage workspace on Avid Unity, then add a storage connection to its workspace.

- Unity video storage - *Unity**allocation**workspace_name**foldername*

On other Avid editing systems, audio and video are stored in the same folder.

Sharing Media

Sharing media saves you time and disk space as you only have to capture the media once. If other users in your workgroup want to use the media, they can import the sequence or master clip into their project. The clips will then link directly to the associated media.

Avid DS can also share compressed and uncompressed media with other Avid editing systems. For more information, see "Converting HD Formats" in the Help.

In a workgroup environment, the location of your media and projects can make a big difference to your performance and processing times. For instance, if you are working in isolation on a project, then having the related media on your local storage gives you real-time playback of the sequences.

On the other hand, if you are working on the same project with other Avid DS workstations that need access to the same media, then it would be more efficient to store the media in one location. You save on storage space as there is no redundancy of media on each workstation.

When sharing media on storage areas connected on a network, there may not be sufficient bandwidth to provide real-time playback of the media. An Avid Unity storage, however, does have enough bandwidth to handle real-time playback.

Points to consider when sharing media:

- One workstation, preferably the controller, should hold all projects and take care of the indexing and processing services. The Avid DS indexing services will be configured to index media on all connected storage devices (including workspaces on Unity).
- If your workstations are sharing Avid Unity storage, then each workstation using this storage must have a fibre-optic cable connection to the Avid Unity system for optimal performance.
- If many workstations are working on the same project and will be sharing the same media, then place all media on one storage device.
- You cannot share media between a Unity and other type of storage device *within the same sequence.* Avid DS cannot play back media that resides simultaneously on an Unity workspace and a local storage. The media used in a given sequence must reside on only one storage at a time. Either on your local storage or on a Unity workspace.
- If you are sharing media on an Avid Unity workspace, make sure that both the offline and the online systems have access to the workspace.

Points to consider when sharing projects:

- In a workgroup, a user can open a project from any Avid DS workstation in the workgroup.

- A project can only be opened by one user at a time.
- If you need to work on a sequence within a project that is already open by another user, you can import the sequence and link to media (so that you are still sharing the media). This sequence can later be imported back into the original project.

Related Topics

- Sharing MXF Media
- Sharing OMFI Media

Sharing MXF Media

MXF (Material Exchange Format) is an industry-standard container format that encapsulates media and production metadata into a single file. MXF is a common file format for direct media interchange among Avid applications, as well as with third-party MXF-compliant products. MXF supports both standard-definition and high-definition formats.

Avid DS Nitris can share HD projects and Avid DNxHD media with Media Composer Adrenaline HD systems. Avid Xpress Pro HD systems can also share this media, but cannot capture it. DNxHD media is compression format also used for MXF media so that you can deliver mastering-quality HD media at standard-definition data rates and file sizes. To share this media, you must be running Avid DS Nitris v7.5 QFE 3 or later, which is available from the Avid DS Support Center (www.softimage.com/avidds).

For a list of shared DNxHD resolutions, see "Avid DNxHD Compressions" in the Help.

To create the MXF folders:

Avid DS Nitris requires separate storage areas (one for audio and one for video) to write MXF media.

Other Avid editing systems create a single folder for MXF media, named Avid MediaFiles\MXF, and can write both audio and video files to the same folder.

- If you are only creating or linking to MXF media within Avid DS Nitris, create the following folders on your videostorage using the Windows Explorer:

  D:\Avid MediaFiles\MXF\
  D:\Avid MediaFiles\MXF\Video
  D:\Avid MediaFiles\MXF\Audio

- If you are sharing media with other Avid editing systems on an Avid Unity, create the following folders:

*server_name**workspace_name*\Avid MediaFiles\MXF
*server_name**workspace_name*\Avid MediaFiles\VideoStorage
*server_name**workspace_name*\Avid MediaFiles\AudioStorage

Make sure to use the correct syntax:

- Include a space between Avid and MediaFiles
- Don’t include a space for MediaFiles, VideoStorage, and AudioStorage
- Use the correct uppercase and lowercase letters.

Sharing OMFI Media

To create the OMFI folders:

- If you are linking to OMFI media within Avid DS Nitris, create the following folders on your videostorage using the Windows Explorer:
  - D:\OMFI MediaFiles\VideoStorage
  - D:\OMFI MediaFiles\AudioStorage
- If you are linking to OMFI media on an Avid Unity, create the following folders:

  *server_name**workspace_name*\OMFI MediaFiles\VideoStorage
  *server_name**workspace_name*\OMFI MediaFiles\AudioStorage

Make sure to use the correct syntax:

- Include a space between OMFI and MediaFiles
- Don’t include a space for MediaFiles, VideoStorage, and AudioStorage
- Use the correct uppercase and lowercase letters.

Configuring your Storage Locations

After all workstations in your Avid DS workgroup have been set up and installed with the necessary software, you need to specify your storage areas so that they can be viewed or shared by other clients in the workgroup. This configuration of storage areas is done through the Media Storage Configuration tool in Avid DS.

Examples of different storage scenarios in a workgroup, and explicit storage configurations for each of these scenarios have been described earlier.

Configuring the Media Indexing Service on your Workstation

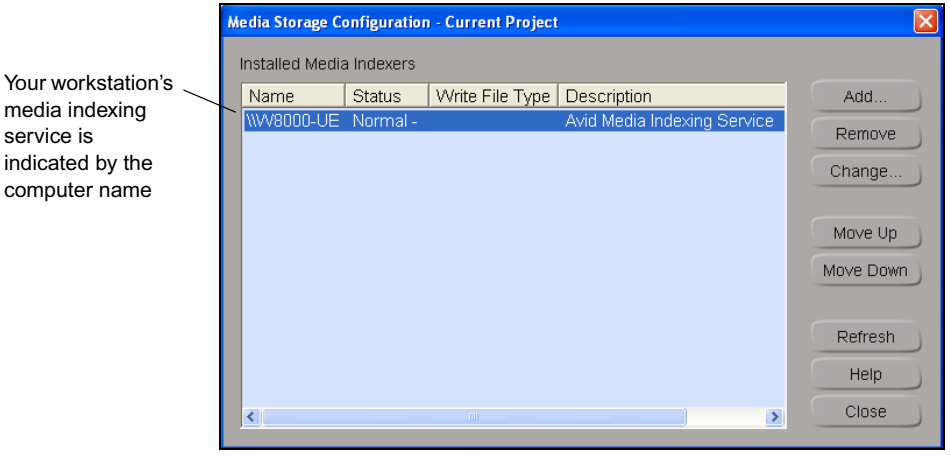
The storage areas for your media are configured within your workstation's media indexing service. If you need to define additional storage areas, you must add them to your media indexing service. The media indexer will index all the storage areas defined in this service configuration.

If you need to access media on another workstation, you will need to add that workstation's media indexing service to your storage configuration (rather than directly to its storage)—see "Accessing Storage on another Workstation" on page 419.

To configure your media indexing service:

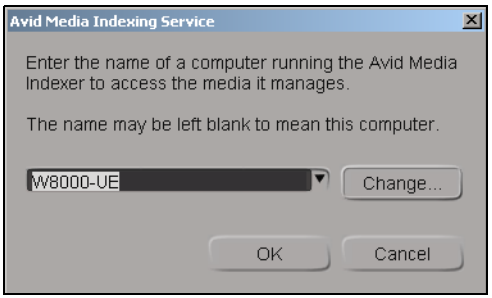
1. In Avid DS Nitris, select **Data Management > Configure Storages**.

   The Media Storage Configuration - Current Project dialog box displays the media indexing services that are configured for your workstation.



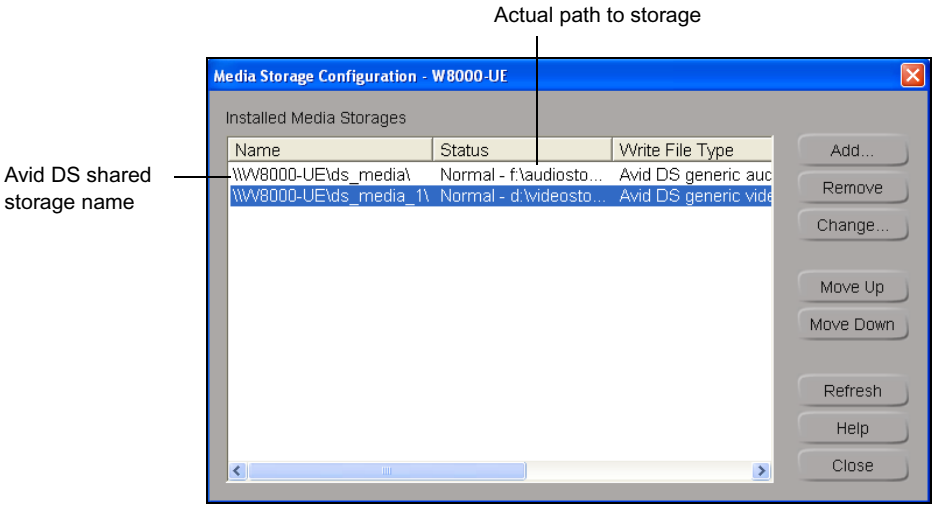
2. Select your workstation's media indexing service, and click the **Change** button.

The Media Indexing Service dialog box displays.



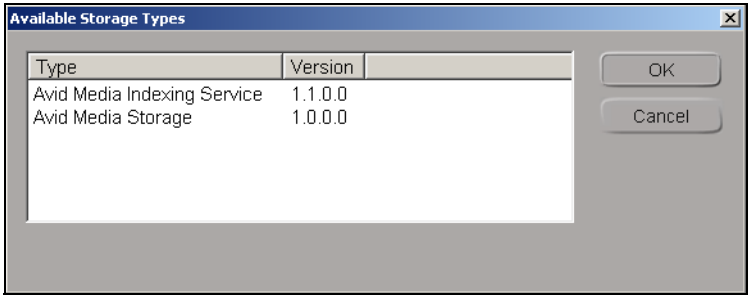
3. Leave the workstation name as it is and click the **Change** button.

   The list of storage areas in this indexing service displays.



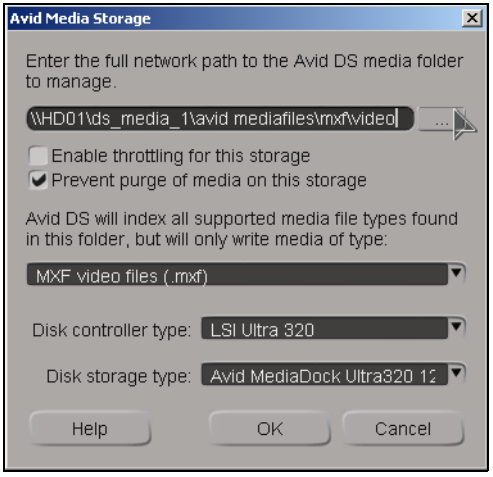
4. Each storage area is uniquely identified by the workstation name and folder on which the media resides. These storages are accessed and indexed in the order in which they are listed. Use the Move Up or Move Down buttons to change the order of priority.
5. To add a new *storage*, click the **Add** button.

   If you need to modify or delete a storage, click the **Help** button for instructions.
6. The Available Storage Types dialog box, select **Avid Media Storage** and click **OK**.



7. Enter the full Windows path name (*drive:\folder_name* or *\\workstation_name\folder_name*) where the storage area is located, or use the browse (...) button to find it. For example, D:\VideoStorage or \\DSStorage4\VideoStorage.

   If you are connecting to a folder on an Avid Unity, then click the browse (...) button and locate the Avid Unity workspace folder. For example, *\\Unity\allocation\workspace\folder_name*.
   Do NOT use a drive letter.



8. If you are working in a workgroup where an Avid DS RP is installed, select the **Enable throttling for this storage** option. The Avid Throttle Manager allows for more efficient bandwidth management between your workstation, storage areas, and the Avid DS RP workstation.
9. Select the media type that you will store in this folder: audio or video.

   For regular Avid DS media, select **generic audio (.wav)** or **generic video (.gen)**.

For MXF media that can be exchanged with other Avid editing systems, select **Read only** or **MXF video** or **MXF audio** files—see "Configuring Storages for MXF Files"in the Help. Also, select **Prevent purge of media on this storage** so that this media is not purged when media from other Avid DS projects are purged.

For OMFI media that can be exchanged with other Avid editing systems, select **None**. This is a read-only storage.

You can also select **None** if you want media in this storage area to be viewed, but not overwritten.

10. From the **Disk Controller Type** list, select the card that is installed in your workstation.

    If you are configuring a remote storage on your network, then select CIFS Network. However, if the remote storage is a Unity, then select Atto.

A storage set to Generic or CIFS will be considered non-realtime.

11. From the **Disk Storage Type** list, select the storage type that you are using.

    The disk options set the appropriate bandwidth for Avid DS to use when transferring data to the storage. You may choose Generic Adapter and Generic Storage but these settings may not fully utilize bandwidth available to you. Therefore, choose the appropriate options for your storage device to obtain the best performance for real-time effects.

If your storage device does not appear in the list, it may be because it was installed after Avid DS was installed. To make sure that it appears in the list, restart Avid DS so that the software detects the device.

12. Click **OK**.

    The storage area is added to the Media Storage Configuration list.

13. Click **Close** and then **OK** to return to the Media Storage Configuration - Workstation dialog box.

14. Click the **Close** button to save the configuration for the media indexing service.

By default, the media indexer sets any new storage areas to automatically have full read/write access by any user on the network. To restrict access to your media, you can change the share permissions through Windows—see "Sharing Folders and Setting Permissions" on page 343.

The first time that you configure your storage, the media indexer will need to index the media on your storage device. This may take a while depending on the amount of media on your storage.

Configuring Storages for MXF Files

Using the Avid DS Nitris Media Storage Configuration tool, configure storage areas that point to the MXF folders that you created. Use the table below when following the steps as explained in "Configuring the Media Indexing Service on your Workstation" in the Help.

Folder	Description	Type of configuration in Media Storage Configuration tool
\Avid MediaFiles\MXF	Where MXF video and audio files can be written so that Avid DS Nitris can link to them.	Read-only
\Avid MediaFiles\Video Storage	Where Avid DS Nitris writes MXF video files so that other Avid editing systems can link to them.	MXF video files
\Avid MediaFiles\Audio Storage	Where Avid DS Nitris writes MXF audio files so that other Avid editing systems can link to them.	MXF audio files

Avid DS Nitris and other Avid editing systems can link to MXF media in the same shared folder but cannot create MXF media in the same shared folder.

Accessing Storage on another Workstation

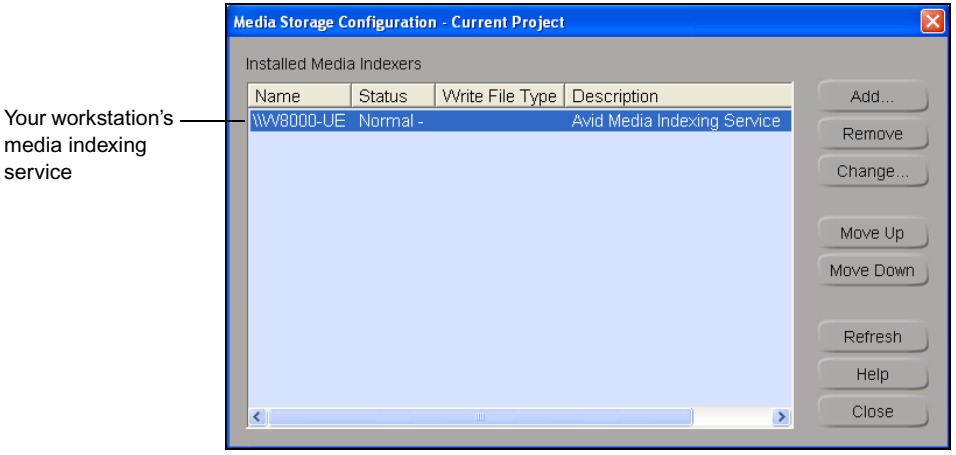
A media indexing service is defined for every Avid DS workstation in the workgroup. To access media on another workstation, you need to add that workstation's media indexing service to your own storage configuration. (It is more efficient to connect to the media indexing service on that workstation rather than directly to its storage area.)

When you import a sequence or clip from another project, Avid DS creates a connection to the media even if it resides on another workstation. If the storage where this media resides is not already configured on your workstation, Avid DS will automatically add a media indexing service for that storage in your workstation's storage configuration.

To access a media indexing service on another workstation:

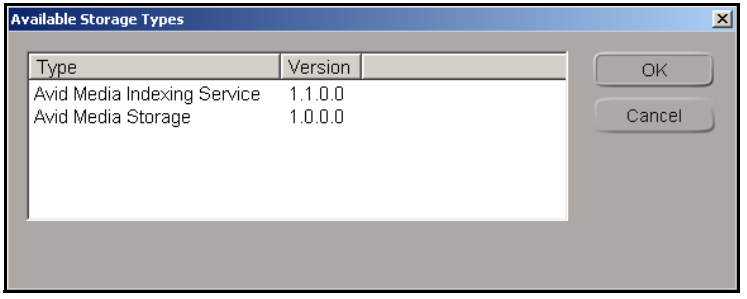
1. Select **Data Management > Configure Storages**.

   The Media Storage Configuration - Current Project dialog box is displayed with a list of existing services.



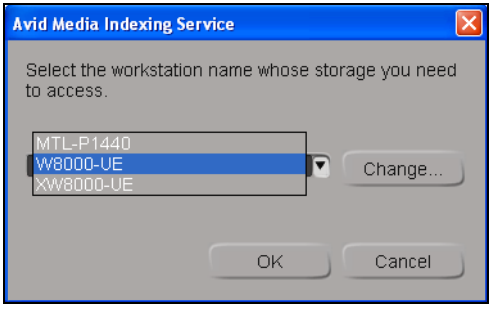
2. To add a new *service*, click the **Add** button.

   The Available Storage Types dialog box is displayed.



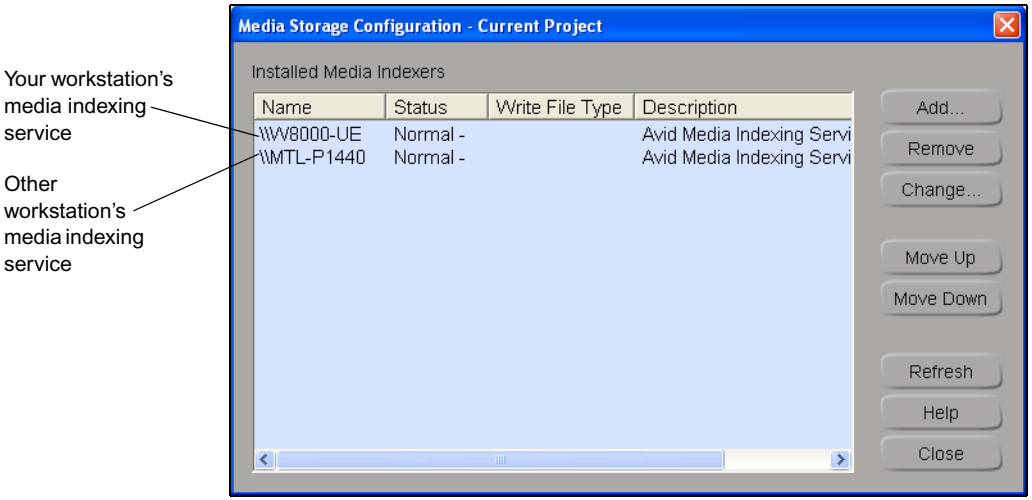
3. Select **Avid Media Indexing Service** and click **OK**.

   Avid DS scans the network for all workstations in your workgroup that are running media indexing services.



4. Select the workstation whose media indexing service you need to access, and click **Change**.
5. Click **Close** to accept this configuration.

   The other workstation's service configuration is now added to your storage configuration.



6. Click the **Close** button to exit the Media Storage Configuration - Current Project dialog box.

To remove a media indexing service:

1. In the Media Storage Configuration - Current Project dialog box, select the service that you want to delete.
2. Click the **Remove** button.

   The indexing service is no longer defined for the current project.
3. Click the **Close** button.

Checklist: Installing Avid DS with Avid Unity

Each Avid DS workstation connected to Avid Unity™ MediaNetwork requires its own workspace. This workspace is then added to the storage configuration in each Avid DS workstation. For more information on configuring the workspaces and setting permissions on the Avid Unity, refer to your Avid Unity MediaNetwork documentation.

Do not install any Avid DS software components (such as the indexing services) directly on Avid Unity.

☑	Step	Refer to
☐	Install all Avid DS client workstations.	"Setting up your Avid DS Environment" on page 311.
☐	Install Avid Unity MediaNetwork client software on each Avid DS workstation that is connected to Avid Unity.	Avid Unity MediaNetwork documentation.
☐	Install the latest updates for the Avid Unity MediaNetwork software (if any). Follow the online instructions to install this software update, and then reboot your workstation.	Avid Download Center http://www.avid.com/support/downloadcenter/index.asp
☐	On the Avid Unity, create a video workspace and an audio workspace for each Avid DS workstation (the RP workstation does not need a workspace). **Important**: Do NOT use the Unity Connection Manager to connect the Unity workspaces for Avid DS.	Avid Unity MediaNetwork documentation.
☐	Use the Administration Tool to assign the permissions on each workspace. If some workstations need to share media, you can assign permissions for these workstations on the appropriate workspaces. (You should also give the RP workstations permission to each workspace).	Avid Unity MediaNetwork documentation.

☑	Step	Refer to
☐	In Avid DS, use the Storage Configuration tool to add a Unity storage connection to your local indexing service. **Important**: Do NOT use a drive letter, instead browse the network to the Avid Unity server, using only a UNC path to access your media folder on Avid Unity.	"Configuring the Media Indexing Service on your Workstation" on page 415.

Establishing the Project Folder

If you upgrade to a new version of Avid DS or decide to change the location of the projects folder, you will need to reset your working projects location.

To set the project location:

1. Start Avid DS.
2. If the Open Project dialog box does not automatically open, select **File > Open New Project**.
3. From the Open Project dialog box, select:
   - **Display Projects on this workstation only**, if you are working on a standalone workstation, or
   - **Display All Projects in the Workgroup**, if you are sharing projects with other workstations in a workgroup.
4. If your projects do not display in the list, then click the **Add Project Root** button.
5. Browse to the **F:\Projects/Audio** drive, and select the **DS Projects** folder.

   The new project location will appear in your project list.
   e.g. \\xw8200-DS\ds_projects.
6. Expand this folder to see all the projects.

Maintaining Disk Space on your Drives

To prevent problems, you should keep at least 10% of the disk space on each drive free at all times.

When you run Avid DS, it creates two interactive cache files on the Video Storage drive. These two files (DS_interactive_cache.tmp and DS_interactive_cache.tmp.lowres) can use up as much as 500 megabytes of your video storage area, and are mandatory for Avid DS.

If there isn't enough available space for these files to be created, the system performance will drop dramatically. You may even experience a system failure.

As a first step, you should purge unnecessary media files from the system to allow Avid DS to work properly. For more information, see Defragmenting Media in the help.

If your disks are getting badly defragmented, you can also perform a defragmentation on the disk drives.You can use third-party software, or the Windows XP Disk Defragmenter utility (on XP workstations) to defragment your disk drives.

Defragmentation on Unity drives is not possible. Also, the Unity file system has been designed to handle video media in the most efficient way, so that defragmentation of drives is not necessary.

Do not defragment your drives while Avid DS is capturing, outputting, or processing media.

You should not defragment your disks too often.
Stopping defragmentation prior to completion can leave the storage media in a worse condition than before defragmentation.

To defragment the drives on Windows XP workstations:

1. On the Windows desktop, right-click the **My Computer** icon and select **Manage**.

   The Computer Management console is displayed.
2. Use the tree (left) to navigate to **Storage > Disk Defragmenter**.
3. Right-click the disk you want to defragment and select **Defragment**.

Striping your Drives

Striping is the process of configuring hard drives to allow the system to see two or more drives as a single drive. When you transfer files to striped drives, the files are split between the drives, and the data transfer rate increases. Striping is required to work with uncompressed and high video resolutions. The capability for striping drives is built into the Windows XP operating system.

Refer to the Avid DS Support Center web site http://www.softimage.com/avidds for a list of supported drives.

Keep the following in mind when striping drives:

- Avid DS requires at least eight drives (for SD) and twelve drives (for HD) striped together to sustain real-time performance.
- Hard drives of different sizes cannot be striped. For example, you can stripe eight 73-GB drives or eight 146-GB drives, but you cannot stripe six 73-GB drives and six 146-GB drives together.
- Striping drives deletes any material on them.
- Striping is cumulative. For example, when you stripe twelve 146-GB drives, you can create an approximate 1.7 TB partition.
- If one drive in a striped volume becomes damaged or inoperable, the data on the remaining drives will be lost.

If you are using Avid Unity storage, it does provide backup security in case of drive failure.

Creating a Stripe Volume

With Windows XP, the disks in a stripe volume must be dynamic disks. Since drives are not usually shipped in this format, you may need to upgrade your drives before you can stripe them. The Disk Manager in the Computer Management console automatically detects whether your drives need to be upgraded to dynamic disks.

If you attempt to create a stripe volume from non-Avid drives, Avid makes no guarantee that the stripe volume will perform to Avid specifications for your application or sequence. Consequently, Avid DS Customer Service will not be able to support any system issues caused by the non-Avid drives or the stripe volume.

Once the drives in your disk array have been upgraded to dynamic disks, you can create the stripe volume.

To create a stripe volume:

1. Log on to the system using the local administrator account and close any applications that are currently running.
2. Right-click the **My Computer** icon and select **Manage**.

   The Computer Management window opens.
3. Use the tree (left) to navigate to **Storage > Disk Management**.

   If the storage is new and unformatted, the Initialize and Convert Disk Wizard is displayed, otherwise go to step 7.
4. Click the **Next** button.

   The Select Disks to Initialize window opens.
5. Select the disks that you want to initialize and click the **Next** button.

   The Select Disks to Convert window opens.
6. Select the disks that you want to convert to dynamic drives (mandatory to create the stripe volume) and click the **Next** button and then click the **Finish** button.

   If the storage was attached to a Windows computer, the drives may show up as Dynamic/Failed. If this happens, right-click the drive and select **Delete Volume**.

   You may also have a 'missing' disk in the window. If this appears, right-click and select **Remove Disk**.

   If the drive shows as Basic, right-click the drive icon on the left and select **Convert to Dynamic Disk**. The drive should show as Dynamic and Unallocated.
7. Right-click one of the unallocated drives and select **New Volume**.

   The New Volume Wizard is displayed.
8. At the Welcome window, click the **Next** button.

   The Select Volume Type window opens.
9. Select the **Striped** button and click the **Next** button.

   The Select Disks window opens. The original disk you selected is displayed on the Selected side of the window.
10. Select the other drives on the Available side of the window and click the **Add** button. When completed, click the **Next** button.

    The Assign Drive Letter or Path window opens.
11. You can leave the default drive letter or select a new drive letter from the pull-down menu. Click the **Next** button.

    The Format Volume window opens.

12. Format the volume as NTFS and Default Allocation unit size. You can also name the volume.
13. Select **Perform a Quick Format**.

Formatting without "Quick format" may take several hours or several days depending on the size of your storage device.

14. Do not enable compression.
15. Click the **Next** button and then click the **Finish** button.

    The Computer Management window opens and the drives should begin formatting. Let the system finish formatting the drives before you begin using any applications.

    Once complete, the drives will say NTFS, Healthy. You will also see the new volume when you double-click My Computer. The striped volume is ready to use.

Importing Foreign Disks

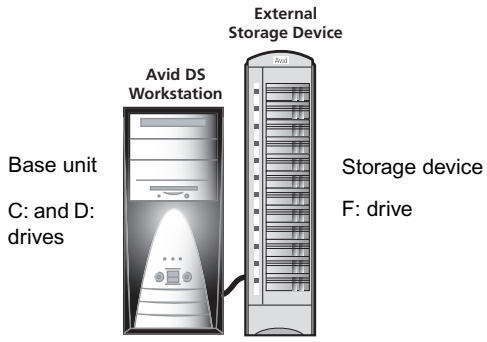
If you have used a Recovery CD, or you have transferred a volume set from one Windows XP system to another, your stripe volume will not display all the disks. You will have to import the striped disks into your Disk Management configuration.

To import the disk into the system

1. Right-click the **My Computer** icon and select **Manage**.
2. In the left pane, click **Disk Management**, and then highlight the foreign disk in the right pane.
3. From the **Action** menu, select **All Tasks > Import Foreign Disks**.
4. Follow the instructions that are displayed on the screen to recreate your stripe set.

About your Local Storage Area

Your Avid DS workstation includes a tower base unit and a storage device (disk array). All software, projects, and audio media are stored on the disk drive in the base unit, while the video media is stored on the drives in the storage device.



Except for the (C:) system partition, the letters for the above drives are only suggestions.

Depending on the storage choices that were made when your workstation was installed, several folders were created to hold various system files, project files, as well as media and cache files.

Folder	Description	Location
\DS_v8.x	Contains the files required to run Avid DS	C:\Program Files\Avid\DS_v8.x
\DS Archives	Contains information on archived projects	D:\DS Archives
\DS Projects	Contains the projects, sequences, and clips that you create in Avid DS	D:\DS Projects\DS_v8.x
\VideoStorage	Contains the video media and cache files captured or processed in Avid DS	F:\VideoStorage
\AudioStorage	Contains the audio media and cache files captured or processed in Avid DS	D:\AudioStorage
\Services	Containes the files required to run the Avid DS services	C:\Program Files\Avid\Services

The DS_v8.x Folder

The Avid DS executable and the various .DLL files required by the application are in the C:\Program files\Avid\DS_v8.x folder.

Do *not* move or modify any of the folders in the \DS_v8.x folder.

Folder	Description
\Command Maps	Contains the command maps for the different views and layouts in Avid DS
\DSPresets	Contains customized effects that you can use in Avid DS when creating graphics, transitions, compositing, etc.
\Help	Contains all the files required to use the online help, which provides task and reference information on Avid DS functions
\Preferences	Contains the user preferences and customized layouts, toolbars, and key maps
\DSSystem	Contains system files

The DS Archives Folder

The \DS Archives folder is used by Avid DS to keep track of archived projects. When you archive a project, an archive log file is saved in this folder, so that you can later restore your media. The archive log file also contains the Avid DS version number, so you know which version you were using when the archive was created.

Video media is always archived to tape and an EDL is generated called ArchiveTape.log. Only Avid DS can read this EDL during the restore process. If this file is missing from the archived project folder, the media cannot be restored.

Archived audio media or archived audio cached media is stored in this folder. Under each project archive folder, the audio (.wav) media files are stored in a folder called Archive Media Files\audio, which contains each audio storage ID, labelled #1, #2, and so on.

When the project is restored, these folders are copied to their corresponding audio storages.

The DS Projects Folder

The \DS Projects folder must be shared (default at install). It contains the projects that you create with Avid DS. Each time you create a new project, you are prompted to select a location for the project folder. You must keep all your projects under the root \DS Projects folder.

The project folder contains the clips and sequences associated with a project. Each project folder also contains the \System folder.

Note the following:

- *Do not move, delete, or modify the contents of the \System folder.*
- *Never manually move a project between Avid DS workstations. Use the Archive/Restore feature of Avid DS instead.*
- *Never duplicate a project within an Avid DS workgroup.*

The \System folder contains the following information:

Source models: These data structures allow Avid DS to manage the relationship between clips, sequences, and their media. Each time you capture media from a new source, Avid DS creates a corresponding source model, which tracks the time span, quality, and location of the different media files captured from that source. When you play back a clip from that source, Avid DS consults the appropriate source model to locate the media.

Dsprojectinfo: This file contains information about the project format and other project preference settings. For more information on project preferences, see Creating a New Project in the help.

The DSPresets Folder

The \DSPresets folder contains presets, which you can use to define effects, transitions, graphics tools, and so on. The presets that are shipped with Avid DS are stored in this folder by default.

Avid DS also creates a \DSPresets folder in each project folder. This lets you store user presets that are specific to a particular project with that project. You can also specify, as part of your user preferences, locations for your own and shared workgroup presets.

The VideoStorage and AudioStorage Folders

The \VideoStorage folder must be shared (default at install). It contains individual folders for each project. Each folder contains the video media and cache files for that project. Each folder's name is generated by the software and is based on a unique identification string (called a *GUID*) that identifies each project.

The \AudioStorage folder must be shared (default at install). It contains individual folders for each project. Each folder contains the audio media files for that project.

Do not delete audio or video media files or folders using Windows Explorer. If you want to delete a media file, use the Purge or Delete command in Avid DS. For more information on deleting clips and/or purging media, see Managing Media in the help.

The DSSystem Folder

The C:\Program Files\Avid\DS_v8.*x*\DSSystem folder contains system files and several folders used by Avid DS.

Folder	Description
\DSSystem\temp*user_account_name*	Contains the autosave files, viewer and test pattern bitmaps, some critical Avid DS system files, RP jobs log, and the crash log. Before modifying anything in this folder, contact Avid DS Customer Service.
\Rsrc	A resource folder for the 3D database
\SoftDB	Contains the 3D database used by the 3D Warp effect

The Autosave files are saved under \Program Files\Avid\DS_v8.x\DSSystem\Temp.username and have four duplicates. Keep monitoring your sufficient disk space, otherwise the software and/or operating system may cease to operate. After the installation, the drive must have over 20% of free space at all times.

Capture and Output

This book provides information about capturing media, conforming sequences created on other systems, and outputting material.

Chapter 1
Capturing Material

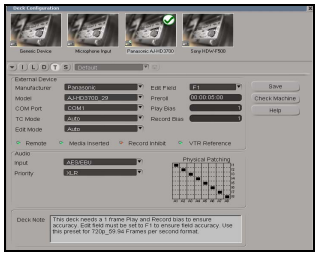
This chapter describes how to prepare to capture material, specify the capture quality, and capture and log material so that you can edit it in Avid DS Nitris. This chapter includes the following topics:

- Workflow: Capturing Material
- Preparing to Capture Material
- Logging and Capturing Material
- Capturing Material from File
- Creating Linked Clips
- Batch Capturing
- Using Scripts to Capture Media
- Managing Tapes
- Using Tapeless Archive for Film Transfer

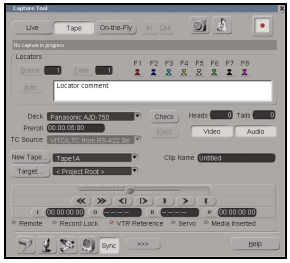
Workflow: Capturing Material

You can capture material for your project from different sources, such as tape or file. The following illustration shows you the process of capturing material:

1. Configure inputs and quality settings.

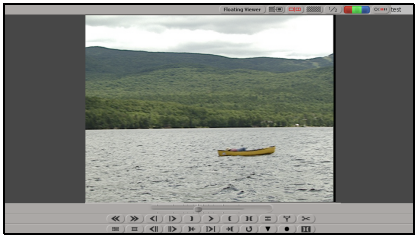


Configure the VTR or other external device.

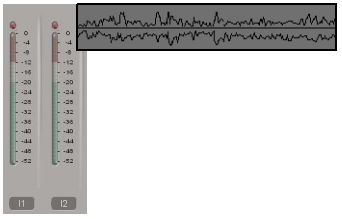


Select video/audio input, quality, and storage.

2. Preview material.



Preview video.



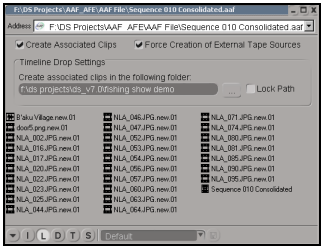
Monitor audio levels.

3. Log or capture material from...

File

Tape

AFE, AAF, OMF®, EDL, or ALE file.



4. For logged clips, batch capture from the timeline or Avid Explorer.

Preparing to Capture Material

Before capturing media, you must configure settings for your workstation. Configuration includes specifying the external device and the input signals coming from the external device; selecting the capture quality, storage location for the captured media, and other settings; and monitoring audio levels.

Use this checklist to help you prepare to capture.

Preparing to capture

- ❑ Configure the external device
- ❑ Select the capture mode
- ❑ Select the capture target
- ❑ Specify the capture quality
- ❑ Specify audio input settings
- ❑ Specify video input settings
- ❑ Preview material

These tasks are described in the following sections.

Avid DS Nitris requires that the deck and the Avid Nitris DNA be genlocked to the same timing source when capturing. If you're capturing a format that allows either tri-level or black burst sync (such as 1080i 59.94), you can use either sync source, so long as it is supported by the deck. For a list of sync options for each format, see "Downconverted Output Formats and Sync Sources" in the Help.

If you are capturing material from file, configure the capture settings in advance through the Capture Settings view and capture through the Avid Explorer. For more information, see *"Capturing Material from File" on page 471.*

Configuring the External Device

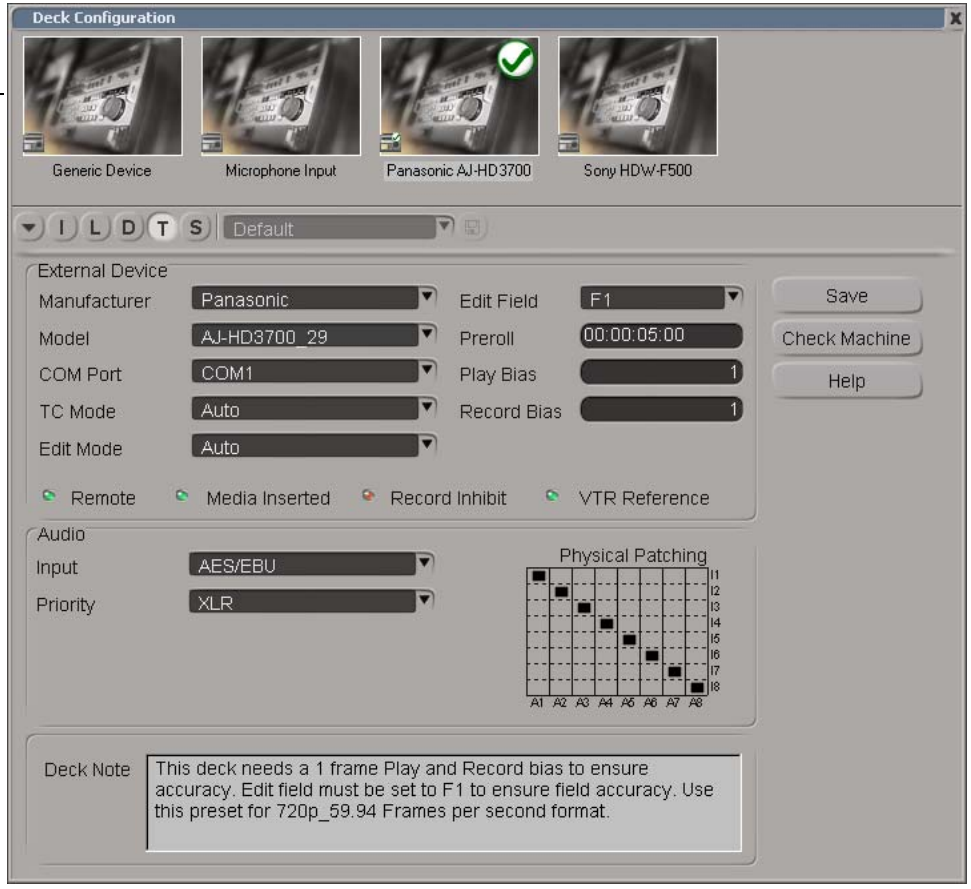
Before capturing from an external device, such as a deck, you need to set options for the device.The first time you work with a new device, you need to set parameters in the Deck Configuration view. The Deck Configuration view lets you save your settings as a preset. You can then select the preset in the Deck Configuration view or select it from the Device pop-up menu in the Capture Tool.

If you are recording through a microphone, activate the Microphone Input preset, ignore the External Device settings, and accept the Audio settings (Input: Analog and Priority: Microphone). For more information, see *"Capturing Audio through a Microphone" on page 469.*

To configure an external device:

1. Connect the external device to your Avid DS system, as described in the setup guide for your system.
2. Open the Deck Configuration view by doing one of the following:
   - From the NLE Tools toolbar, click **Media IO > Deck Configuration**.
   - In a project root bin, open the Views folder and click **Deck Configuration**.

   The Deck Configuration view opens.



For information about options in the Deck Configuration view, click the **Help** button .

3. In the top part of the Deck Configuration view, right-click and select **Add New Deck Preset**.

   An icon named Deck Preset is added to the Deck Presets list. The name is selected and ready to be renamed.

4. Type a name for the preset.
5. From the Manufacturer list, select the name of the manufacturer of the external device.

6. From the Model list, select the model number.

   Some models include a frame rate (23, 24, and so on). Make sure the template matches the playback rate of your deck.

   If the model of your deck is not listed, it has not been tested by Avid and its accuracy or usability is not guaranteed. In most cases, however, you can use the deck for capture. Select a similar model from the same manufacturer. After completing the configuration, check some basic operations, such as cueing to a specific timecode and checking the accuracy of the capture and output to tape.

7. From the COM Port list, select the COM port that connects the serial cable from the external device to your system.

   The serial cable should be connected to either **COM1** or **COM2**.

8. From the TC Mode list, select the type of timecode you want to use for input: **Auto**, **LTC**, or **VITC**. For more information, click the Help button.

   Auto lets the external device determine which timecode to read.

If your external device cannot find a timecode when previewing material, your TC Mode setting may be incorrect.

9. When outputting to tape, you must specify the edit mode by selecting **Auto** or **Assemble** from the Edit Mode list—see "Configuring the External Device for Output" on page 517.

10. From the Edit Field list, select the field on which the output starts.

    Deck Settings uses the Edit Field setting that is set on the external device.

11. In the Preroll text box, enter the amount of time that you want the external device to play before Avid DS Nitris starts to capture or output.

12. If you're experiencing an offset between the external device and your system, you can compensate by adding or subtracting frames in the Play Bias and Record Bias text boxes. The Play Bias option offsets the timeline whereas the Record Bias option offsets the VCR timecode entry point.

When you first connect the external device to your system, you should perform several capture and output tests to verify that the timecodes are accurate.

13. Make a selection from the Input and Priority lists.

    The input you select will depend on the audio hardware connected to your system.

14. Use the Audio Physical Patching matrix to assign the audio outputs from the external device to the audio inputs on your workstation—see "Using the Physical Patching Matrix" on page 444.

The Input, Priority, and Audio Physical Patching settings are all saved with the device preset.

15. Click the **Check** button.

    If the communication between the external device and your system is operating properly, nothing happens. If there is a problem, a message box appears, stating the possible cause of the problem.

    You can also verify that the external device is operating within normal parameters by checking the five items in the External Device Status area, located beneath the transport controls.

16. Right-click the new preset and select **Save** or click the **Save** button.
17. Select a preset as the currently active external device—see "Activating a Device Preset" on page 445.

If you're using a deck that can be addressed in a format different from its recording speed, four bin columns provide you with a quick way to find your clips on the source tape:

- *Avid DS Nitris Physical In*
- *Avid DS Nitris Physical Out*
- *Avid DS Nitris Physical Start*
- *Avid DS Nitris Physical Stop*

These columns show timecodes in the same format as the deck faceplate.

Templates for output devices are located by default in the following folder: C:\Program Files\Avid\DS_v7.0\Edm\Supporting Files\Machine_Templates.

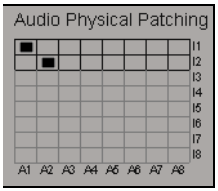
The Supporting Files folder also contains the Backup_Machine_Templates folder, which holds older templates. To access additional templates in the Deck Configuration view, copy template files to the Machine_Templates folder.

Using the Physical Patching Matrix

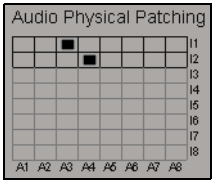
The Physical Patching matrix lets you assign the audio outputs from the external device to the audio inputs on your workstation.

If the material you want to capture has more audio tracks than the number of physical inputs on your workstation, you can capture the audio tracks in different passes. For each pass, you can re-assign the audio physical patching to capture the tracks you need.

For example, assume you only have two physical inputs (I1 and I2), but have four tracks of audio to capture (A1, A2, A3, and A4). On the first pass, you can capture tracks A1 and A2.



On the second pass, you can change the audio physical patching to A3 and A4, which lets you capture audio tracks 3 and 4.



You can also use the patching to:

- Rearrange the track destination
- Import specific tracks from a device
- Remove unwanted tracks

Since the Audio Physical Patching is saved with the device preset, each device can have its own specific audio patching.

Editing and Deleting External Device Presets

You can save the settings for your external device as a preset, so that you don't have to reconfigure the device each time you use it for capture or output.

To edit a preset:

1. Right-click the preset.
2. Select the options you want to change.
3. Click the **Save** button.

To delete a preset from the device list:

- Right-click the preset and select **Delete**.

You cannot delete the active preset.

Activating a Device Preset

You can select one of your presets as the currently active external device. The device you choose will be the default device for capture, recapture, and output.

You can choose a different device preset in the Capture Tool and Output view.

To activate a device preset, do one of the following:

- In the top part of the Deck Configuration view, right-click the preset and select **Activate**.
- Double-click the preset.

A green check mark appears on the preset's icon.

Exporting and Importing Device Presets

You can share presets with other Avid DS Nitris systems by exporting and importing deck presets.

To export deck presets:

1. In the Bin tools section of the Deck Configuration view, click the **Fast Menu** button and select **Export Deck Presets**.

   The Select Deck Presets Export Folder dialog box opens.
2. Select the folder into which you want to export the presets.

3. Click the **Select** button.

   All presets are exported to the folder you selected.

To import deck presets:

1. In the Bin tools section of the Deck Configuration view, click the **Fast Menu** button and select **Import Deck Presets**.

   The Select Deck Presets Import Folder dialog box opens.

2. Select the folder from which you want to import the presets.
3. Click the **Select** button.

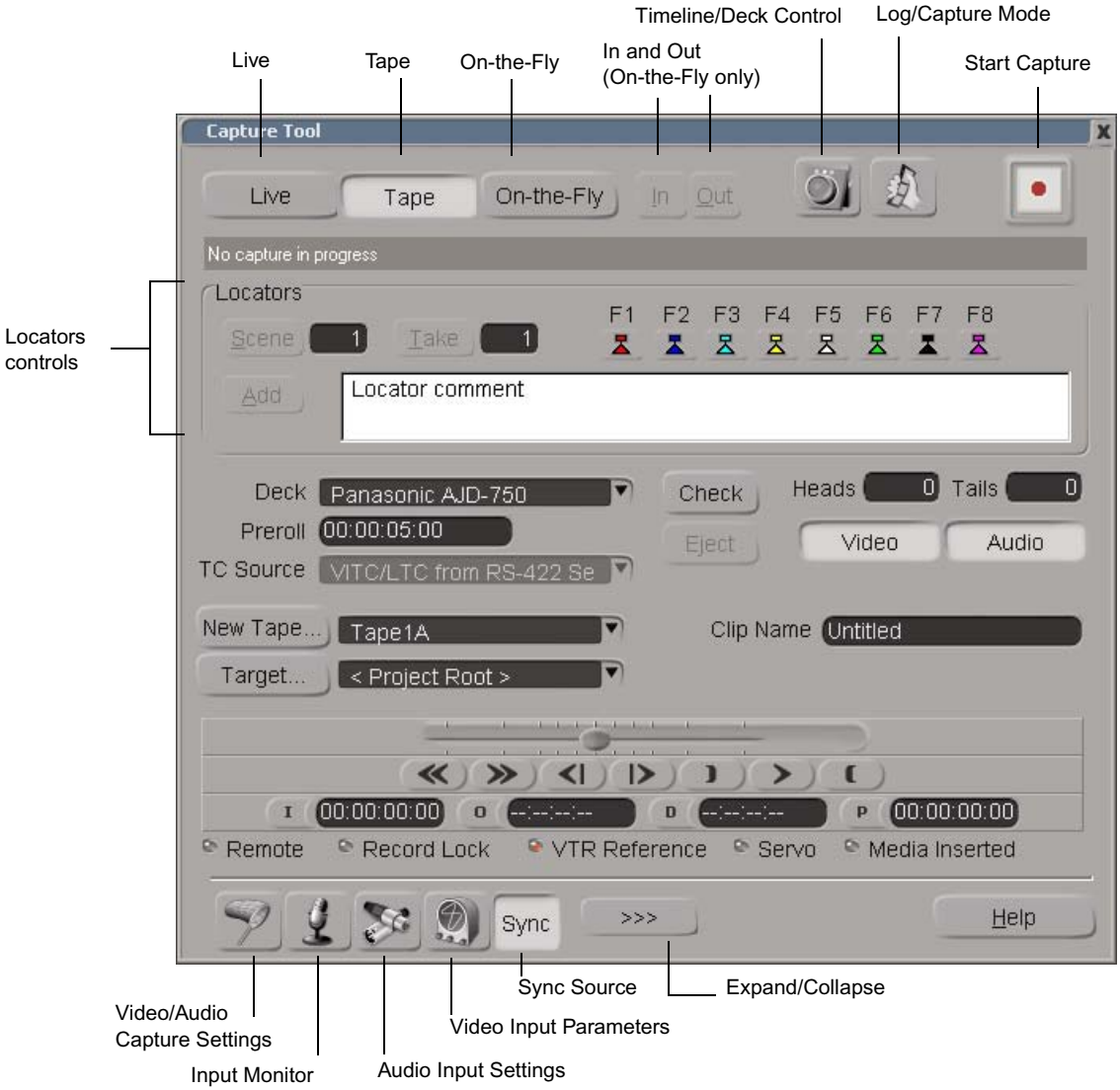
All presets in the selected folder are imported to your system.

Opening the Capture Tool

The Capture Tool lets you configure the settings you need to capture media from an external device and perform the capture.

To open the Capture Tool, do one of the following:

- From the NLE Tools toolbar, click **Media IO > Capture Tool**.
- Select **View > Single-Instance Views > Capture Tool**.



Selecting the Capture Mode

You can choose one of three different capture modes in the Capture Tool:

- **Live**: Lets you specify settings for capturing material by simply starting and stopping the capture—see "Logging and Capturing Clips from Tape" on page 460.
- **Tape**: Lets you specify settings for capturing material between in and out-points or for logging empty master clips—see "Logging and Capturing Clips from Tape" on page 460.
- **On-the-fly**: Lets you specify settings for capturing material between in and out-points that you set as the tape plays—see "Capturing Clips On-the-Fly" on page 463.

Selecting the Capture Target

You can choose one of several capture targets in the Capture Tool.

To select a capture target, do one of the following:

- Select one of the following from the Target list:
  - **Project Root**: Creates master clips in the folder with the project name (the project folder).
  -
    Main Explorer Location: Creates master clips in a bin you selected in the Avid Explorer.

    The most recently activated bin within the project root becomes the capture target. An icon in the title bar marks a bin as the capture target.
  - **Auto-Source**: Creates master clips in a folder with the same name as the tape name.
- Click the Target button, click once to select a folder, and then click OK. Avid DS Nitris creates master clips in the folder you select.

  You cannot create master clips outside the current project, so Avid DS Nitris checks the path to make sure the folder is within the project folder.

Specifying the Capture Quality

You set the video and audio capture quality when you create your project or sequence. You can keep these default settings or adjust them for the material you are going to capture or recapture.

For your video material, you can change the resolution, bit depth, compression, and storage device. For your audio material, you can change the sample rate, bit depth, and storage device.

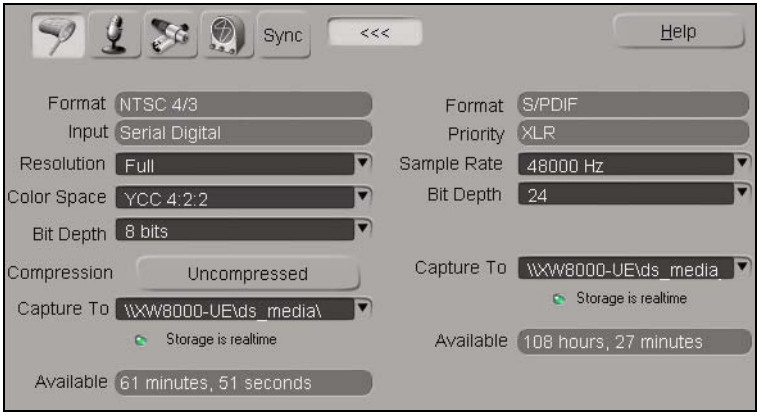
Specifying the Video Capture Quality

Video capture settings let you define the resolution, bit depth, and compression ratio at which images are captured.You can save space on your disk array by capturing video material in compressed format. Typically, compressed material is used for a rough cut, where you capture large amounts of material at a lower quality. After that, you can recapture the edited material uncompressed before proceeding with a more detailed edit.

To specify video capture quality:

1. Do one of the following:
   - From the NLE Tools toolbar, click **Media IO > Capture Tool**.
   - Select **View > Single-Instance Views > Capture Tool**.
2.
   Click the **Video/Audio Capture Settings** button.

   The video and audio capture settings are displayed.



For more information about video capture options, click the **Help** button.

3. In the Video panel, select a resolution from the **Resolution** list. The resolutions that are displayed depend on your Avid DS Nitris system hardware.
4. Set the **Color Space** to be used for your media.

   The options you have available depend on your video format and resolution.
5. **From the** Bit Depth list, select a bit depth, depending on what your hardware allows.
6. From the Compression list, select a compression or **Uncompressed**. The compressions that are displayed depend on the selected video format. For information about compressions, see "Avid DNxHD Compressions" and "JFIF Compressions" in the Help.
7. From the Capture To list, select the storage device on which your video media will be stored.

   The status of the storage device you selected is displayed. If the storage device is accessible in real time, the status marker is green. If the storage device is not accessible in real time, the status marker is red.

   The Time Available box indicates how much video material you can successfully capture based on your quality settings. If you have insufficient storage space, consider deleting any unused media on your disk array—see "Purging Media" on page 1087.

Specifying the Audio Capture Quality

The audio capture settings let you define the quality at which your audio material is captured. These settings depend on the audio hardware connected to your workstation.When you're capturing material from a digital input, the audio input sample rate and protocol settings are set according to the input signal detected by your hardware.

With digital input, such as AES/EBU or S/PDIF, the sample rate is determined and set by the external device (CD player, DAT, etc.). If the digital input cannot be detected (for example, the external device is turned off), the default sampling rate is set to 48 kHz.

To specify audio capture quality:

1. Do one of the following:
   - From the NLE Tools toolbar, click **Media IO > Capture Tool**.
   - Select **View > Single-Instance Views > Capture Tool**.
2. Click the **Video/Audio Capture Settings** button.

   For information about audio capture options, click the **Help** button.
3. In the Audio panel, select a sample rate from the **Sample Rate** list. The higher the sample rate, the more accurate the capture process will be.
4. From the Bit Depth list, select a bit depth. The higher the value, the more precise the audio will be.
5. From the Capture To list, select the disk array on which your audio material will be stored.

   The status of the storage device you select is displayed. If the storage device is accessible in real time, the status marker is green. If the storage device is not accessible in real time, the status marker is red.

   The Time Available box indicates how much audio material you can successfully capture based on your quality settings. If you have insufficient storage space, consider deleting any unused media on your disk array. For more information, see “Purging Media” on page 1087.

Specifying Audio Input Settings

You can specify two types of audio input settings in the Capture Tool:

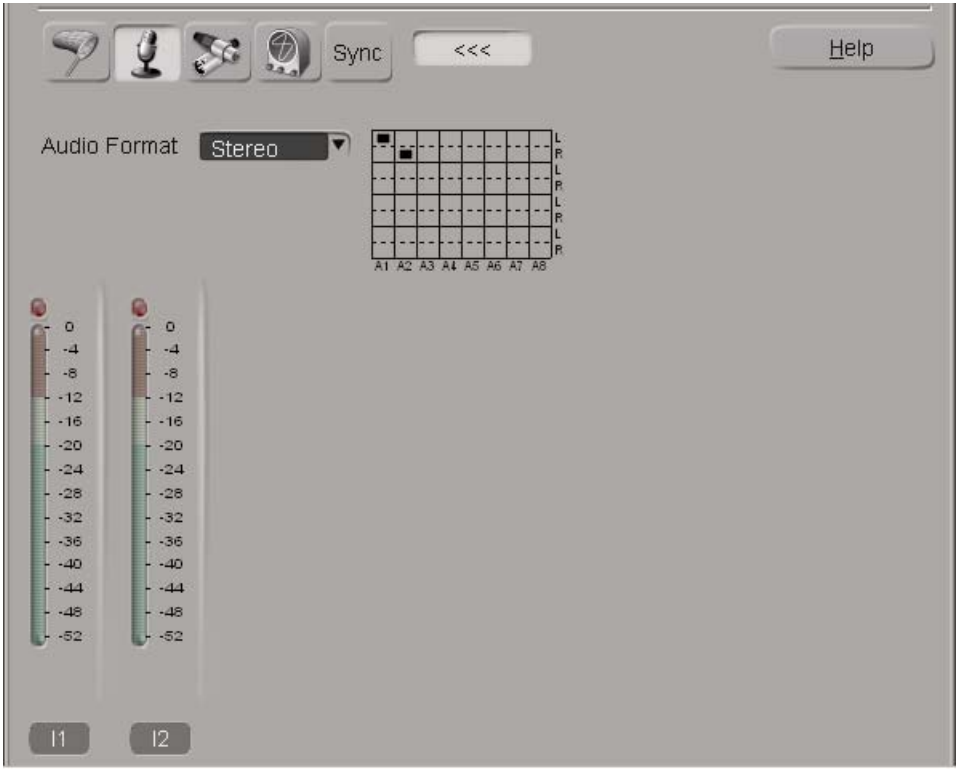
- Audio format and channel routing
- Settings for the external device

Setting the Audio Format

Your choices for audio format and available channels depend on the installed audio hardware.

To set the audio format and assign audio channels:

1. In the Capture Tool, click the **Input Monitor** button.
2. Select the audio format from the **Audio Format** list.



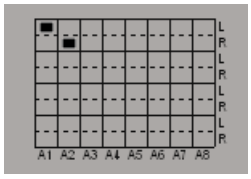
For information about audio formats, click the **Help** button.

3. Use the channel routing matrix to assign the incoming audio tracks to the desired audio channels of the clip.

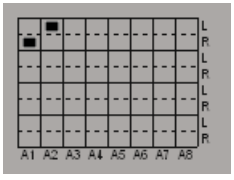
   Click in the appropriate boxes to make the assignments. The number of available channels depends on the installed audio hardware and the selected audio format. You should know, in advance, to which tracks the audio has been recorded on the tape.

If you click on a square in the matrix and an empty circle appears, that particular assignment is not available due to limitations of the audio hardware.

For example, to switch the settings for track A1 and A2 so that track A1 is assigned to Right (R) and track A2 is assigned to Left (L), click the R square in column A1 and the L square in column A2. Notice that you can have only one track assigned to one audio channel.



Old assignment



New assignment

Specifying Audio Settings for the External Device

Settings for the external device are determined by the selection you make from the device list. This list includes presets that you create in the Deck Configuration view. For more information, see "Configuring the External Device" on page 440. You can change the audio settings for the preset in the Capture Tool, but they are not saved with the preset.

To specify audio parameters for the external device:

1. In the Capture Tool, click the **Audio Input Settings** button.
2. Select the type of audio input from the **Input** list.
3. Select the priority for the audio input from the **Priority** list.

   The options available depend on the Input selection.
4. Specify the audio output assignments in the physical patching matrix—see "Using the Physical Patching Matrix" on page 444.

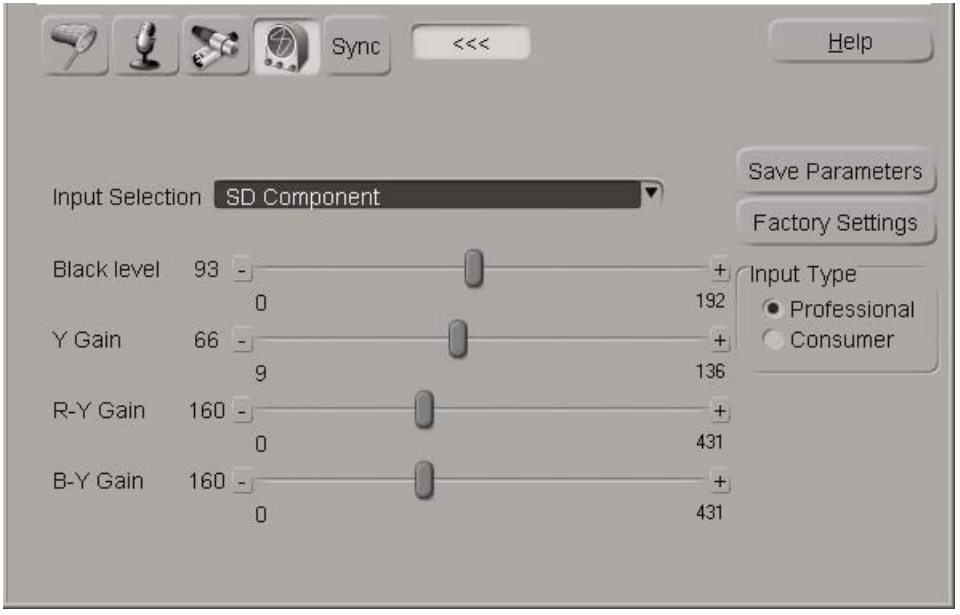
Specifying Video Input Settings

If your system includes an Avid Nitris DNA, you must select the type of video input signal: Serial Digital, component, composite, or S-Video (Serial Digital is required for HD). For component, composite, and S-Video, you can calibrate video input by adjusting the video parameters.

You cannot adjust input parameters for Serial Digital.

To select video input:

1. In the Capture Tool, click the **Video Input Parameters** button.
2. Select the input source from the Input Selection list.



To adjust video input parameters:

1. Connect a waveform monitor, vectorscope, or other equipment for calibrating video input, depending on your production environment.
2. In the Capture Tool, click the **Video Input Parameters** button.
3. Select the input source from the Input Selection list.
4. Select **Professional** or **Consumer**, depending on the type of deck that is connected.

5. Using color bars or a test pattern, adjust one or more video parameters by dragging the slider or by clicking the minus (-) or plus (+) button.

   For information about video parameters, click the **Help** button.

6. To save your settings, click the **Save Parameters** button.

   You can save one set of parameters for each type of video input.

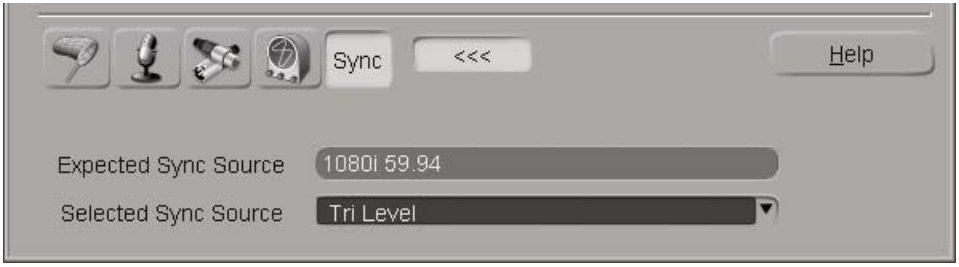
7. To restore the default settings for all video inputs, click the **Factory Settings** button.

Specifying the Sync Source

For systems with an Avid Nitris DNA, you need to select the sync source for reference timing: either tri-level sync or black burst sync (NTSC or PAL). Avid DS Nitris requires that the deck and the Avid Nitris DNA be genlocked to the same timing source when capturing.

HD formats whose frame rate aligns with 29.97 fps (NTSC) or 25 fps (PAL) can use either tri-level sync or black burst sync. If you are capturing one of these HD formats (such as 1080PsF 29.97 or 1080PsF 25), you can use either tri-level or black burst as the sync source.

For a list of sync options for each format, see “Downconverted Output Formats and Sync Sources” in the Help.



To specify the sync source:

1. In the Capture Tool, click the **Sync** button.
   - For HD sequences, the Expected Sync Source field displays the format of the sequence or its interlaced equivalent.
   - For SD sequences, the field displays NTSC or PAL Black Burst.

2. Select the sync source that is compatible with the sequence: **Tri-Level, Black Burst,** or **Any**.

You can also set the sync source in the Output Tool.

Checking the Sync Source

The Sync (S) light (located on the right of the toolbar below the timeline) indicates the sync source that is being used by the current sequence.

- **Green:** Indicates that the sequence is receiving the correct sync for the frame rate.
- **Yellow:** Indicates that the sequence is using internal sync from the Avid Nitris DNA. For professional production you should make sure to connect the correct external sync.
- **Red:** Indicates that the sequence is not receiving the correct sync for the frame rate. You should correct this situation.

Previewing Material

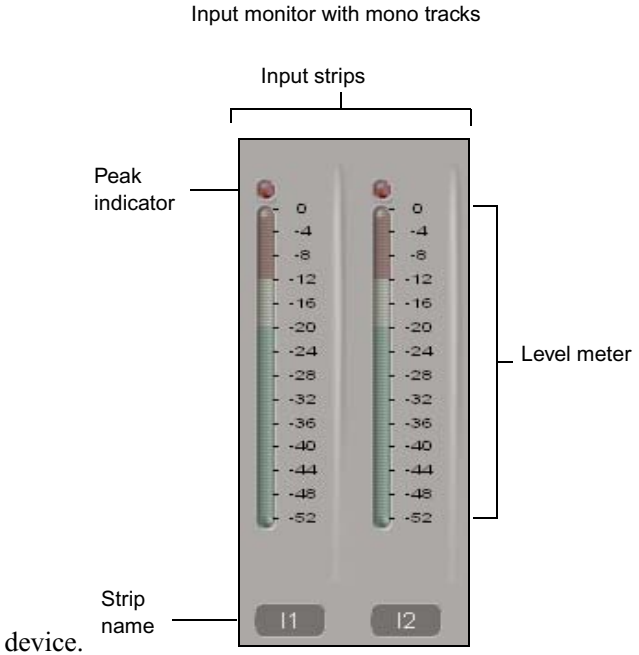
Before capturing video or audio material from a tape or live capture session, you can preview it to decide how much preroll or post-roll to add, or to monitor the audio levels (see "Monitoring Audio Input" on page 457). When you preview audio material, you can use the Audio Input monitor to set incoming audio levels, depending on your hardware.

To preview video or audio material:

1. In the Capture Tool, click either the **Live** button, the **Tape** button, or the **On-the-Fly** button.
2. Use the transport controls to play the video or audio material you want to preview.

Monitoring Audio Input

You can monitor your incoming audio in a panel in the Capture Tool or in the Audio Input Monitor view. Each input strip in the input monitor corresponds to channels that are recorded from the source device.



If you need to adjust the audio input signal, the method you use depends on your system hardware:

- If your system includes an Avid Nitris DNA, you should adjust the audio level before it enters the Avid Nitris DNA. For example, you can adjust the audio output on a deck or use an external mixer.

- If your system includes Equinox-Mykerinos hardware, you can lower the incoming signal through faders on the audio input strips. However, you cannot use the faders to boost the audio signal. Any audio level changes are saved with the audio clip.When you later recapture this material, Avid DS Nitris uses the levels that you set when you originally captured the material.

You can adjust the audio after capturing by using the Avid DS Nitris Mixer—see "Understanding the Mixer" in the Help.**To monitor the audio input levels:**

1. In the Capture Tool, click the **Live** button, **Tape** button, or **On-the-Fly** button.
2. Open the audio monitor in one of the following ways:

   - In the Capture Tool, click the **Input Monitor** button.
   - Select **View > Multi-Instance Views > Audio Input Monitor**.
3. Set the audio format and assign the incoming audio tracks to the desired audio channels of your clip—see "Setting the Audio Format" on page 452.
4. Use the transport controls in the Capture tool to preview the audio.

Logging and Capturing Material

Depending on the source from which you are capturing material, you can:

- Log and capture the material at the same time
- Log the material and batch capture it later
- Log a clip that is linked to material on a network

If you're capturing material from a tape or other external device, you can log the clips needed for your sequence and then batch capture them later. Logging lets you specify the in and out-points for material on tape without actually capturing the material.

As you log or capture your material, master clips are created in a bin in the Avid Explorer. These clips contain information about the original media on tape or file, as well as the source in and source out timecodes.

You can also create logged clips from the following sources:

- *AFE files (Avid Log Exchange)*
- *AAF files (Advanced Authoring Format)*
- *OMF files (Open Media Framework®)*
- *EDLs (Edit Decision Lists)*
- *ALEs (Avid Log Exchange)*

For more information on logging clips from these sources, see:

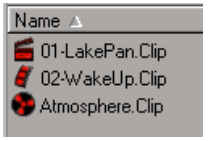
- Conforming with AFE Files
- Conforming with AAF Files
- Conforming with OMF Files
- Conforming with EDL Files
- Conforming with ALE Files

Logging and Capturing Clips from Tape

The Capture Tool provides you with three modes in which to capture media from an external device: Live, Tape, and On-the-Fly. Tape mode lets you specify exact in-points and out-points, When capturing material using Tape mode, you can capture the media between the selected in and out-points or log empty master clips. The captured clips are displayed in a bin. Logged video clips display the Avid DS Nitris clapboard icon in the Thumbnails and Script view. Icons for the audio and video clips without media are red.

You can place logged clips on the timeline to create a sequence and then edit them like any other master clip, even though they do not include media. Later, you can capture the media at any time directly from the timeline.

In the Thumbnails view of a bin, video and audio clips without media are displayed with red icons.



In the Details view of a bin, video and audio clips without media are preceded by a red icon.

To log and capture clips from a tape:

1. Do one of the following:
   - From the NLE Tools toolbar, click **Media IO > Capture Tool**.
   - Select **View > Single-Instance Views > Capture Tool**.
2. Configure the external device, specify the capture quality, and other perform other tasks listed in "Preparing to Capture Material" on page 439.
3. Click the **Tape** button.

4. From the device list, select a deck preset.
5. (Optional) Set a custom preroll for the deck.

   This setting temporarily overrides the setting in the deck template but does not change it.
6. Click the **Check** button.

   If the communication between the external device and your system is operating properly, nothing happens. If there is a problem, a message box appears, stating the possible cause of the problem.

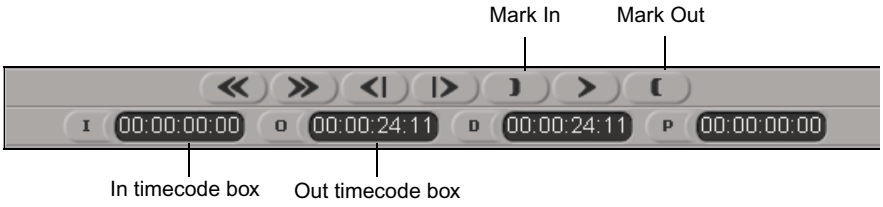
   You can also verify that the external device is operating within normal parameters by checking the five items in the External Device Status area, located beneath the transport controls—see "Transport Controls (Capture and Output Tools)" in the Help.
7. Make sure the **Timeline/Deck Control** button is set for **Deck**.
8. Click the **Log/Capture Mode** button to either capture or log material.
9. In the Clip Name text box, enter a name to prefix all captured clips.
10. From the source name list, select the tape's name.

    If the tape is new, click the **New Tape** button and enter a name for the tape. The tape name is added to the Tape Library—see "Managing Tapes" on page 503.

It is very important to assign a unique name to every tape because Avid DS Nitris uses it to identify the captured media.

11. From the Target list, select a location to hold the clips—see "Selecting the Capture Target" on page 448.
12. Click the **Video** button to capture the video channel of the material.
13. Click the **Audio** button to capture one or more audio channels of the material.
14. To record additional material before the in-point and after the out-point, type the appropriate number of frames in the **Heads** and **Tails** text boxes.
15. Use the transport controls to play or shuttle the tape to the point where you want to start the capture and click the **Mark In** button.

    The timecode of the in-point you selected is displayed in the In timecode box.



16. Play or shuttle the tape to advance to the point where you want to end the capture and click the **Mark Out** button.

    The out-point is displayed in the Out timecode box. The Duration timecode box displays the length of material to be captured.

***Tip**: If you already know the in and out timecodes, you can type them directly in the In or Out timecode boxes. You can also enter a value for the duration and Avid DS Nitris will calculate the out-point.*

You can use the numeric keypad to enter in-points and out-points. Begin typing the timecode and an entry box is displayed. When you finish typing, press the I key to set an in-point or the O key to set an out-point. You can also type a duration and press the D key. To go to a particular location on the tape, type the timecode and press Enter.

17. Click the **Start/Stop Capture** button.

    As the material is logged, or logged and captured, clips appear in the Avid Explorer according to the in and out points that you specified.

    You can add locators with comments while capturing. For more information, see "Adding Locators While Capturing" on page 466.

If Avid DS Nitris is unable to capture the material on the first attempt, it will try again. If it fails again, Avid DS Nitris will attempt the capture a third time with an additional preroll of five seconds. If the capture fails again, an error message is displayed with a possible explanation for the problem.

If you encounter problems capturing material from tape, you should deactivate the viewer using the Viewer button in the status bar and try capturing again. When capturing full resolution HD material at 29.97 and 30 frames per second, the viewer is automatically deactivated.

Logged video clips appear with an image of the Avid DS Nitris clapboard icon, since they do not have any media. Both video and audio clip icons are also red to show that no media has been captured. You can later capture these clips in one batch directly from the Avid Explorer.

If any frames are skipped during the capture, the capture stops, and an error message is displayed. Clips are created for the material that was captured up to the point at which frames were dropped.

If Avid DS Nitris detects any problems during capture, the Capture Error Log is displayed. The Capture Error Log dialog box displays the clip that could not be captured, including tape source name, in-point, and out-point. It also gives you a brief description of the type of error that occurred.

a. To save this log as an .html file, click the **Save As** button.

b. In the Save As dialog box, navigate to an appropriate folder, type a name for the log and click the **Save** button.

The log is saved as an .html file and can be viewed in any HTML browser.

Avid DS Nitris stops a capture session if it detects any timecode breaks on the source tape. It creates a master clip from the in-point to the timecode break. The capture session may stop a frame or two after the actual timecode break. If this happens, you may have to cut or trim some of the unusable frames from your clip.

*To resume capture, enter new in and out-points in the In/Out timecode boxes and click the **Start/Stop Capture** button.*

If there is insufficient material for the deck to preroll before capturing, you will not be able to capture the material. In this case, use the Live capture option to capture the material.

Capturing Clips On-the-Fly

Capture on-the-fly mode lets you capture material from tape as it plays. You start the capture and then set in and out-points for the material you want to capture. After you stop the capture, clips are created in the Avid Explorer, based on the in and out-points you set during playback. In this way you can create multiple clips without having to start and stop playback.

Avid DS Nitris creates a temporary media file for the complete capture and then creates the individual clips. Make sure you have enough storage space for the temporary media file and the created clips. Avid DS Nitris deletes the temporary file after creating the clips.

Capture on-the-fly is similar to live capture because in both cases you capture while the tape is playing. Capture on-the-fly, however, requires deck control through an RS-422 connection and a valid timecode signal. As a result, timecode is always accurately captured and clips can be recaptured.

To log and capture clips on-the-fly:

1. Do one of the following:
   - From the NLE Tools toolbar, click **Media IO > Capture Tool**.
   - Select **View > Single-Instance Views > Capture Tool**.
2. Configure the external device, specify the capture quality, and perform other tasks listed in "Preparing to Capture Material" on page 439.
3. Click the **On-the-Fly** button.
4. From the device list, select a deck preset.
5. Click the **Check** button.

   If the communication between the external device and your system is operating properly, nothing happens. If there is a problem, a message box appears, stating the possible cause of the problem.

   You can also verify that the external device is operating within normal parameters by checking the five items in the External Device Status area, located beneath the transport controls—see "Transport Controls (Capture and Output Tools)" in the Help.
6. Make sure the **Timeline/Deck Control** button is set for Deck.
7. Make sure the **Log/Capture Mode** button to set to Capture.
8. In the Clip Name text box, enter a name to prefix all captured clips.
9. From the source name list, select the tape's name.

   If the tape is new, click the **New Tape** button and enter a name for the tape. The tape name is added to the Tape Library—see "Managing Tapes" on page 503.

It is very important to assign a unique name to every tape because Avid DS Nitris uses it to identify the captured media.

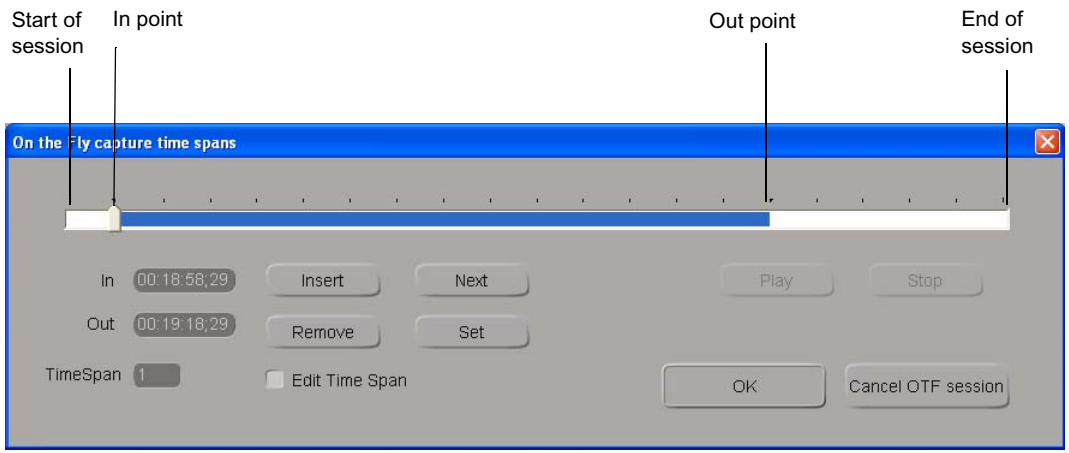
10. From the Target list, select a location to hold the clips—see "Selecting the Capture Target" on page 448.
11. Click the **Video** button to capture the video channel of the material.
12. Click the **Audio** button to capture one or more audio channels of the material.
13. Click the **Start/Stop Capture** button.

    The tape begins playback.
14. To set an in-point and an outpoint, do one of the following:
    - Click in the viewer to set an in-point, and then right-click in the viewer to set an out-point.
    - In the Capture tool, click the In button and then the Out button.
    - On the keyboard, press the I key and then the O key.

    A clip will be created for each of the in and out-points that you set. Continue to set in and out-points on the material you want to capture.

    You can add locators with comments while capturing. For more information, see "Adding Locators While Capturing" on page 466.
15. To finish the capture session, do one of the following:
    - Click the **Start/Stop Capture** button.
    - Press the Esc key.

    The On the Fly Capture Time Spans dialog box appears.



16. Click OK.

Clips appear in the folder you selected for each of the in and out-points that you set. The clips are named as follows: *BaseClipName*, *BaseClipName*-001, and so on. Each clip's timecode matches that on the tape, making it possible for you to recapture the material at a different compression rate or resolution.

If you encounter problems capturing material from tape, you should turn off the viewer by deselecting the Viewer button in the status bar and try capturing again. When capturing full resolution HD material at 29.97 and 30 frames per second, the viewer is automatically deactivated.

Adding Locators While Capturing

You can add locators (markers) to the clips you are capturing from tape or on-the-fly. These markers are linked to a specific timecode and behave in the same way as Clip locators.

You cannot add locators during Live capture.

For complete information on locators, see "Using Locators" in the Help.

To add a predefined locator:

1. Begin capturing from tape or on-the fly.
2. Do one of the following:
   - On the keyboard, press a locator button (F1 through F3).
   - In the Capture tool, click a locator button (F1 through F3).

   The comments for predefined locators are:
   - F1: Needs color correction
   - F2: Needs scratch removal
   - F3: Start of good take

Locators F4 through F8 include the comments "Comment 4," "Comment 5," and so on. You can change these comments on the Locator Properties property page.

To add a locator with a custom comment:

1. Begin capturing from tape or on-the fly.
2. Type your comment.

3. Press the A key or click the Add button.

   A red locator is added to the clip.

To add scene and take numbers:

1. Begin capturing from tape or on-the fly.
2. Press one or both of the following keys:
   - S key (Scene button): Adds a locator with the title "Scene *x*, Take *x.*" Each time you click the Scene button, the Scene number is incremented and the Take number is reset to 1. You can add a custom message.
   - T key (Take button): Adds a locator with the title "Scene *x*, Take *x.*" Each time you click the Take button, the Take number is incremented.

   A red locator is added to the clip.

Performing a Live Capture

Live capture mode lets you capture a video stream from a deck, camera, or other source, without the need for deck control. It is a quick but less accurate way of capturing material.If there is a proper SMPTE or AES/EBU timecode signal, the material is assigned the incoming timecode and the resulting clip can be recaptured. If no timecode signal is present, Avid DS Nitris assigns an arbitrary timecode to the clip, starting at 00:00:00:00. Clips starting with this arbitrary timecode cannot be recaptured.

If the device you plan to use for recapture cannot be controlled with an RS-422 remote connection, Avid DS Nitris will let you recapture a clip, but it will most probably not find the correct timecode.

Live capture is similar to capture on-the-fly because in both cases you capture while the tape is playing. Capture on-the-fly, however, requires deck control through an RS-422 connection and a valid timecode signal—see "Capturing Clips On-the-Fly" on page 463.**To perform a live capture:**

1. Do one of the following:
   - From the NLE Tools toolbar, click **Media IO > Capture Tool**.
   - Select **View > Single-Instance Views > Capture Tool**.
2. Configure the external device, specify the capture quality, and perform other tasks listed in "Preparing to Capture Material" on page 439.

3. Click the **Live** button.
4. From the device list, select a deck preset.
5. Select the Timecode source:
   - VITC or LTC through the RS-422 serial connection on the computer
   - LTC through the LTC IN connection (XLR) on the Avid Nitris DNA
6. Click the **Check** button.

   If the communication between the external device and your system is operating properly, nothing happens. If there is a problem, a message box appears, stating the possible cause of the problem.

   You can also verify that the external device is operating within normal parameters by checking the five items in the External Device Status area, located beneath the transport controls—see "Transport Controls (Capture and Output Tools)" in the Help.
7. Make sure the **Timeline/Deck Control** button is set for **Deck**.
8. Make sure the **Log/Capture Mode** button is set for **Capture**.
9. In the Clip Name text box, enter a name to prefix all captured clips.
10. From the source name list, select the tape's name.

    If the tape is new, click the **New Tape** button and enter a name for the tape.

It is very important to assign a unique name to every tape because Avid DS Nitris uses it to identify the captured media.

11. From the Target list, select a location to hold the clips—see "Selecting the Capture Target" on page 448.
12. Click the **Video** button to capture the video channel of the material.
13. Click the **Audio** button to capture one or more audio channels of the material.
14. If recording from tape, use the transport controls to play the tape.
15. Click the **Start/Stop Capture** button.

    The capture begins and the progress bar displays the number of seconds of material captured. This value updates while the capture is in progress.

If you encounter problems capturing material from tape, you should deactivate the viewer using the Viewer button in the status bar and try capturing again. When capturing full resolution HD material at 29.97 or 30 frames per second, the viewer is automatically deactivated.

16. When you want to stop capturing, do one of the following:
    - Click the **Stop** button on the progress bar.
    - Click the **Start/Stop Capture** button.
    - Press the Esc key.

    The captured material is represented by a clip in the folder you selected. If the tape is playing, click Capture again to resume capturing.

Capturing Audio through a Microphone

You can create master clips for audio input by connecting a microphone to the Mic inputs on the back of the Avid Nitris DNA and using the Capture Tool to capture audio. You can use the following connectors:

- Mic 1 or Mic 2 for a single microphone (mono)
- Mic 1 and Mic 2 for two microphones (stereo)
- Mic 1 and Mic 2 for two microphones (two mono channels)

You might need to use an external mixer to adjust the input levels.

To configure for microphone input:

1. On the Avid Nitris DNA, connect a microphone to the Mic 1 input or the Mic 2 input, or connect two microphones, one to each input.
2. Open the Capture tool and click the Live button.
3. Select Microphone Input as the input device.

   You can also activate the Microphone Input preset in the Deck Configuration tool. See "Configuring the External Device" on page 440. In this case ignore the External Device settings and accept the default Audio settings (Input: Analog, Priority: Microphone).
4. Click the Input Monitor button to open the audio input pane.
5. From the Audio Format list, select Mono or Stereo to match your inputs.
6. In the channel routing matrix, assign the incoming audio tracks to the desired audio channels of the clip.

7. Use the input level meters to view the audio levels. If you are using a mixer, adjust the input levels if necessary.
8. Select other capture settings. See “Logging and Capturing Clips from Tape” on page 460.
9. When you are ready to record, click the **Start/Stop Capture** button.
10. To stop recording, click the **Stop** button on the progress bar.

Capturing Material from File

When capturing material from file, you can do any of the following:

- Capture media from selected files
- Log the selection as clips without capturing the media
- Create linked clips, which act as pointers to source media located on a local disk or anywhere on the network

You can capture material from video, audio, and image files. For a list of supported file types, see “Capture File Formats” in the Help.When you capture material from file, it’s important to select the correct media conversion mode, pixel ratio, and premultiplication setting. The media conversion modes let you determine how media of differing formats are converted when captured into Avid DS Nitris. Files coming from different formats, such as NTSC, PAL, and computer graphics, all have different file pixel ratios. If the pixel ratio of the source file is different than that of the current sequence, then the file’s pixels are scaled to match those of the current sequence. When you select the correct premultiplication setting, you can avoid incorrect compositing results.

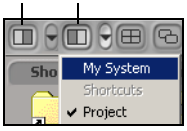
If you’re capturing still images, you can specify their duration on the Editing property page of the User Preferences dialog box. By default, the duration of captured still images is set to 1 second.

You can capture from a single file or a series of files at the same time.

You can import graphics without having to capture them. For more information, see “Importing Images” in the Help.

To log and capture clips from file:

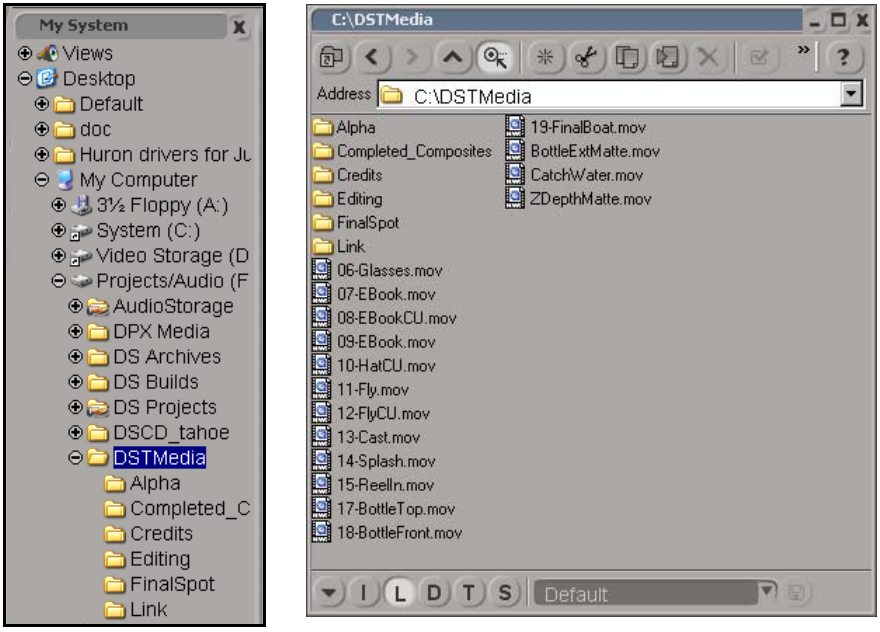
Show/Hide Panel



1. In the Avid Explorer, click one of the **Show/Hide Panel** buttons to display a panel. Then click the arrow next to the button and select **My System**.

2. In the tree, click **My Computer** or **My Network Places** and navigate to the folder where the files that you want to capture are located.

   The files are displayed in a bin.



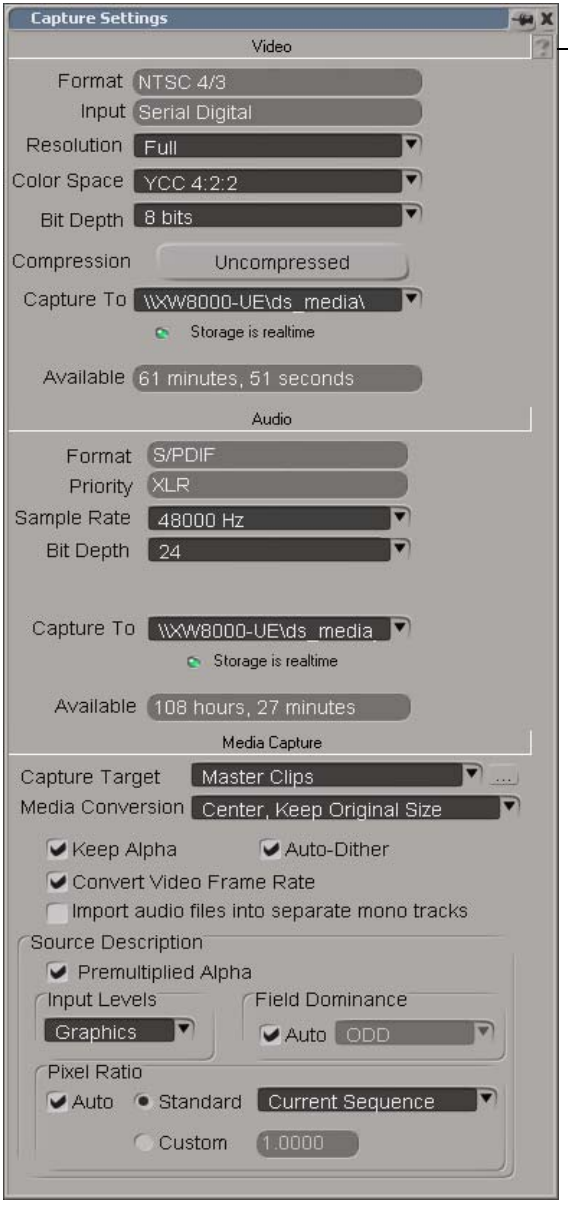
3. In the bin, select the file or files that you want to capture.

   To select a series of files, click the first file, hold down the Shift key, and click the last file. To select multiple files, hold down the Ctrl key and click each file name.

If you select a sequential list of still files of the same type, such as all .jpg or all .bmp, during capture you are given the choice of combining the files into one master clip or creating individual clips.

4. Right-click a file and select **Capture Settings**.

   The Capture Settings dialog box opens.



For information about options in the Capture Settings dialog box, click the **Help** button.

5. In the Media Capture panel of the Capture Settings dialog box, select a location to hold the clips—see "Selecting the Capture Target" on page 448. If you select **Auto-Source**, master clips are created in a folder named File Source.
6. From the Media Conversion list, select one of the following modes:

Mode	To
Center, Keep Original Size	Center the media in the viewer along both the X and Y axes. Any portion of the image falling outside the viewer is cropped. This option does not modify the original size of the media.
Scale to Fit	Scale the media in both the X and Y axes to fit the sequence settings. This option may reduce image clarity.
Scale, Keep Aspect Ratio	Scale the media in both the X and Y axes to fit the image settings, but retain the ratio between width and height.
Keep Original Size and Position	Display the media in the viewer without modifying its original size or position.

The following illustrations show a 540x304 image captured using various media conversion modes.

Center, Keep Original Size

Scale to Fit

Scale, Keep Aspect Ratio

Keep Original Size and Position

7. If the source image contains an alpha channel that you want to capture with the clip, select the **Keep Alpha** option. Only image formats that support alpha channels are applicable. For example, .bmp images do not support alpha channels.
8. If you want to adjust the colors of the captured file to remove banding, select **Auto-Dither**.
9. If you want to convert the frame rate of the video file you are capturing to the same frame rate used by the sequence, select the **Convert Video Frame Rate** option.

This option does not apply to still images or audio files.

If you capture an audio file with a sample rate different from than that currently set in the **Audio Sample Rate** list, a message box opens, asking you if you want to convert the audio file to the selected rate.

10. If you are sharing MXF audio files with other Avid applications, select **Import audio files into separate mono tracks**.

11. In the Source Description section, select the appropriate options for the files you are capturing.

    For information about these options, click the Help button, and then click on the link for Media Capture Settings.

12. Close the Capture Settings dialog box to save your settings.
13. Right-click on the selected files and select one of the following:

Option	Description
Capture	Creates master clips and captures the media. This option takes substantially longer because the media must be digitized.
Log	Creates master clips without capturing the media. *Logged clips appear with the message "Media Not Available" when they are placed in the viewer or timeline. You can later capture these clips in one batch directly from the Avid Explorer or the timeline.*
Link	Creates linked clips, which act as pointers to source media located on a local disk or anywhere on the network—see "Creating Linked Clips" on page 481.

As the material is logged or captured, clips appear in the target bin.

You can cancel the capture session at any time by clicking Cancel in the progress bar. A message box opens, asking you if you want to keep the material that was captured so far. If you click Yes, clips are created for the material that was captured until you clicked Cancel.

Capturing from File by Dragging to a Bin

You can capture media from file by right-clicking the source file and dragging it to the bin in which you want to create the master clip.

To capture from file by dragging to a bin:

1. Check the Capture Settings view to make sure your settings are correct—see "Capturing Material from File" on page 471.

   You don't need to specify the capture target.

2. Right-click the file or files you want to capture.

3. Drag the files to the bin in which you want to create the master clips.
4. Release the mouse button, and select **Capture Here**.

   As the files are captured, master clips appear in the target bin.

You can also use the menu to open the Capture Settings view, create a linked clip, or create a logged clip. Other options let you copy or move files and create shortcuts.

Capturing from Layered Adobe Photoshop Files

There are two ways to capture from Adobe Photoshop files into Avid DS Nitris:

- Select the file or files in a bin, right-click and select **Capture**.
- On the Editing toolbar, click **Generate > Import Photoshop**.

The first option captures only the flattened Photoshop image as a still. If you want to preserve all the layer information, you should use the second option.When you capture from a layered Photoshop image into Avid DS Nitris using the Import Photoshop command, a Targa image file is created for each Photoshop layer. A sequence with one composite container clip is created in a new bin in the Avid Explorer, along with a master clip for each layer. These master clips are linked to the Targa files. Each layer in the Photoshop file is recreated in the composite container clip as a layer and corresponding clip on a composite track. Each layer is composited in the same order as the original Photoshop file.

DVEs are applied to each clip to position them appropriately, and the opacity of each layer is adjusted to match the opacity levels in the original Photoshop file. An additional folder is created called *Linked layers*, which contains the source Targa files to which the master clips are linked. Having access to these source files makes it easier for you to delete them, if needed.

The Photoshop images must be 8 bit RGBA or grayscale files. Only normal blending information is supported, and text and shape information are rasterized when captured.

Example

Every time you capture from a layered Photoshop file, a new bin is created in the Avid Explorer. The bin is named after the Photoshop file you captured. The sequence, master clips, and Linked layers folder are all stored in this new folder. The master clips are named after the layer they represent followed by the name of the Photoshop file in parentheses.

For example, if you capture from a Photoshop file called Poster.psd that contains the following layers:

- Sky
- Sea
- Boat

A new bin called “Poster” is created in the Avid Explorer. Within that bin, a new sequence called “Poster” is created, a folder called “Linked layers” is created, as well as the following master clips:

- Sky (Poster)
- Sea (Poster)
- Boat (Poster)

The \Linked layers folder contains the following files:

- Sky (Poster).tga
- Sea (Poster).tga

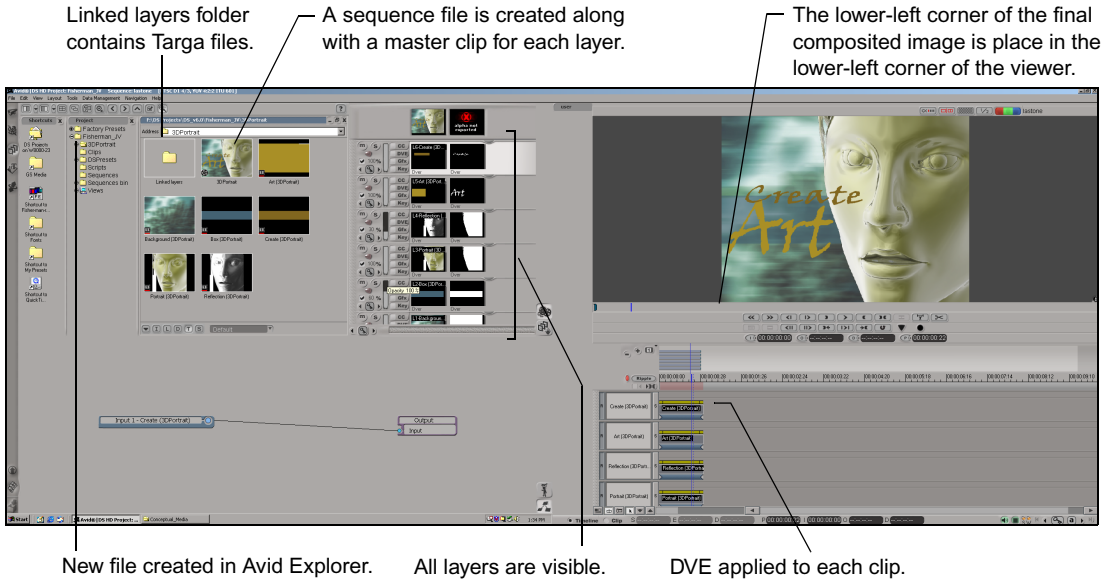
Boat (Poster).tga**To capture from layered Photoshop files:**

1. In the Avid Explorer, select the folder in which you want the new folder to be created.
2. If you are importing a file with a pixel ratio different from that of the current sequence, click the Capture Settings button in the Avid Explorer toolbar. In the Media Capture section, specify a custom pixel ratio.
3. In the Editing toolbar, click **Generate > Import Photoshop**.

   The Import Adobe Photoshop dialog box opens.
4. Select the Photoshop file and click **OK**.

   A message is displayed telling you that the clip was successfully saved.
5. Click **OK**.

A new folder is created in the Avid Explorer and named after the Photoshop file. Within that folder, a folder called *Linked layers* is created that contains the source Targa files. A sequence file with one composite container clip is also created, along with a master clip for each layer. In the composite container clip, each layer in the Photoshop file is recreated as a layer and corresponding clip on a composite track. The lower-left corner of the final composited image is placed in the lower-left corner of the viewer.



Since the master clips are linked to the Targa files, the images maintain their original size. To view images that are larger than the sequence resolution, right-click in the result area of the layer view to turn off the Output Frame Size option.

For more information, see “Working with Layered Photoshop Images” in the Help.

Importing Encapsulated PostScript (EPS) Files

You can import EPS files into Avid DS Nitris, but they are treated differently than other file imports. EPS files are imported from within the Graphics layout and no master clips are created for the EPS file. Instead, the EPS information is imported directly into your current graphics session. The color information

in the EPS files is retained and each shape in the EPS file is a separate stroke in Avid DS Nitris.*You can import solid colors, but not gradients.*

Avid DS Nitris can import files created with Adobe Illustrator 8.0 or earlier versions. To work with Illustrator 9.0 files, save it as a version 8.0 file.

You can also import EPS files as brush strokes. For more information, see "Creating Custom Brushes" in the Help.**To import an EPS file:**

1. With the position indicator over a clip in the timeline, switch to the Graphics layout.
2. From the Tools toolbar, click **Import > EPS File**.

   The Open dialog box opens.
3. Select an EPS file and click the **Open** button.

   The EPS file is imported into your graphics session.

Creating Linked Clips

By creating links to media files that are not stored on your disk array, you can work with media files without having to capture them to your disk. These files, called *linked clips*, can reside on a local disk or anywhere on the network until you're ready to output your sequence.Some projects may require you to work with images at varying resolutions (sizes). When you capture these files, you must convert the material to the working resolution of the current sequence. By linking to the material instead, you can keep the material at its original resolution regardless of the sequence's frame size. Once you've completed your edits, you can process the linked material, which creates a cache file of the image area that is visible in the viewer.

Linking clips can also be useful when more than one person needs access to the same file. You can capture the file as a linked clip, drop it into your sequence, and continue to use it as a reference while another person continues to work on the source media file. Changes made to the original file automatically appear in the linked clip, both in the Avid Explorer and on the timeline.

If another person tries to modify a file that's linked to a clip in an open project, they will not be able to save that file due to a sharing violation. You must close the project that contains the linked clip for them to be able to save the original file.

Once you're ready to output the sequence, you can either capture the source file or simply process the clip on the timeline. If you process the material, a cache file is created. Once a cache is created, Avid DS Nitris no longer refers to the source media file, but uses this cache file during playback. Any further changes to the source file do not appear in the linked clip on the timeline. Like any other cache however, the cache for the linked clip can be purged, which relinks the clip to the source file. For more information, see "Purging Caches" in the Help.

Linked clips appear in the Avid Explorer as regular clips, but their file type icons are underlined in red, indicating that no actual media has been captured. Some linked clips do not require processing and can be played back in real time (such as .gen, .omfi, .mxf, .dpx, or .cin files).

If the “Media Not Found” message appears in the viewer when using linked clips, it’s possible that Avid DS Nitris has lost the connection to the linked file. All you have to do is re-establish the link. For more information, see “Relinking a Clip” on page 483.**To create a linked clip:**

1. In the Avid Explorer, open a bin and select the file (s) that you want to capture as linked clips. To select a series of files, click the first file, hold down the Shift key, and click the last file. To select multiple files, hold down the Ctrl key and click each file name.

If you select a sequential list of still files of the same type (such as all .jpg or all .bmp), you are given the choice of combining the files into one master clip or capturing individual clips.

2. Right-click a file and select **Capture Settings**.

   The Capture Settings dialog box opens.

3. Select the settings that apply to the files that you want to capture—see “Capturing Material from File” on page 471.

Since linked files are brought into Avid DS Nitris at their original resolutions, there is no need to convert them to the current sequence’s resolution. As a result, the Media Conversion modes are not applicable when the Link option is selected.

4. Close the Capture Settings dialog box.
5. Right-click the selected files and select **Link**.

   As the material is linked, clips appear in the selected bin. The clip icons are underlined in red to indicate that no media has actually been captured.

Relinking a Clip

If you move the media of a linked clip to a new location, you need to re-establish the link. Avid DS Nitris lets you relink more than one clip at a time.

To relink a clip through the Media Properties dialog box:

1. Right-click the linked clip in a bin and select **Properties**.

   The Clip Properties dialog box opens.

2. Select the **File Info** tab.

   In the Status text box, the following message is displayed: “File is missing from expected location”.

3. Click the **Relink File** button.
4. In the Relink File dialog box, navigate to the new location of the media file, select it, and click **OK**.
5. Close the Clip Properties dialog box by clicking **OK**.

   The link is re-established.

If you go back into the Clip Properties dialog box, you will see that the status of the linked file has changed to “File is Present.”

To relink one or more clips through the Avid Explorer:

1. Right-click one or more linked clips and select **Relink**.

   Avid DS Nitris tries to relink by using the most recent path used in a relink operation. If the media file is not found in that path, the Relink dialog box is displayed.

   If you want to force the Relink dialog box to be displayed, hold down the Control key while you select **Relink**.

2. In the Relink dialog box, navigate to the location of the media file, select it, and click **OK**.

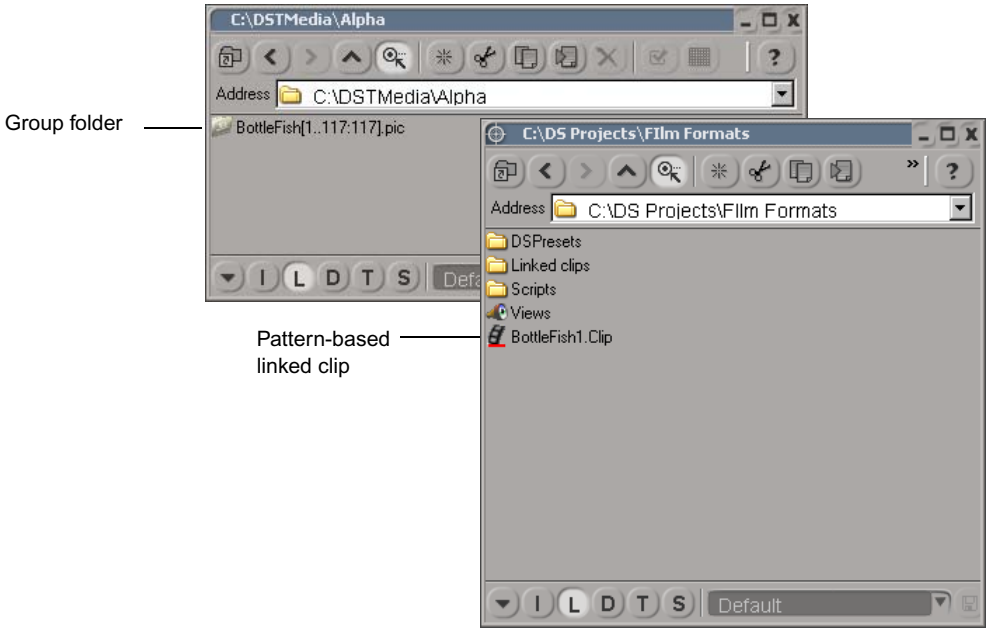
   The link is re-established. If multiple clips are linked to media files in the same folder, all links are re-established.

Linking to a Sequence of Files

You can create a linked clip that represents a sequence of files based on the contents of a Group folder (see "Avid DS Nitris Group Folders" in the Help). For example, a Group folder that contains 117 files, named BottleFish1.pic through BottleFish117.pic, is labeled:

```
BottleFish[1..117:117].pic
```

The clip linked to this folder is named BottleFish1.Clip.



This pattern-based linked clip is especially efficient when working with digital intermediate files (DPX) or other groups of sequential files (such as those created by Softimage® XSI®).

Advantages to using a pattern-based linked clip are:

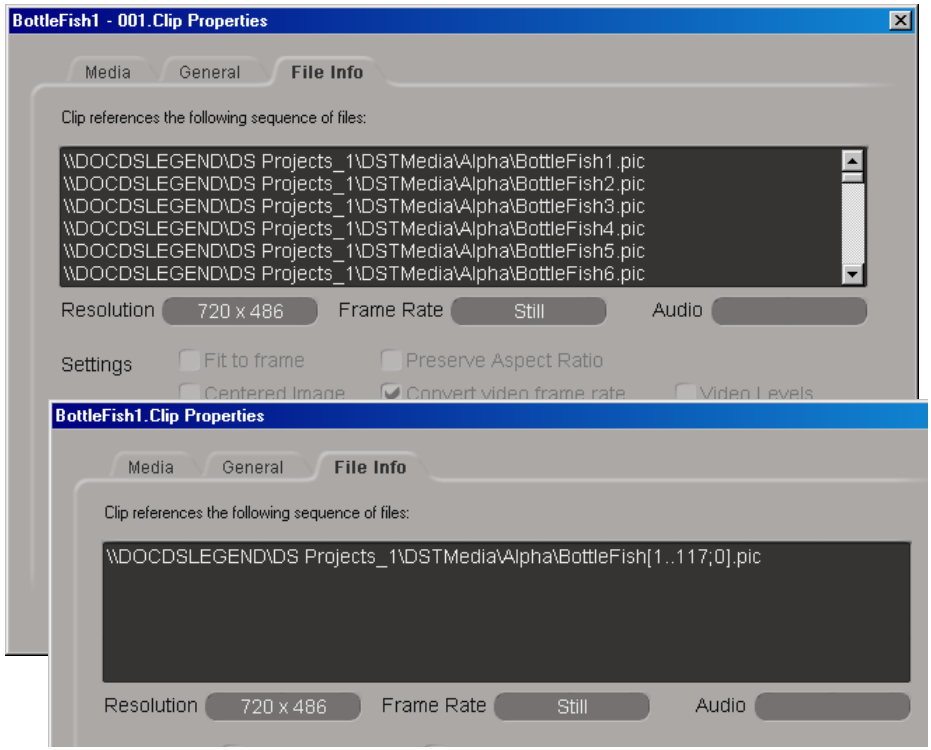
- Improved memory usage: A pattern-based linked clip uses much less memory than a list-based linked clip. This is especially important for scanned film files, for which a sequence of 16,000 files is not unusual.

- Creation of a complete master clip with an incomplete Group folder: A pattern-based linked clip can represent thousands of files without the need to have those files in a local directory.To create a linked clip you need only the first and last files in a series. This feature lets you create a master clip in advance of receiving all files. For example, if a 3D scene is being rendered overnight, you can create a master clip based on preliminary first and last files and begin to work with the clip immediately, while the rendered files are added to the folder.

You can also link directly to a series of files, as described in “Creating Linked Clips” on page 481, but this list-based linked clip does not provide the advantages of a pattern-based linked clip. You can see the difference between the two types of linked clips on the File Info tab of the clip’s property page.

Properties of a list-based linked clip

Properties of a pattern-based linked clip



To create a pattern-based linked clip:

1. In the Avid Explorer, navigate to an Avid DS Nitris group folder.
2. Right-click the Group folder and select **Capture Settings**.
3. Select the settings that apply to the files that you want to capture. For information about capture settings, click the Help button.
4. Close the Capture Settings dialog box.
5. Right-click the Group folder and select **Link**.

   The clip appears in the selected bin. The clip icon is underlined in red to indicate that no media has actually been captured.

Batch Capturing

In an offline/online workflow, you first create an offline sequence by using logged clips or compressed media. To create the final, online sequence, you need to capture media for the logged clips or recapture compressed media in uncompressed format. You can efficiently capture a group of clips from the Avid Explorer or timeline in one pass. This is called *batch capturing*.

You cannot recapture from the timeline clips that were captured at one frame rate and then converted to a different frame rate. You can recapture the original clips from a bin, or recapture the clips from a sequence that matches the original frame rate.

Recapturing at a Different Quality

If you have already captured clips with media, you can recapture media at a different quality. You can initially capture clips at a lower quality to save disk space and increase processing time, and then recapture at a higher quality for the final output. You can also recapture media for clips that have been partially or completely purged.

If you recapture media at a different quality, Avid DS Nitris lets you keep the original media. In this case, the master clip represents two (or more) media files of different qualities.

*To see if a clip has more than one capture quality, right-click the clip in a bin and select **Properties**. In the property dialog box, select the **Media** property page.*

When you place the clip in a sequence, Avid DS Nitris automatically uses the media which has the same resolution as the sequence.You can set a preference to display media that doesn't exactly match the sequence settings. For more information, see "Understanding Video Quality Matching" in the Help.

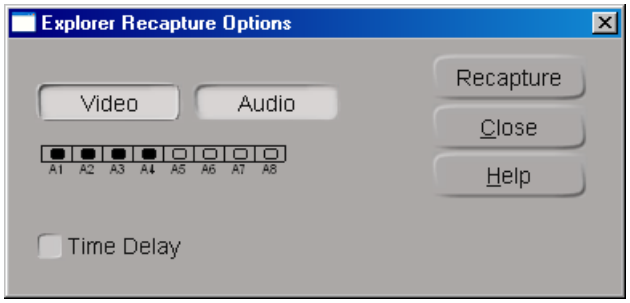
You can purge the original media at any time. For more information, see "Purging Media" on page 1087.

Capturing Clips from the Avid Explorer

When you log material, empty master clips (without media) are created in a bin in the Avid Explorer. You can then capture source material from tape or file. The master clips hold information about the in and out-points of material from tape or about the location of an original file.*Avid DS Nitris stops the deck, rewinds and then prerolls before capturing material. If, however, it detects two or more clips on the same tape and they are separated by less than 5 seconds, it will skip the preroll and capture both pieces of media in one pass. This feature, known as* streaming capture*, can reduce the time to recapture media especially if your clips are lined up one right after the other on a single tape.*

To capture clips from Avid Explorer:

1. (Optional) If you want to view a list of clips to be captured, set a user preference—see "Creating a Batch Capture List" on page 494.
2. From the NLE Tools toolbar, click **Media IO > Deck Configuration**. Check the settings and activate the deck preset for the connected deck—see "Configuring the External Device" on page 440.
3. In a bin, select the master clips that you want to recapture.
4. (Optional) To delete media associated with the clips, right-click the selected clips and select **Purge Media**—see "Purging Media" in the Help.
5. Right-click the selected clips and select **Capture Settings** to specify the video quality and audio quality settings—see "Specifying the Capture Quality" on page 449.
6. Right-click the selected clips and select one of the following:
   - **Recapture with Options** to open a dialog box that lets you select the video and audio tracks you want to recapture.You can choose not to recapture tracks that you originally captured, but you cannot capture new tracks. For example, if you created a clip by capturing video only, you cannot recapture the clip with video and audio.
   - **Recapture** to begin the recapture process, using the settings specified in the Recapture with Options dialog box.
7. If you selected Recapture with Options, the Explorer Recapture Options dialog box opens.



a. Click the **Video** button to recapture the video portion of your media.

b. Click the **Audio** button to recapture the audio portion of your media.

c. Click the audio tracks (A1, A2, and so on) that you want to recapture.

   By default, all audio channels are active. The actual number of available channels depends on the installed audio hardware and the selected audio format, as configured in the Capture Tool or Deck Configuration. Configured channels are indicated by a filled-in square.

d. If you want the capture to begin immediately, leave the **Time Delay** option deselected. If you want to capture certain files at a specific time in the future, select the **Time Delay** option.

   For more information about options in the Explorer Recapture Options dialog box, click the **Help** button.

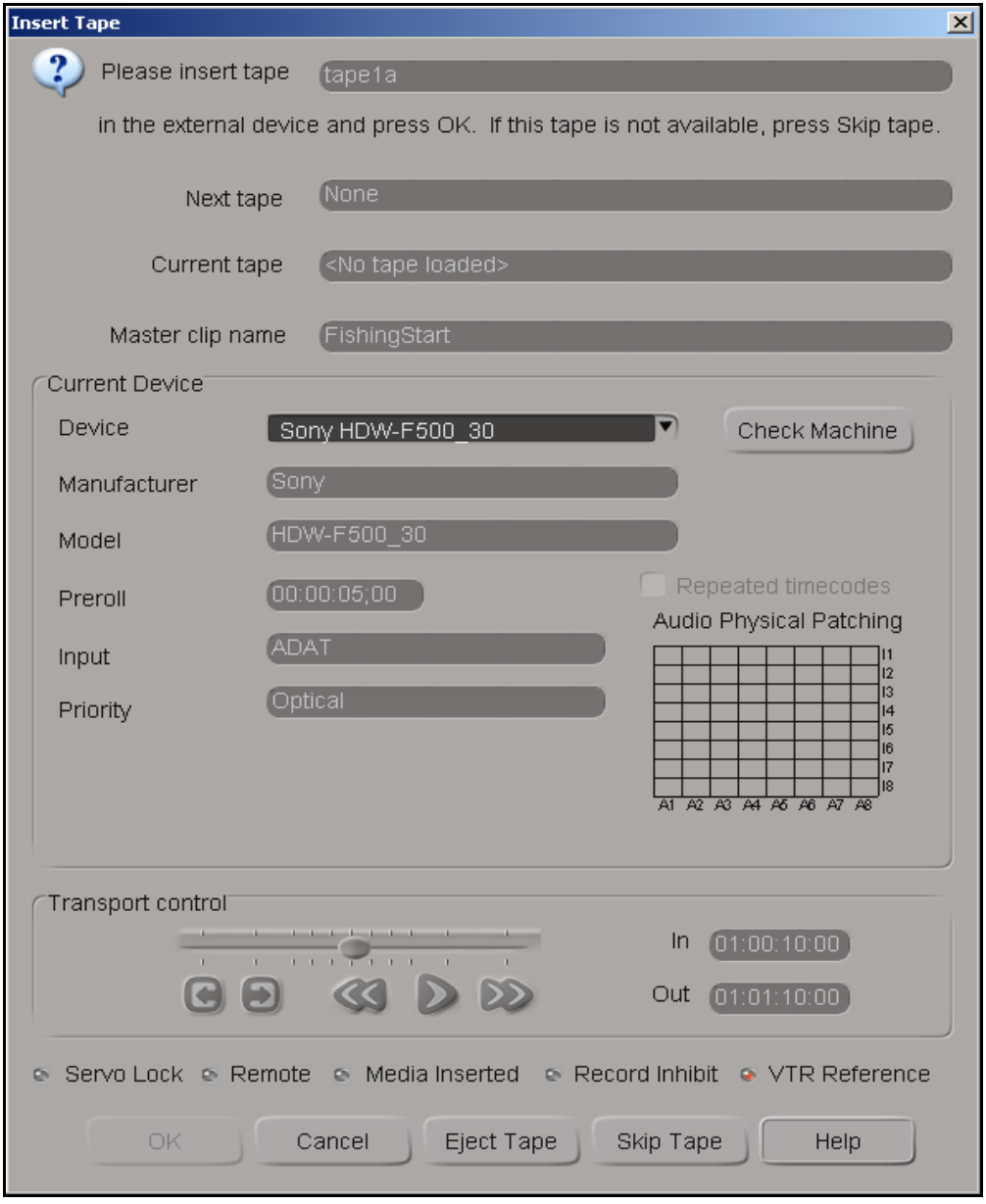
e. Click the **Recapture** button.

8. If you selected the Display Capture List option, the Batch Capture list is displayed. If you are satisfied with the list, click **OK**.

   If you're capturing from a tape that is currently in the VTR, then capture starts automatically. As the clips are captured, the progress bar updates.

If Avid DS Nitris is unable to capture the material on the first attempt, it will try again. If it fails again, Avid DS Nitris will attempt the capture a third time with an additional preroll of five seconds. If the capture fails again, the error is displayed in the Capture Error Log, with the possible cause of the problem.

If you encounter problems recapturing material from tape, you should deactivate the viewer using the Viewer button in the status bar and try capturing again. When recapturing full resolution HD material at 29.97 and 30 frames per second, the viewer is automatically deactivated.



If the tape is not in the VTR, the Insert Tape dialog box opens.

For information about options in the Insert Tape dialog box, click the **Help** button.

a. Insert the specified tape. Click the **Skip Tape** button to bypass capturing all the clips with this tape's source name.

b. (Optional) Change the external device by selecting a deck preset from the device list.

   To create a deck preset, see “Configuring the External Device” on page 440.

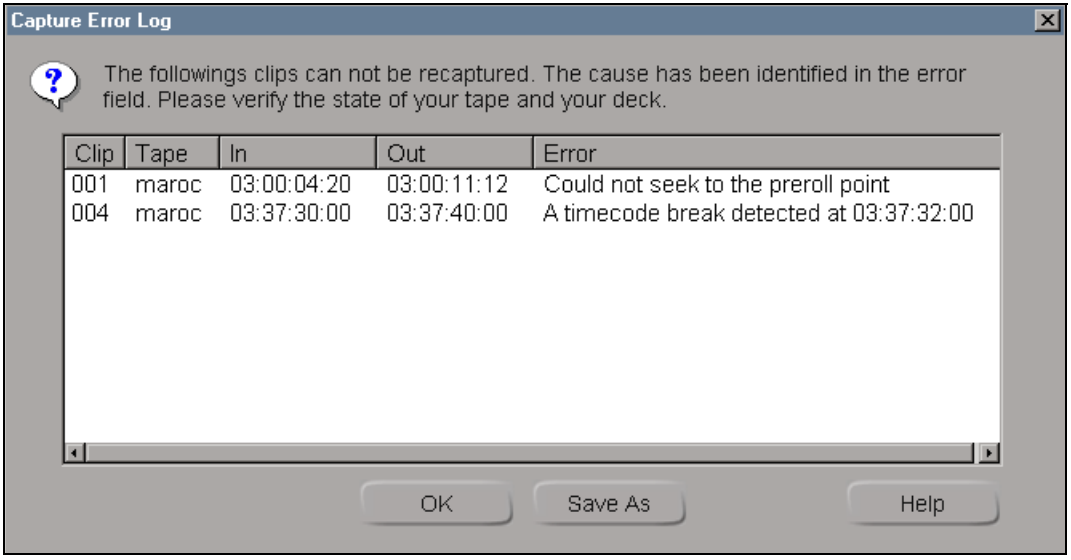
c. Use the transport controls in the dialog box to cue the tape, if necessary. For example, in the case of repeated timecode, cue the tape so that the recapture starts at the correct position.

d. Click **OK**.

   The capture begins.

   If you selected the Time Delay option, the Start Capture At dialog box opens. Enter the date and time at which you want the capture to begin and click **OK**. The progress bar appears with the current date and time, as well as the capture start date and time you specified.

9. If any problems are detected during recapture, the Capture Error Log dialog box is displayed.



   The Capture Error Log dialog box lists all the clips, including tape source name, in, and out-points, that could not be recaptured. It also gives you a brief description of the type of error that occurred.

10. To save this log as an .html file, click the **Save As** button.

11. In the Save As dialog box, navigate to an appropriate folder, enter a name for the log, and click the **Save** button.

    The log is saved as an .html file and can be viewed in any Web browser.

Capturing Clips from the Timeline

When you log clips from a tape or file, or conform using an ALE file, AAF file, OMF file, ALE file, or EDL, master clips without media are created in a bin, in the timeline, or in both. You can edit these clips into the timeline, and edit their in and out-points before capturing the media.You can also capture media from clips on the timeline when the clips have media and you want to use a different audio or video quality.

When you capture clips from the timeline, the new clips retain the audio and video tracks used in the original clip.

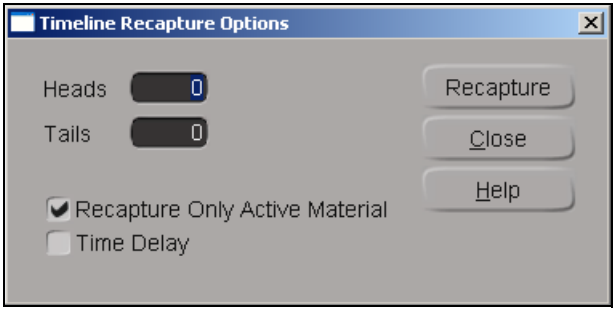
When you capture from the timeline, all the frames in a clip are recaptured unless otherwise specified.

*Avid DS Nitris stops the deck, rewinds and then prerolls before capturing material. If, however, it detects two or more clips on the same tape and they are separated by less than 5 seconds, it will skip the preroll and capture both pieces of media in one pass. This feature, known as streaming capture, can reduce the time to recapture media especially if your clips are lined up one right after the other on a single tape.***To recapture clips from the timeline:**

1. (Optional) To view a list of clips to be captured, you need to set a user preference—see "Creating a Batch Capture List" on page 494.
2. From the NLE Tools toolbar, click **Media IO > Deck Configuration**. Check the settings and activate the deck preset for the connected deck—see "Configuring the External Device" on page 440.
3. Click **Media IO > Capture Settings** and specify the video quality and audio quality settings—see "Specifying the Capture Quality" on page 449.
4. (Optional) To delete media associated with the sequence, select **Data Management > Purge Media**—see "Purging Media" in the Help.
5. If you do not want to recapture the entire sequence, select the tracks, clips, or time span that you want to recapture.
6. From the NLE Tools toolbar, click the **Media IO** button and select one of the following:

- **Recapture Entire Timeline with Options** to open a dialog box that lets you change the heads and tails of the clip (handles) and set other options.
- **Recapture Entire Timeline** to begin the recapture process, using the settings specified in the Recapture Entire Timeline with Options dialog box.
- **Recapture Selection with Options** to open a dialog box that lets you set options.
- **Recapture Selection** to begin the recapture process, using the settings specified in the Recapture Selection with Options dialog box.

7. If your selection lets you set options, Timeline Recapture Options dialog box opens.



   a. To record additional material before the in-point and after the out-point, enter the appropriate number of frames in the **Heads** and **Tails** text boxes.

You can only add heads and tails to the clip on the timeline up to the length of the original master clip. You cannot extend the clip beyond what was originally captured.

   b. To capture only the active frames of clips on the timeline, select the **Recapture Only Active Material** option.

When you select this option, clips with time effects (Timewarp, Interlace, Deinterlace, 3:2 Expand, or 3:2 Contract) are recaptured in their entirety regardless of the active areas. For all other types of container clips, only the active portions of the container clips are recaptured.

c. If you want the capture to begin immediately, leave the **Time Delay** option deselected. If you want to capture certain files at a specific time in the future, select the **Time Delay** option.

   For more information about options in the Explorer Recapture Options dialog box, click the **Help** button.

d. Click the **Recapture** button.

8. If you selected the Display Capture List option, the Batch Capture list is displayed. If you are satisfied with the list, click **OK**.

   If you're capturing from a tape that is currently in the VTR, then capture starts automatically. As the clips are captured, the progress bar updates.

If Avid DS Nitris is unable to capture the material on the first attempt, it tries again. If it fails again, Avid DS Nitris will attempt the capture a third time with an additional preroll of five seconds. If the capture fails again, the error is displayed in the Capture Error Log, with the possible cause of the problem.

If you encounter problems recapturing material from tape, you should deactivate the viewer using the Viewer button in the status bar and try capturing again. When recapturing full resolution HD material at 29.97 and 30 frames per second, the viewer is automatically deactivated.

9. If the tape is not in the VTR, the Insert Tape dialog box opens.

   a. Insert the specified tape. Click the **Skip Tape** button to bypass capturing all the clips with this tape's source name.

   b. (Optional) Change the external device by selecting a deck preset from the device list. To create a deck preset, see "Configuring the External Device" on page 440.

   c. Use the transport controls in the dialog box to cue the tape, if necessary. For example, in the case of repeated timecode, cue the tape so that the recapture starts at the correct position.

   d. Click **OK**.

      The capture begins.

      If you selected the Time Delay option, the Start Capture At dialog box opens. Enter the date and time at which you want the capture to begin and click OK. The progress bar appears with the current date and time, as well as the capture start date and time you specified.

For information about options in the Insert Tape dialog box, click the **Help** button.

10. If any problems are detected during recapture, the Capture Error Log is displayed.

    The Capture Error Log dialog box lists all the clips, including tape source name, in, and out-points, that could not be recaptured. It also gives you a brief description of the type of error that occurred.

    a. To save this log as an .html file, click the **Save As** button.

    b. In the Save As dialog box, navigate to an appropriate folder, enter a name for the log, and click the **Save** button.

    The log is saved as an .html file and can be viewed in any Web browser.

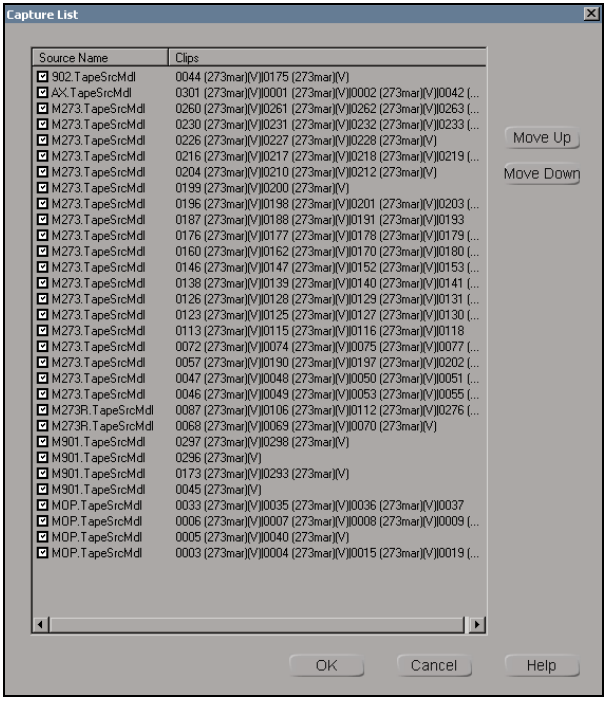
Creating a Batch Capture List

When you have many clips to recapture, you might want to generate a list to review what you're recapturing. The capture list in Avid DS Nitris not only lets you review what you're capturing, but also lets you prioritize items, as well as remove items from the list.

To create a batch capture list:

1. Select **File > User Preferences**.
2. Select the **Capture** tab.
3. Select **Display recapture list**.
4. Follow the recapture process described in "Capturing Clips from the Avid Explorer" on page 487 or "Capturing Clips from the Timeline" on page 490. Before the recapture process begins, the Capture List dialog box opens.

Clips with check marks beside them are part of the list and will be recaptured



5. Double-click an entry in the list to remove it from the list of clips to be recaptured. Double-click it again to add it back to the list.
6. Use the **Move Up** and **Move Down** buttons to prioritize the capture list. Clips at the top of the list are captured first.
7. Click the **Source Name** or **Clips** column heading to sort the list according to the source name or the clip name.
8. Click **OK** to begin capturing.

   If you are capturing from a tape that is currently in the VTR, then capture starts automatically. As the clips are captured, the progress bar updates.

   If the tape is not in the VTR, the Insert Tape dialog box opens. For more information, see “Capturing Clips from the Avid Explorer” on page 487 or “Capturing Clips from the Timeline” on page 490.

Batch Capturing Without Interaction

You can set your user preferences so that a batch capture proceeds without your needing to interact with the application for each tape.

To perform a batch capture without interacting with the application:

1. Select **File > User Preferences** and select the Capture tab.
2. Select the following options:
   - Eject the tape after digitize
   - No interaction when inserting new tape
   - Display recapture list.
3. Click **OK**.
4. When you are ready to start the batch capture, follow the recapture process described in "Capturing Clips from the Avid Explorer" on page 487 or "Capturing Clips from the Timeline" on page 490. Before the recapture process begins, the Capture List dialog box opens.
5. Note the order of the recapture, and arrange the physical tapes in the same order.
6. Click **OK** to begin recapturing.

   The Insert Tape dialog box opens and asks for the first tape.
7. Insert the first tape in the capture list.

   When all clips have been recaptured from the tape, the deck ejects it.
8. Insert the next tape.

Avid DS Nitris cannot distinguish between tapes so make sure you insert them in the same order that is used in the capture list.

Using Scripts to Capture Media

Avid DS Nitris lets you create scripts to automate the capture process. Instead of defining the capture properties each time you capture media, you can do it once, create a script based on what you did, and then run that script the next time you capture. Creating a script can be as simple as copying the contents of the History pane to the Editing pane of the Script Editor and then saving it.

You can use scripts to capture media from file only.

A script is a set of commands that can be executed in sequence as if they were a single command. Simple scripts are a set of native Avid DS Nitris commands. More advanced scripts use a third-party scripting language as the glue that holds the commands together. With a scripting language, your scripts can use variables, constants, conditional statements, loops, and procedures. You can change the default scripting language in the User Preferences dialog box (Scripting/Logging property page). For more information, see "Choosing a Scripting Language" in the Help.

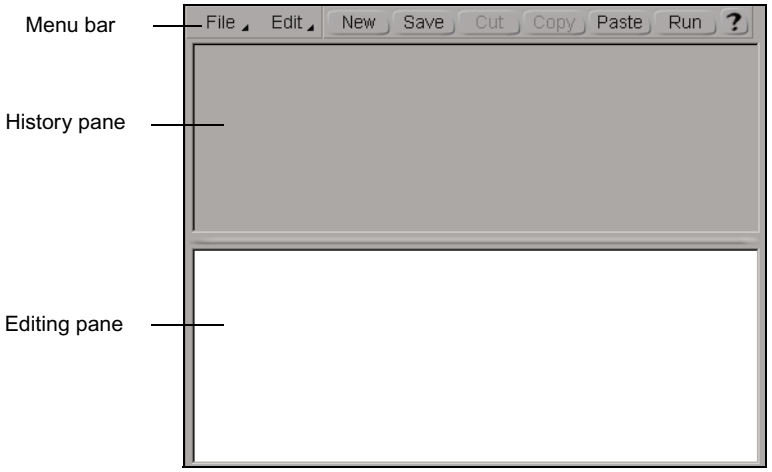
***Tip**: When using a script to capture media, make sure that the Start Capture command appears only once at the end of your script. If your script contains more than one Start Capture command, it will not work.*

Creating a Script for Capturing Media

To create a script for capturing media:

1. Select **View > Single-Instance Views > Script Editor**.

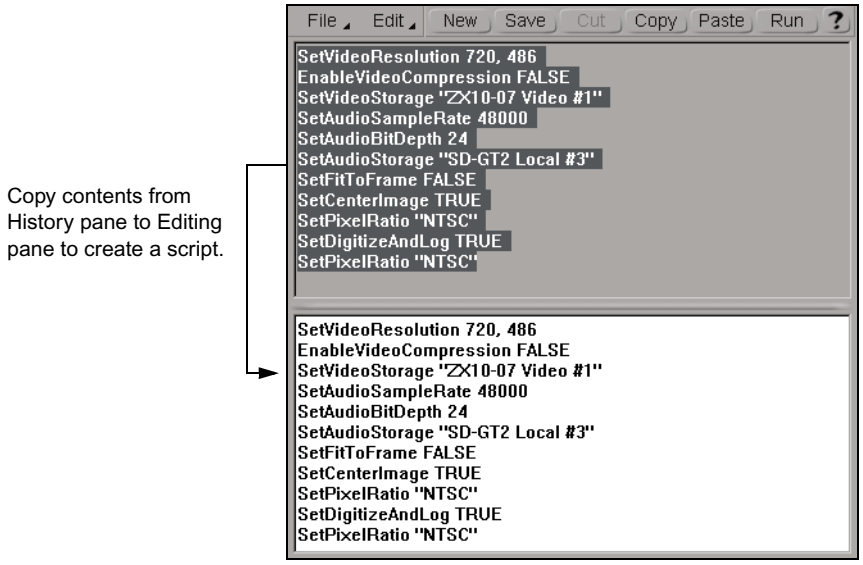
   The Script Editor view opens.



2. Select **View > Multi-Instance Views > Capture Settings**.
3. Configure the video and audio input.

   Each command that you set is logged in the History pane of the Script Editor.
4. In the Avid Explorer, select a file, right-click, and select **Capture**, **Log**, or **Link**.
5. Once the capture is complete, select the contents of the History pane in the Script Editor.
6. From the menu bar, click **Copy** or press Ctrl+C.
7. Click in the Editing pane and then click **Paste** or press Ctrl+V.

   The contents of the History pane are displayed in the Editing pane.



Copy contents from History pane to Editing pane to create a script.

8. Click the **Save** button.

   The Save As dialog box opens.

9. Type a name for your script in the File name text box and click the **Save** button.

   By default, all scripts are saved in the DSScripts folder.

Running a Script for Capturing Media

To run a script for capturing media:

1. From the Script Editor, select **File > Open**.

   The Open dialog box opens.

2. Browse through the folders to locate the script you want to run. Select the file and click the **Open** button.

   The contents of the script appear in the Editing pane of the Script Editor.

3. If you want to make changes to the script, you can modify the contents of the script by cutting, copying, or typing directly into the Editing pane.

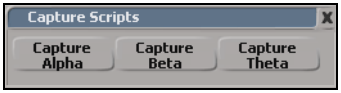
4. Click the **Run** button.

   The script runs through each line and performs the associated commands.

Once a script is running, the only way to terminate it is to exit Avid DS Nitris. Never test your script by running it on valuable unsaved data.

To create a toolbar button for a script file:

1. Create a media input script and save it in the **\DSScripts** folder.
2. In the Avid Explorer, open the **\DSScripts** folder.
3. Select the script file you created, hold down the Ctrl key, and drag the file to a toolbar.



The Add Script Command dialog box opens.

You can also create a toolbar button from one or more lines in the History or Editing pane of the Script Editor. Select the contents of the script and then drag them onto a toolbar. A toolbar button is created with the name Scriptnumber.

4. In the Command Name text box, enter a name for the toolbar button.

   By default, the Command Name is the name of the saved script file.
5. Specify a Command Name for Scripting. This is the name that is logged to the command history when you click the toolbar button. You can also use this name to invoke this script from within another script. The command name for scripting cannot use spaces or punctuation.
6. If necessary, select the scripting language from the Language list. The list contains the supported languages that are installed on your computer.

   If you dragged lines from the Script Editor onto the toolbar, then the default language is the one specified in your preferences—see "Scripting/Logging Property Page" in the Help.

   If you dragged a saved file, the default language is based on the file name extension:

Scripting language	File extension
JScript	.js

Scripting language	File extension
PerlScript	.pls
Python Active X Scripting Engine	.pys
VB Script Language	.vbs

7. Do one of the following:
   - If your script does not contain any procedures, there is nothing more to do. Click **OK** to close the Add Script Command dialog box and add the button to your toolbar.
   - If your script does contain procedures, continue with the following:
8. Click the **Parse Script** button.

   The script is parsed and the procedures and arguments are “found”.

Parsing a script may execute global code, that is, any code that is not within a defined procedure. In such cases, it will also run procedures that are called from global code.

9. If your script contains procedures, you can specify which one to execute when the button is clicked. Select a procedure from the Script Procedure box. If you do not specify a procedure, only global code will be executed, as well as any procedures that are called from global code.

Even when a procedure is specified, global code may be executed before the procedure is called. This is a side-effect of parsing the script with some scripting engines. To be certain that your script behaves predictably in all situations, do not mix global code and procedures.

10. If the selected procedure contains arguments, they are listed under Parameters. For each argument, specify the value to use when the script is run by doing one of the following:
    - Enter a value in the corresponding Value box. This value will be used whenever you click the button to run the script.
    - Click twice in the Value box, and select Prompt On Run from the list. With this option, when you click the button to run the script, a dialog box prompts you to enter a value.
11. Click **OK**.

The Add Script Command dialog box closes and the new button is added to the toolbar.

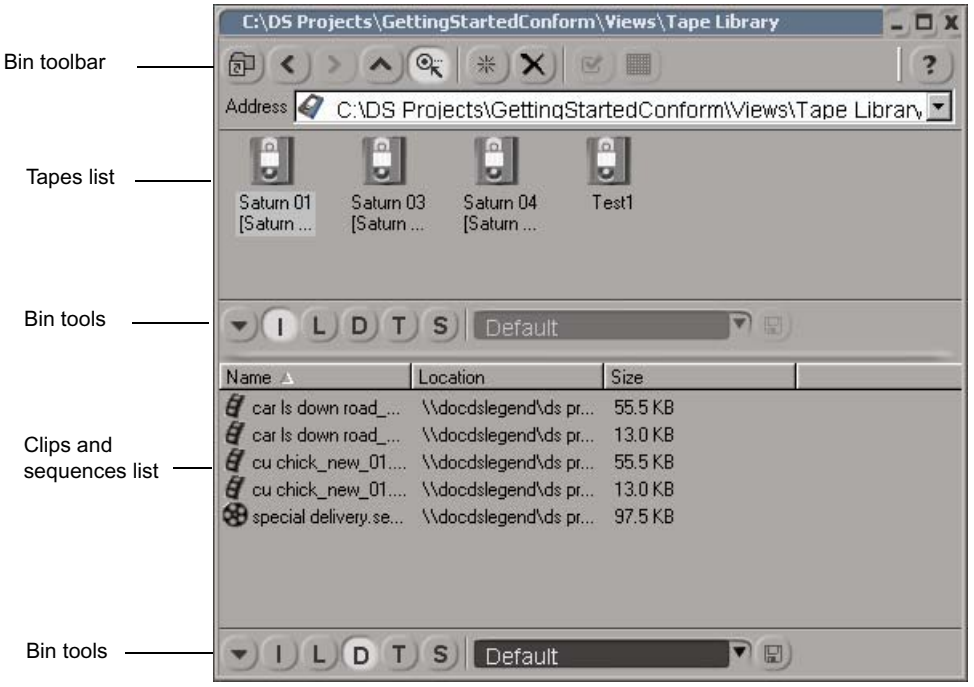
If you want to go back and edit the script, right-click on the toolbar button and select Edit Script. A dialog box opens and you are prompted to save your script. Click No. The contents of your script are displayed in the Editing pane of the Script Editor and are ready for editing.

Managing Tapes

The Tape Library view lets you add tapes to a project and manage the tapes associated with a project.

To access the Tape Library view:

- In an Avid Explorer panel, open the Views folder and click **Tape Library**.



To view the clips and sequences associated with a tape:

- Select one or more tapes.

The Tape Library view consists of two sections. The top section lists the tapes in your project, and the bottom section lists the master clips and sequences that are associated with one or more selected tapes.

If you import clips or sequences from another project, the associated tape is added to the Tape Library. The name of the original project appears in parentheses.

You can perform the following tasks in the Tape Library:

- Use Bin tools to change how tapes or clips and sequences are displayed.
- Double-click a clip or sequence to display it in the Source viewer.
- Right-click on a tape, clip, or sequence to perform tasks such as renaming, purging, and deleting.

Adding a New Tape

You can use the Tape Library view to add a new tape.

To add a new tape:

1. Do one of the following:
   - In the bin tools section of the Tapes list, click the **Fast Menu** button and select **Add New Tape**.
   - In the bin toolbar, click the **New** button.

   The Add New Tape dialog box opens.

*You can also add a new tape by clicking the **New Tape** button in the Capture Tool.*

2. Enter a name for the tape.

   A tape name must be less than 64 characters and cannot contain the following characters: / \ : ; * ? “ < > | . ^ #

3. (Optional) Enter a comment.

   To display a comment, select the **Details** or **Script** view.

4. If the tape from which you are capturing material contains timecode that appears more than once, select the **Manual Reel** option.

   This option deactivates the streaming capture functionality, and allows you to manually cue the tape to the appropriate timecode. You can use this option for any type of problem that requires user interaction, such as short timecode breaks or other problem sections in a tape. You can also select or deselect this option by right-clicking a tape icon.

If you have flagged a tape with the Manual Reel option during capture, don't deactivate it during recapture because it may cause recapture errors.

5. Click **OK**.

   The new tape appears in the top section of the Tape Library view.

Renaming a Tape and Changing the Comment

After adding a tape to a project, you can rename it or change the comment.

If you rename a tape that is shared between projects, the name is changed only in the current project.

To rename a tape:

1. Right-click a tape and select **Rename**.

   The Set Tape Name dialog box opens.

2. Enter a new name.

   A tape name must be less than 64 characters and cannot contain the following characters: / \ : ; * ? " < > | . ^ #

3. Click **OK**.

To change a comment:

1. Right-click the tape and select **Change Comment**.

   The Set Tape Comment dialog box opens.

2. Enter a new comment.
3. Click **OK**.

Purging Media from Tape

You can purge media associated with a selected tape or tapes. Purging media retains the master clips and sequences, so that you can later recapture the media.

To purge media from tape:

- Select a tape or tapes, right-click, and select **Purge**.

Recapturing from Tape

If you have purged media for a tape, you can use the Tape Library view to recapture all master clips associated with the tape.

To recapture all master clips associated with a tape:

- Select a tape or tapes, right-click, and select **Recapture**.

You can also recapture master clips from the Clips and Sequences List section of the Tape Library view. You cannot recapture sequences by selecting a tape. You must recapture from the bottom section of the Tape Library view, from a bin, or from the timeline. For more information, see "Batch Capturing" on page 486.

Deleting a Tape

You can delete one or more tapes from the Tape Library view.

Deleting a tape will delete all media, master clips, and sequences associated with that tape.

Master clips and sequences shared with other projects are preserved, but their media is deleted.

To delete a tape and its associated media, clips, and sequences:

1. Select one or more tapes, right-click, and select **Delete**.

   A dialog box displays the media, clips, and sequences to be deleted and asks for conformation.

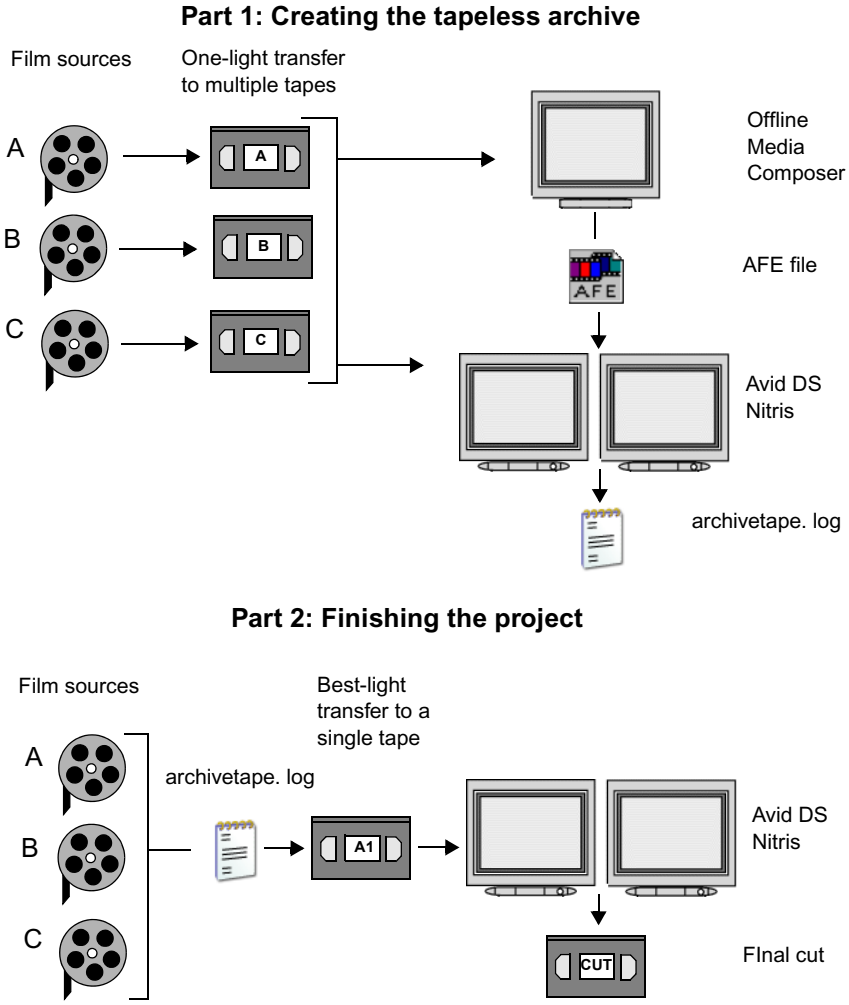
2. Click **OK**.

Using Tapeless Archive for Film Transfer

Film-originated television shows use the telecine transfer process as part of the production workflow. The Tapeless Archive feature uses Avid DS Nitris archiving technology to make the telecine transfer process faster and more cost-efficient. Current methods of creating the final, best-light transfer use either negative cutting or film-to-tape, tape-to-tape transfer, both of which are time-consuming and expensive.A workflow that uses Tapeless Archive relies on a log file for creating a new best-light transfer tape. Because this log file (a “pseudo-archive”) is created in the same way as a Avid DS Nitris archive, it allows for handles, duplicated use of shots, and efficiently combines neighboring shots into single events. A telecine operator then uses the log (a tab delimited text file) to create a final transfer tape. This tape is almost identical to the over-length neg cut roll that would have resulted from the traditional method. The resulting cost-savings is significant, especially for high-definition footage.

The final conform process on the Avid DS Nitris system is faster and more efficient because it can use streaming capture from a single tape, cutting HD VTR costs. In addition, the Avid DS Nitris editor does not need to modify the timecodes of the clips or edit the sequence for pulldown, as would be the case with the traditional methods.

The following illustration shows two parts of a Tapeless Archive workflow. This workflow is described in the subsequent procedures.



To enable the Tapeless Archive feature:

1. Right-click on a toolbar, such as the NLE Tools toolbar.
2. Select **Customize Toolbar**.

   The Customize Toolbar window is displayed.

3. Select Editing from the Command Categories list, select Tapeless Archive from the Available Commands list, and drag it to an empty area of the toolbar.

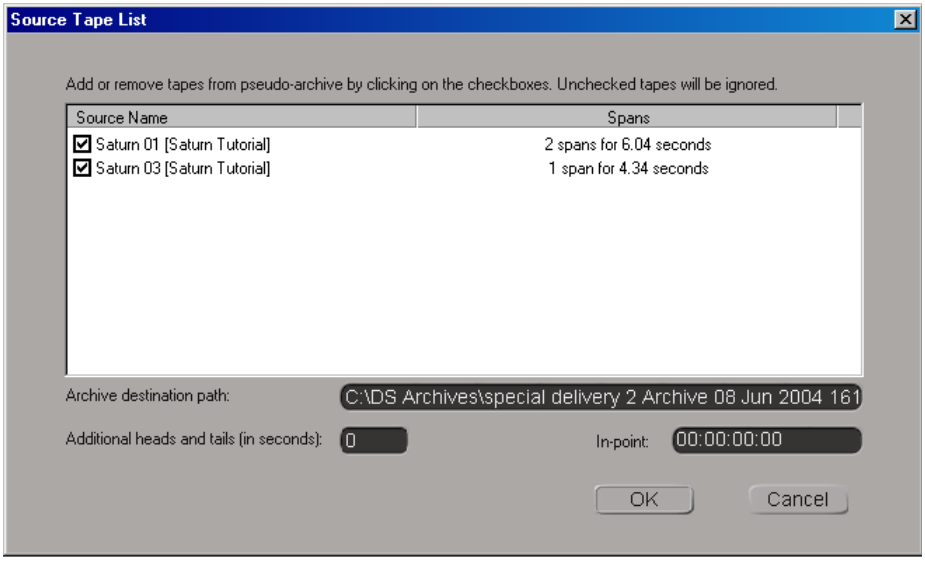
   A button labeled **Tapeless Archive** is added to the toolbar.

Alternatively, you can add the command to an existing button, such as the Editing button.

To use the Tapeless Archive for film transfer:

1. Transfer the film rushes onto beta SP tapes synced with audio as a low-cost, one-light transfer. Each rushes roll corresponds to a punched negative roll.
2. On an offline system, capture from the transfer tapes, edit the sequence, and export an AFE file. You can also output a digital cut to use for reference.
3. On the Avid DS Nitris system, import the AFE file. Batch capture the video and audio with the desired handles. Capture the digital cut for reference.
4. Edit the sequence. Do not finish all effects, because you will be recapturing the final media.

   Select the **Tapeless Archive** command. The Source Tape List dialog box appears.



5. Select the tapes you want to include, add heads or tails, and select the in-point to start the archive (in most cases 00:00:00:00).

   The archive list allows for duplicated use of shots and combines neighboring shots into single events, resulting an a list that minimizes the required footage.

6. Click OK.

   Avid DS Nitris creates the archive files.

7. Locate the archivetape.log file in the archive folder and send it to the telecine suite. Use a floppy drive or other removable media or the network to transfer the file.

8. The telecine operator opens the archivetape.log file in a spreadsheet program and uses the log to create a best-light transfer, in most cases to a single tape.

9. Restore the archived project, using the tape provided by the telecine operator—see "Restoring Projects" in the Help.

10. Complete the effects and titling to finish the show. Drag the clip handles to get more material if necessary.

11. Create the final master tape.

If, during finishing, you need to retransfer a particular clip (perhaps to get longer handles), you can determine the original film and tape roll numbers and timecode by right-clicking the clip and selecting **Properties**. Then have a telecine transfer done on this clip, and recapture the clip.

Chapter 2
Outputting Media

This chapter describes how to output your edited material to tape or file. It includes the following topics:

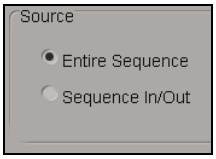
- Workflow: Outputting Media
- Preparing for Output
- Outputting Material

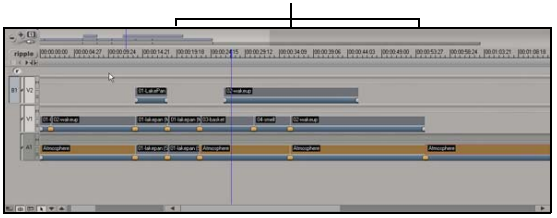
Workflow: Outputting Media

After you have constructed your sequence and processed any non-real-time effects, you can output it to tape, file, EDL or OMF file (audio only). The following illustration shows the steps for outputting your media.

1. Select the area to output.

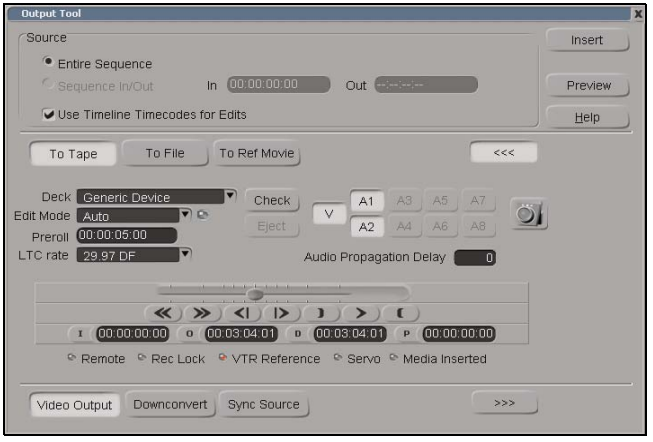
   Select the entire sequence. or Select a specific region.





2. Select the output destination, output tracks, and other output parameters.

   If you're outputting to tape, select the external device for recording.



3. Output media.

   Output the sequence to tape.

   or

   Export it as a media or reference file.

   or

   Export it as an EDL or OMF file (audio only).

Preparing for Output

Before you output your sequence, you need to process some effects and select the area to output. If you are outputting to tape, you need to specify other output settings as well.

When outputting media, Avid DS Nitris uses the video and audio quality settings that you specified in your sequence preferences. However, if you change these settings after capturing and processing media, you must recapture and reprocess the media before outputting. For more information, see "Working with Media of Different Qualities" in the Help.

If you are working in a sequence created in a custom format, you cannot capture from tape or output to tape. Avid DS Nitris hardware does not support custom formats.

Processing Effects

Before you output your sequence, make sure you process non-real-time effects and software real-time effects. This processing ensures that you get fluid output. For more information, see "Outputting Real-time Effects" in the Help.

During output to tape, the play button becomes red if any frames are skipped. The output stops and a message box appears, stating the possible cause of the problem.

If this problem continues to occur, try decreasing the throughput on the system by creating audio container clips for your audio material. For more information, see "Creating an Audio Container Clip" in the Help.

Selecting an Area to Output

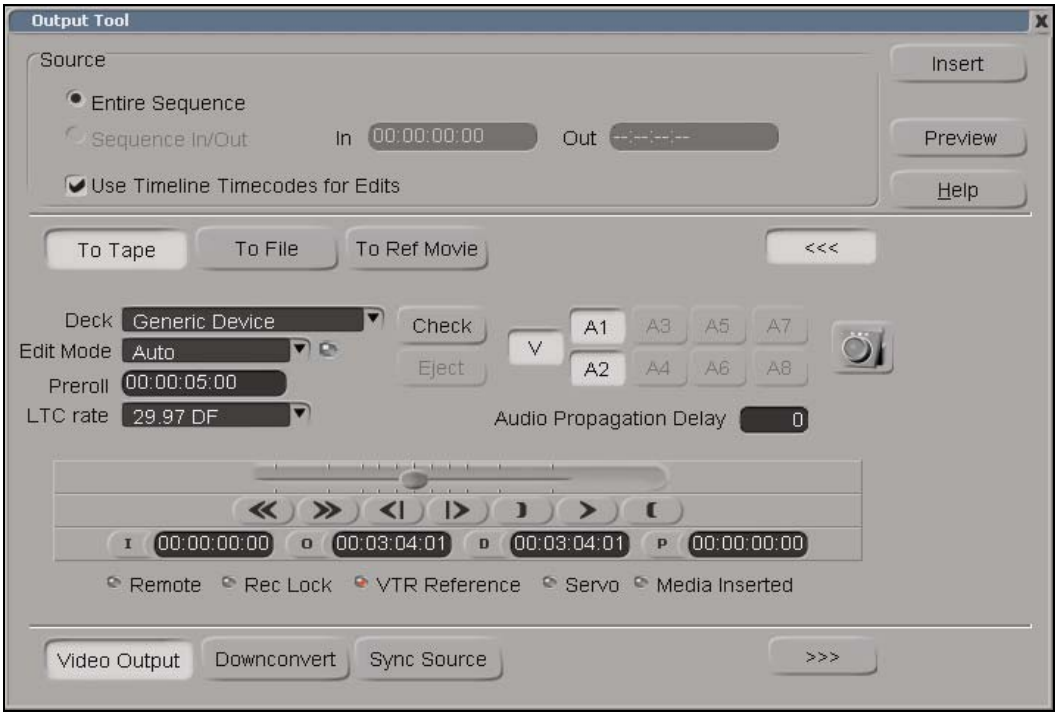
You don't have to output your entire sequence at once.You can select a specific region, or only the contents of a container clip.

You can also choose to output only video or audio tracks, or a combination of both.

To select the output area:

1. Do one of the following:
   - From the NLE Tools toolbar, click **Media IO > Output Tool**.
   - Select **View > Single-Instance Views > Output Tool**.

   The Output Tool opens.



2. In the Source box, select one of the following options:
   - **Entire Sequence** to output the entire timeline.

     If you're on the top timeline, the entire sequence is output. If you're within a container clip, only the clips on the container timeline are output.
   - **Sequence In/Out** to output a section of the sequence marked by an in-point and an out-point in the timeline.

     The timecodes of the in-point and out-point are displayed in the In and Out text boxes.

3. If you want to record to tape using the timecodes specified in the timeline (including in-point and out-points), click the **To Tape** button and select the **Use Timeline Timecodes for Edits** option.

   For example, if the first clip in your sequence begins at 01:00:30:00, and you want to begin recording at 01:00:30:00 on a tape, select **Entire Sequence** and **Use Timeline Timecodes for Edits**. If you want to perform an insert edit for a specific region of a sequence, mark the in-point and out-point, select **Sequence In/Out**, and select **Use Timeline Timecodes for Edits**.

Monitoring Audio Output

You can use the Audio Output Monitor to display level meters that give you a visual indication of the audio levels during playback and output.

The number of level meters in the Audio Output Monitor reflects the number of output channels specified by your Avid DS Nitris mixer configuration. For more iniformation, see "Understanding the Mixer" in the Help.

You can adjust how the meters are displayed through the User Preferences dialog box. For more information, click the **Help** button in the User Preferences dialog box.

To access the Audio Output Monitor:

- Select **View > Single-Instance Views > Audio Output Monitor**.

Configuring the External Device for Output

If you are outputting to tape, make sure that you have configured the external device.

It is especially important to check the Edit Mode selection. You can select one of the following:

- **Auto:** Select this option to record the sequence onto a prestriped tape (a tape with prerecorded control track and timecode) This option lets you add material to existing material on the tape. It also deactivates all channels during capture to prevent any interruption of signal between the deck and your system. The recording begins at the timecode that is set in

the I field of the Output Tool. If you want to insert material at a particular timecode on the tape (known as an *insert edit*), make sure the in-point of the sequence matches the in-point that you set in the Output tool.

- **Assemble:** Select this option to record the material onto a new tape (without control track or timecode) or completely record over all tracks of an existing tape. A blank tape must have enough stripe at the beginning to allow for preroll. The selected sequence is recorded from the in-point of the tape, which you must set in the Output Tool. If the Output Tool is set for Assemble mode, the Edit mode indicator flashes red to bring your attention to the selection.

Due to the nature of assemble mode editing, a small portion of the tape is erased beyond the end of your sequence, creating a series of garbage frames. To work around this inherent limitation, you can set an in-point at the beginning of your sequence, an out-point ten frames after the end of your sequence, and then output from in to out. This records a series of black frames between the end of your sequence and the garbage frames.

To configure and select an external device:

1. Connect the external device to your Avid DS Nitris system.
2. Do one of the following:
   - From the NLE Tools toolbar, click **Media IO > Deck Configuration**.
   - In an Avid Explorer panel, open the Views folder and click **Deck Configuration**.

   The Deck Configuration view opens.

You can also select the output device and set the Edit Mode in the Output Tool.

3. In the top section of the view, select the preset you want to use.

   To configure and create a preset, see "Configuring the External Device" on page 440.
4. Check the **Edit Mode** and **Edit Field** settings.

5. If you made any changes, right-click the preset and select **Save**.
6. Right-click the preset and select **Activate**.

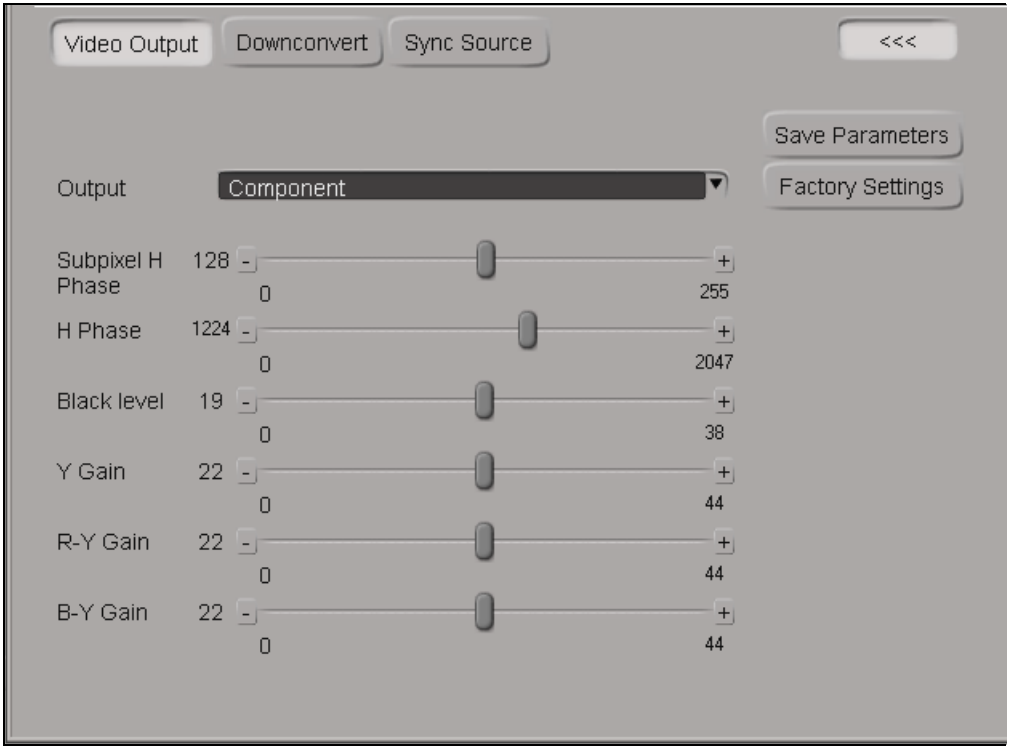
   For more information, click the **Help** button.

Calibrating Video Output

For systems with an Avid Nitris DNA, the Output Tool lets you calibrate output parameters for analog HD, component, composite, or S-Video signals. For Serial Digital, you can adjust only the H Phase and Subpixel H Phase.

To adjust video output parameters:

1. Connect a waveform monitor, vectorscope, or other equipment for calibrating output parameters, depending on your production environment.
2. In the Output Tool, click the **Video Output** button.
3. Select the output signal from the **Output** list.



4. For Analog HD, select the color space: YUV (video) or RGB (graphics).
5. Using color bars or a test pattern and calibration equipment, adjust video parameters by dragging the slider or by clicking the minus (-) or plus (+) button.
6. Click the **Save Parameters** button to save your settings.

   You can save one set of parameters for each type of video output.
7. Click the **Factory Settings** button to restore the default settings for all video outputs.

*For more information about video parameters, click the **Help** button.*

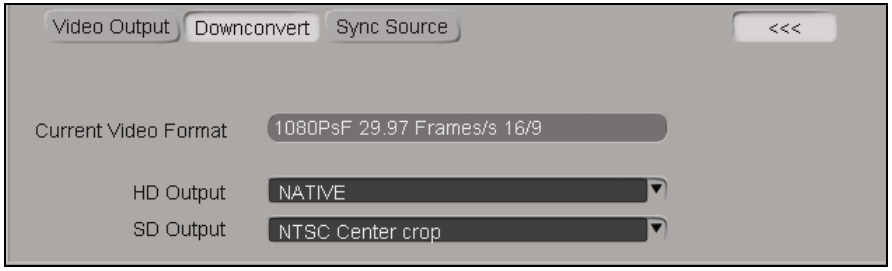
Specifying Downconvert Formats

On an Avid Nitris DNA workstation, the Output Tool lets you downconvert a film or high-definition (HD) sequence into one of several standard-definition (SD) or high-definition formats, depending on the original format of your sequence. For example, if you are working with a 1080PsF 23.97 sequence, you can output the sequence as NTSC Letterbox, NTSC Center crop, or NTSC Anamorphic. In some cases, you can also convert to a different HD format.

If you select a downconvert format, you can output HD playback and SD downconvert simultaneously through the Avid Nitris DNA. As a result, you can monitor SD output or create an SD master at the same time you are outputting an HD master. However, the sequence timecode is not recorded with the downconverted output.

To specify downconverted formats:

1. In the Output Tool, click the **Downconvert** button.



2. Select the required output formats.

For HD Output, Native represents the current video format.

The options that are available depend on the current video format. For a list of the available formats, see “Downconverted Output Formats and Sync Sources” in the Help.

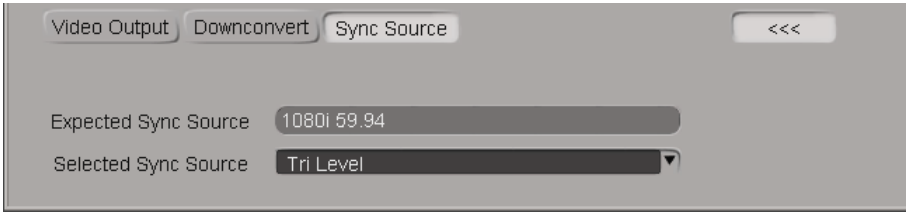
You can also specify the Downconvert format in the Sequence Preferences dialog box.

Specifying the Sync Source

For systems with an Avid Nitris DNA, the Output Tool lets you select the sync source for reference timing: either tri-level sync or black burst sync (NTSC or PAL).

HD formats whose frame rate aligns with 29.97 fps (NTSC) or 25 fps (PAL) can use either tri-level sync or black burst sync. If you are outputting one of these HD formats (such as 1080PsF 29.97 or 1080PsF 25), you can use either tri-level or black burst as the sync source.

For a list of sync options for each format, see “Downconverted Output Formats and Sync Sources” in the Help.



To specify the sync source:

1. In the Output Tool, click the **Sync Source** button.
   - For HD sequences, the Expected Sync Source field displays the format of the sequence or its interlaced equivalent.
   - For SD sequences, the field displays NTSC or PAL Black Burst.
2. Select the sync source that is compatible with the sequence: **Tri-Level, Black Burst,** or **Any**.

You can also set the sync source in the Capture Tool.

You can use the Sync light to check the status of the sync source. For information, see “Checking the Sync Source” in the Help.

Outputting Material

When you output a sequence from Avid DS Nitris, you're taking all the information contained in a sequence file, such as timecode information, source media, and generated caches, and copying it to an external device or file.

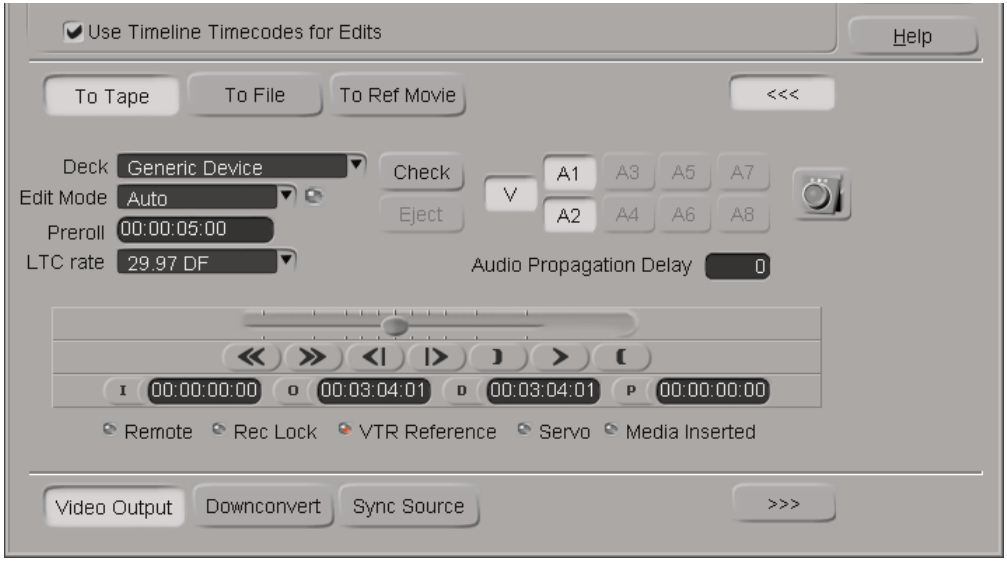
Outputting to Tape

When you output to tape, the image size always matches the resolution set in your Sequence Preferences.

To output to tape:

1. Do one of the following:
   - From the NLE Tools toolbar, click **Media IO > Output Tool**.
   - Select **View > Single-Instance Views > Output Tool**.

   The Output Tool opens.



   For information about options in the Output Tool, click the **Help** button.

2. Configure the external device and perform other tasks, such as selecting the area to output—see "Preparing for Output" on page 515.
3. Click the **To Tape** button.

4. Select the output device.

   The currently active external device appears in the Device list. You can select a another device preset from the list.

5. Click the **Check** button.

   If the link between the external device and your system is operating properly, nothing occurs. If there is a problem, a message box appears, stating the possible cause of the problem.

   You can also verify that the external device is operating within normal parameters by checking the five items in the External Device Status area, located beneath the transport controls. A green or red light beside each item displays its status. Items that are grayed out are inactive.

6. Select the **Edit Mode**, either Auto (Insert) or Assemble.

   This setting temporarily overrides the setting in the deck template but does not change it. For more information about Edit Mode, see "Configuring the External Device for Output" on page 517.

7. (Optional) Set a custom preroll for the deck.

   This setting also temporarily overrides the setting in the deck template but does not change it.

Timeline/Deck button

8. Make sure the Timeline/Deck button is set to **Deck**.
9. Click the track buttons (**V**, **A1**, **A2**, and so on) for the video and audio tracks you want to output.
10. (Optional) If you are recording LTC (longitudinal timecode) through the LTC Out (XLR) connector on the Avid Nitris DNA, select the desired LTC frame rate.
    - For 29.97 (NTSC) sequences, you can select 29.97 (non-drop-frame) or 29.97 DF (drop-frame).
    - For 23.97 HD sequences, you can select 23.97, 29.97 (non-drop-frame), or 29.97 DF (drop-frame). If you want to output NTSC timecode, make sure to select an SD Downconvert format (see "Specifying Downconvert Formats" on page 521) so that the converted timecode is displayed in the LTC menu.
11. If you are experiencing any frame delays in audio when you output your sequence to tape, enter the number of frames in the **Audio Propagation Delay** text box.

12. If you have not selected the **Use Timeline Timecodes for Edits** option (see "Selecting an Area to Output" on page 515), specify the position on the tape where you want the program to start recording. Use the transport controls to locate the position or type a timecode in the I (In) field.

If you're insert editing your material, make sure that your tape is properly striped with timecode before attempting to output your material.

13. (Optional) Click the Preview button to view your sequence before outputting to tape.
14. Click the **Insert/Assemble** button. The label on the button depends on the Edit mode you selected.

    The selected media in your sequence is output to tape.

Outputting to File

There are several options that you need to consider when outputting to file.These options include:

- **File type**: You can output your media as a sequence or as single frames. Avid DS Nitris supports a wide range of video and audio file formats—see "Output File Formats" in the Help.
- **Frame size**: Output resolution is independent of the sequence frame size or working resolution. By default, output resolution is set to the sequence frame size, but you can select a different output frame size.
- **Compression**: When outputting to the .avi, .wmv, or .mov file formats, and some image formats, you can choose a compression codec (compressor/decompressor) directly from within Avid DS Nitris. Every codec installed on your workstation is available during output.

You cannot export a file at a frame rate different from that of the current sequence. If you want to convert the frame rate of your file, you need to use an external media conversion tool or encoding software.

AVI files have a size limit of 2 gigabytes. If you need to export a large sequence as an AVI file, consider dividing the sequence or using a reference movie (see "Exporting AVI or QuickTime Reference Movies" on page 536).Windows Media files and QuickTime files do not have a size limit.

- **Audio**: Avid DS Nitris can export both 16-bit and 24-bit audio. The exported bit rate is determined by the sequence preference. If you are exporting a 24-bit sequence through a codec that supports only 16-bit audio, Avid DS Nitris converts the audio to 16-bit during the export. If you have a problem playing audio in the output file, try changing the audio to 16-bit in the Sequence Preferences.

Audio is not exported when the selected export format is an image format. Similarly, video is not exported when the selected export format is an audio format.

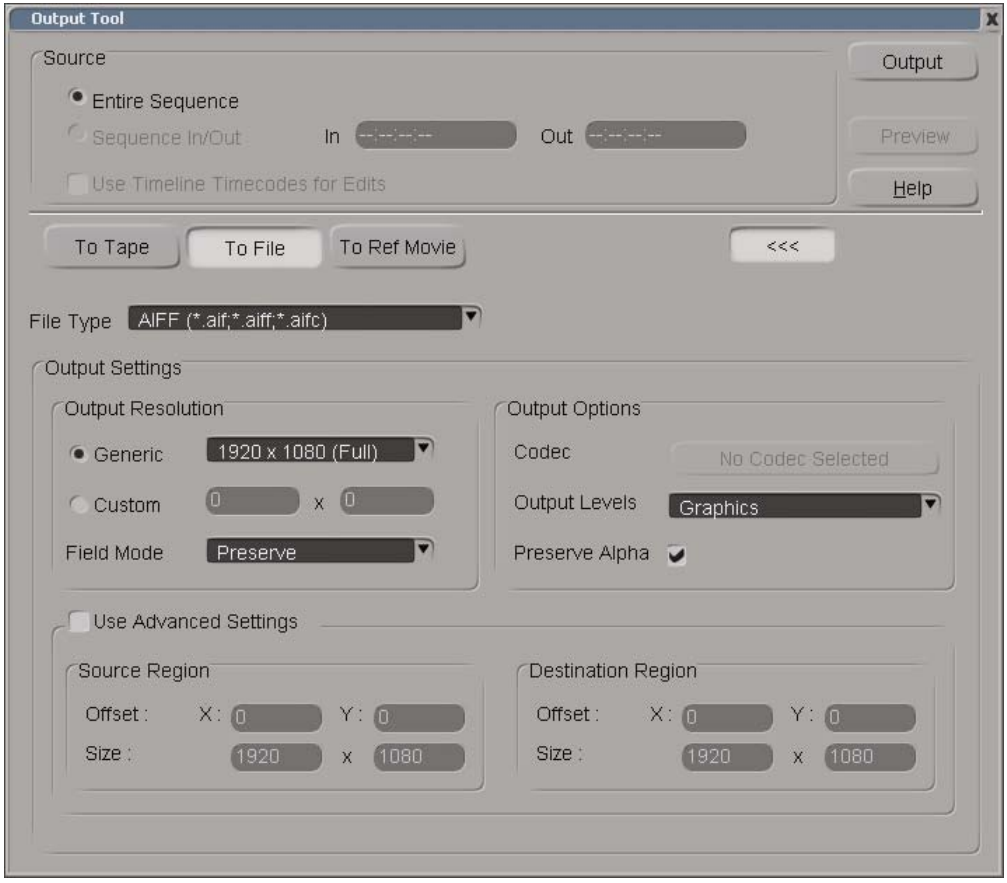
When you output to file, Avid DS Nitris uses all tracks in a sequence.

The Outsource effect lets you output an area of the timeline in the file format of your choice, while keeping a link to the exported files—see "Outsource Effect" in the Help.

To output to file:

1. Process non-real-time effects and software real-time effects—see "Processing Effects" on page 515.
2. Select the area you want to output—see "Selecting an Area to Output" on page 515.
3. Select **View > Single-Instance View > Output Tool**.

   The Output Tool opens.
4. Click the **To File** button.



For information about options in the Output Tool, click the **Help** button.

5. From the **File Type** list, select a file type.

   For some image file types, a dialog box opens and provides format options. Options depend on the file type; for example, TIFF provides options for bit depth and compression. Choose your settings and click **OK**. The settings you selected are displayed in the Codec field. For a list of supported formats, see “Output File Formats” in the Help.

6. If you choose a file type that supports compression, a dialog box opens. Choose a compression codec, modify the settings to meet the quality you require, and click OK.

7. Select one of the following options to determine the resolution (frame size) of the output file:

- **Generic** to pick a standard resolution from the list.
- **Custom** to create a custom resolution. Create a custom resolution by entering pixel values for the width and height in the appropriate text boxes.

8. Select a **Field Mode**: Preserve, Invert, or Ignore.

   If you are working with progressive or low-motion media in an interlaced sequence, select Ignore to maximize the output quality. Otherwise select Preserve to keep the field dominance, or Invert to change the field dominance (from odd to even, or even to odd). The Preserve and Invert options preserve field motion and prevent any field artifacts. This option is automatically set to Ignore when you are working with a progressive sequence. For more information, see "About Field Dominance" in the Help.

9. Select the **Output Levels**.

   This option specifies the how Avid DS Nitris interprets the pixel values within a frame (Graphics or Video). Select Auto to export at the levels used in the sequence. For more information, see "Preserving SuperWhite and SuperBlack Values" on page 530.

10. Select the **Preserve Alpha** option to retain alpha channel information in the output file.

    This is useful if you plan to reuse the matte information in future compositing or graphics projects. Not all file formats support alpha channels, so check the list to make sure.

11. Select **Use Advanced Settings** to export a specific region of the frame.

    For more information, see "Using Advanced Settings to Crop and Resize" on page 531.

12. Click the **Output** button.

13. From the Export to File dialog box, select a folder in which to save your material, enter a name for the file, and click Save.

    The material is processed, if necessary, exported to file, and placed in the selected folder.

    For information, about exporting a seuqence in still image format, see "Outputting a Series of Image Files" on page 534.

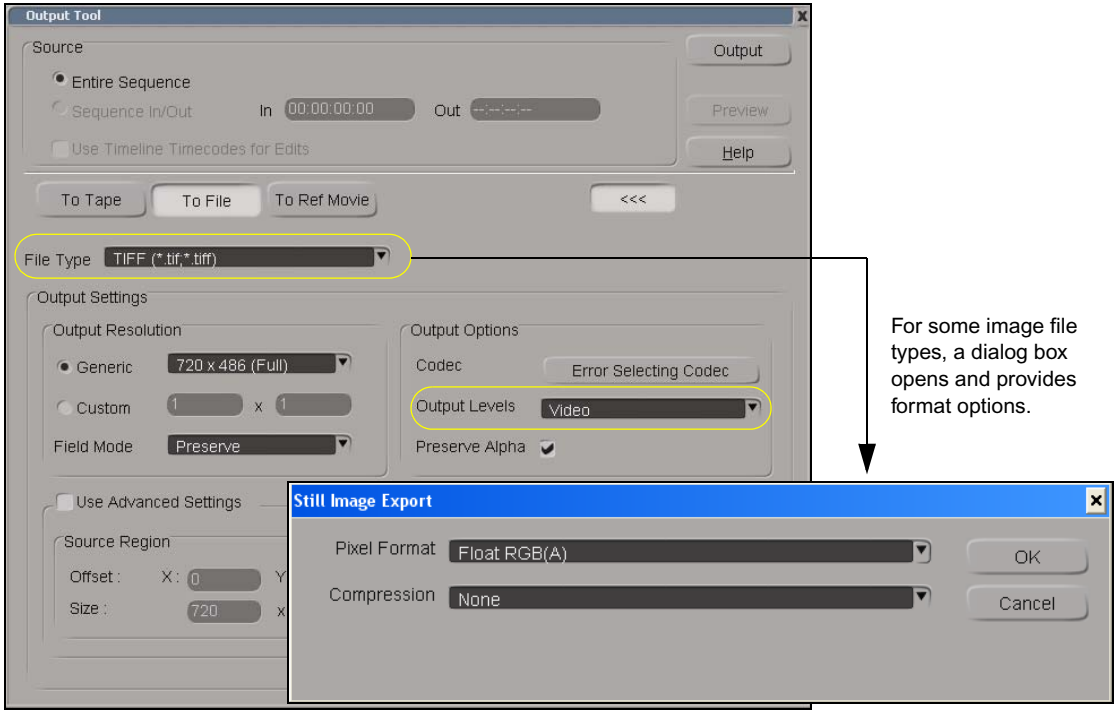
You can take a snapshot of the viewer and export it to file. For more information, see "Creating an Image File from a Snapshot" in the Help.

Preserving SuperWhite and SuperBlack Values

When outputting an image that has SuperWhite or SuperBlack information, you must make sure that the file format to which you are outputting is able to handle these “super” values. This will guarantee that the SuperBlack and SuperWhite information is preserved if you choose to reimport the image to Avid DS Nitris.

The following options in the Output Tool must be taken into account:

- File Type
- File Type (additional options). For some file types, you will be required to enter additional options. For example, .tif, .tga, .jpg, and others
- Output Level



Set one of following to make sure that the file format supports the SuperWhite and SuperBlack values:

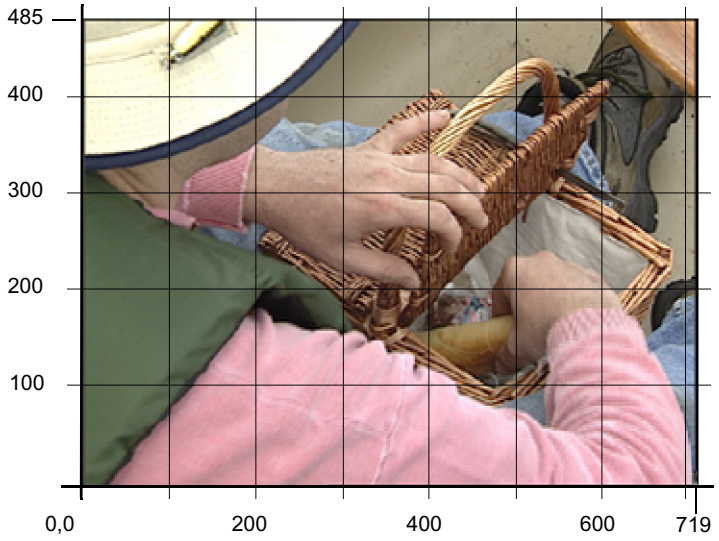
- Any file type can be used as long as the Output Level is set to Video.

- Any YUV file type can be used regardless of the Output Level setting. YUV files include .gen, .omf, .yuv, and .yuv16
- Any file type with the Pixel Format set to Float, regardless of Output Level setting.

For more information about SuperWhite and SuperBlack values, see “Media Capture Settings” in the Help.

Using Advanced Settings to Crop and Resize

The Advanced Settings in the Output tool let you crop and scale the source media and position it anywhere in the output file.These settings are based on a grid that is determined by the dimensions of the source frame and the output frame. For example, NTSC 720 x 486 video uses a grid with an X axis of 720 pixels (from pixel 0 to pixel 719) and a Y axis of 486 pixels (from pixel 0 to pixel 485).



A PAL grid has an X axis of 720 (pixels 0–719) and a Y axis of 576 (pixels 0–575). Both NTSC and PAL SD use non-square pixels, which you need to consider when outputting to file.

A 1080i HD grid has an X axis of 1920 (pixels 0–1919) and a Y axis of 1080 (pixels 0–1079). HD resolutions use square pixels.

Note the following:

- The Destination Region must be equal to or smaller than the output file.
- If the Destination Region is smaller than the output file, black pixels are used for padding.
- The Source Region can be any size, including larger than the current sequence frame.
- If the Source Region is larger than the current sequence frame, black pixels are assumed outside of the frame.

You can resize an image without using Advanced Settings. If the source resolution and the output resolution (as set in the Output Resolution options) are different, Avid DS Nitris automatically resizes the source media to the dimensions of the output file.

To set a customized region for export:

1. Set the Output Resolution (Generic or Custom).

   This setting determines the dimensions of the output frame.

2. Select the Use Advanced Settings check box.
3. Set the source region by specifying the left-corner offset (X and Y positions) and size (pixel dimensions).

   These settings determine the region of the image to export.

4. Set the offset and size for the output region.

   These settings determine where the region specified by the Source Region settings should be positioned and resized in the output frame.

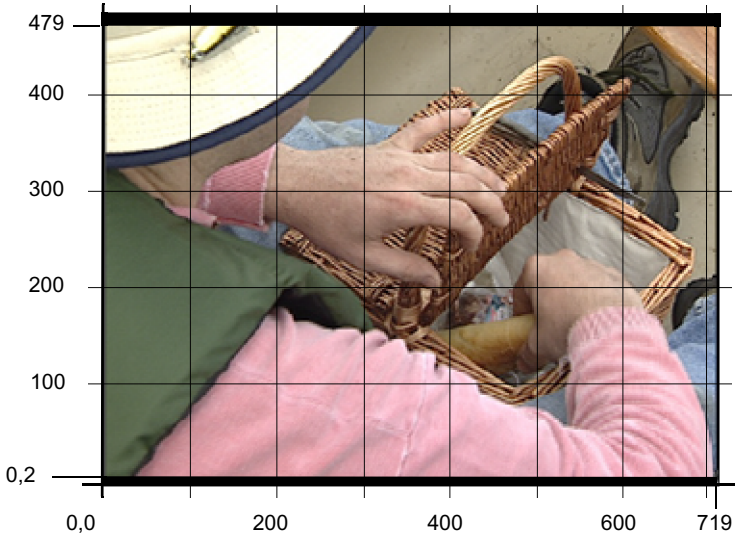
Example

For example, if you want to output a QuickTime movie for a DVD, you can use this feature to resize SD source material (720 x 486 lines) to fit DVD dimensions (720 x 480 lines).

1. Set a Custom Output Resolution of 720 x 480.

2. Set the source offset to X:0, Y:2 and the source size to 720 x 480.

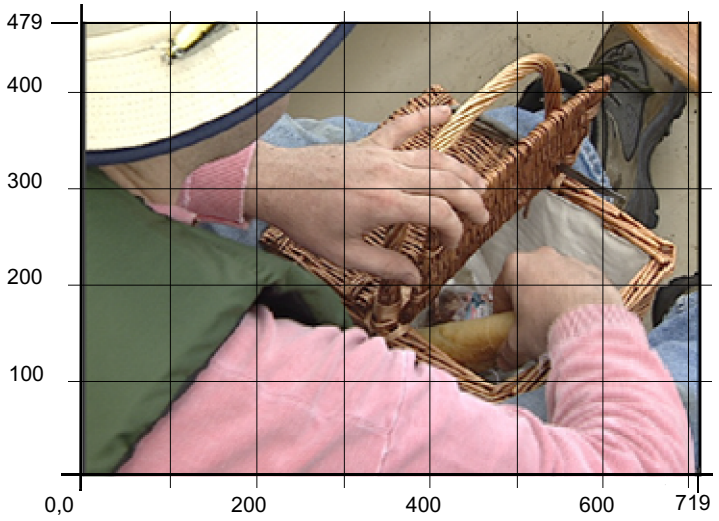
   The resulting source region is shown in the following illustration. Two lines are cropped from the bottom, because you set the Y to 2 in the source region, and four lines are cropped from the top, because you set the source size to 480.



These settings are preferable to cropping three lines from the bottom, because they prevent the need for Avid DS Nitris to perform field interpolation to preserve the field order.

3. Set the destination region to X=0, Y=0 and the destination size to 720 x 480.

After outputting the file, the destination region (720 x 480) completely fills the dimensions of the output file (720 x 480).



Outputting a Series of Image Files

When you export a sequence to a still image format, such as .bmp or .tiff, each frame is saved as a separate file.

For example, if you export your sequence to a file named “MyPicture.bmp”, the output is saved as independent still image files. The files are numbered sequentially: for example, MyPicture.001.bmp, MyPicture.002.bmp, MyPicture.003.bmp, and so on.

To output a sequence to a specified series of image files:

- Enter the following in the File Name text box:

prefix.[*first*..*last*;*padding*].*extension*

Property	Description
prefix	The shared part of the file name.
first	A number for the first file (frame) of the sequence. This number must be a positive integer and smaller than *last*.
last	(Optional) A number for the last frame of the sequence. If you do not include a number, Avid DS Nitris outputs all the frames you have selected. This number must be a positive integer and larger than *first*.
padding	The number of digits you want in the output file names. Avid DS Nitris uses zeroes as placeholders. For example, if you are exporting 1000 frames or more, your padding should be 4 because 1000 has a total of four digits.
extension	(Optional) The file name extension.

For example, if you want to output a sequence to a series of image files starting with the name Alpha.0100.pic to Alpha.1000.pic, enter the following:

```
Alpha.[100..1000;4].pic
```

If you are not sure of the total number of frames, enter the following:

```
Alpha.[100..;4].pic
```

Exporting AVI or QuickTime Reference Movies

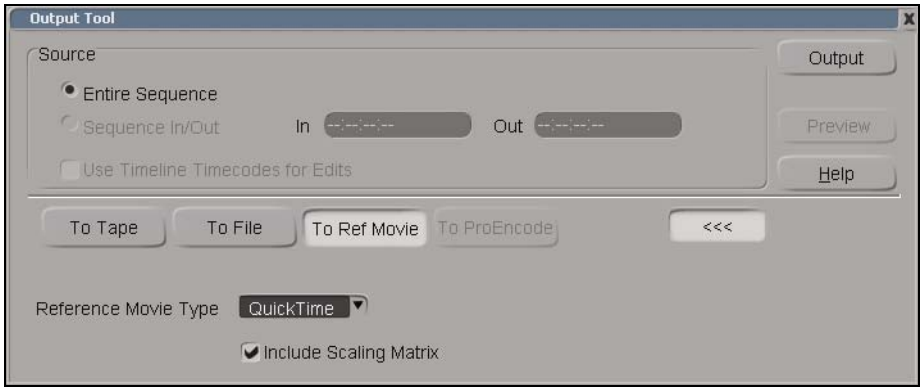
An AVI or QuickTime reference movie is a movie that contains only composition information. These files do not contain media. Instead, they point to the source media on your storage device. As a result, they are very quick to output and are very small in size. When you play back the reference movie, the movie references the source media files on your storage device. Any application that can read AVI or QuickTime files can read a reference movie, as long as the application can access the source media. Reference movies are useful when you want to process them in third-party encoding applications. Exporting a reference movie also lets you work around the 2-GB size limit of AVI files.Note the following:

- **Compressed media:** Reference movies do not support compressed media. You can, however, output at lower resolutions, such as half or quarter resolution, if they are available on your system (Avid DS Nitris Editor only). You can output these files in either 4:3 or 16:9 format.
- **Windows Media:** You can use AVI reference movies with the Microsoft Windows Media® Player and Windows Media Encoder. Windows Media 9 requires DirectX, which is approved for installation.
- **QuickTime:** You must have the QuickTime player installed on your workstation in order to play back QuickTime reference movies. The Avid DS QuickTime codec is installed automatically.
- **Moving a Reference Movie to Another Workstation:** To move a reference movie to another workstation:
  - Make sure that the media is located on a storage device that is shared between the two workstations.
  - For QuickTime movies, copy the Avid DS codec siddsuds.qtx from the C:\Windows\System32 folder of the Avid DS Nitris workstation to the same folder of the other workstation.
  - For AVI movies, use the Avid DS AVI Reference Codec installer, which is available from the Avid DS Support Center or on the Drivers CD-ROM.

  If you need to move a file to a workstation that does not have access to the source media, then you need to export it as a standard AVI or QuickTime file.

Output Settings: Because reference movies point to the source media, the output settings are the same as the current sequence settings.**To export a reference movie:**

1. Process the entire sequence, including any real-time effects.
2. Select **View > Single-Instance View > Output Tool**.
3. In the Output Tool dialog box, click the **To Ref Movie** button.



4. Select **QuickTime** or **AVI** from the Reference Movie Type list.
5. For QuickTime movies, select or deselect the **Include Scaling Matrix** option.

*For information about the QuickTime scaling matrix, click the **Help** button.*

6. Click the **Output** button.
7. From the Export to File dialog box, select a folder in which to save the file, type in a name for the file, and click **Save**.

   The reference movie is created and placed in the selected folder. Since the reference movie points to the source media, the output settings will be the same as the current sequence settings.

A reference movie becomes invalid if the media to which it points is modified.

Outputting a Sequence to Avid Media Composer

Avid DS Nitris allows you to generate an AAF and MXF file of your timeline that can later be imported directly into Avid Media Composer.

Before you begin, you must configure the storage areas where the MXF media, as well as the generic Avid DS media, will be stored.

To configure your storage:

☑	Step	Refer to
☐	Create folders for your MXF files.	"Configuring Storages for MXF Files" (see the Help).
☐	Configure storage areas that point to these MXF folders.	"Configuring the Media Indexing Service on your Workstation" in the Help.
☐		*You must also have separate storage areas configured for generic audio and video. These storage areas are required for your caches.*

To output your timeline to Media Composer:

1. To export a sequence, you need to make sure that the entire timeline (from top to bottom) is selected. This way, corresponding audio tracks, as well as timeline and track effects, are also included.

   Make the timespan selection on the timeline effect track. (This is the topmost track on the timeline, named FX.)

2. From the NLE Tools toolbar, select **Generate** > **Timeline to MC**.
3. Select the appropriate options in the Timeline to Media Composer Options dialog box.

   For **Track Types**, select all the track types that you are using on the timeline (i.e. Video, Background, Audio).

   For detailed information on each of the fields, click the **Help** button.

4. Click **OK**.

   During the export, Avid DS Nitris will process any necessary effects to generate the MXF media. The MXF media will be saved in the MXF media storage that you set up via the Media Storage Configuration tool.

   Your AAF project file will be saved in the **AAF Export** directory location that you specified in the above dialog box.

Conform

Chapter 1
Conforming & Finishing

Conforming is the process of bringing a project from an offline environment into Avid DS Nitris, so you can recapture the media in its final resolution, and continue with the editing and finishing process.

Finishing is the process of bringing in a project from an online environment into Avid DS Nitris, with its media already in final resolution, and doing the final finishing.

This section describes the conforming and finishing processes in Avid DS Nitris.

In this information, the general term "Avid editing system" refers to Avid applications other than Avid DS Nitris, such as Symphony™, Media Composer®, Film Composer®, Avid Xpress®, and NewsCutter®.

Beginning the Conform Process

Avid DS Nitris cannot directly open projects from other Avid editing systems. To transfer bins, clips, or sequences to Avid DS Nitris, you must use an intermediate file format. You can conform OMF, EDL, ALE, AFE, and AAF files. For the highest level of support when conforming sequences with effects and titles, use AFE (Avid File Exchange) files.

To begin your conform, follow these steps:

Follow these steps in the order that they are listed. Each time you link to a topic within a Step, come back to the checklist after completing the procedure. (Use the Previous View button in your Adobe Reader to return to the previous link).

☑	Step	Refer to this section
☐	On the Avid editing system, prepare your sequence(s) for the conform process.	"Conforming Workflow"in the Media Composer Help.
☐	Determine the best format to transfer your sequences and media from the offline editing system to Avid DS Nitris.	"Supported Conform Formats for Avid DS Nitris"
☐	Once you have determined the format that you will use to transfer and conform your sequences, refer to the appropriate topic:	"Conforming with AFE Files" "Conforming with EDL Files" "Conforming with OMF Files" "Conforming Audio"
☐	Before you actually start conforming your sequences, read the notes relevant to specific factors that could be part of your project.	"Before you begin your Conform"
☐	Determine how you will share the media created on the Avid offline editing system.	"Transferring or Sharing Media between Avid Systems"

If you have used an AVX plug-in in the sequence you are conforming, you need to make sure the same plug-in is installed on the Avid DS Nitris system. See "Loading Plug-Ins". The default path is drive:\Program Files\Avid\AVX_Plug-ins.

For information about support for Avid AVX plug-ins see the "AFE Effects Support Table". For information about third-party plug-ins, see the AVX web page at www.avid.com/partners/avx.

Before you begin your Conform

Proper planning results in a more efficient workflow. Ideally you can plan the project before the offline edit begins, but that's not always possible. When preparing your project or sequence for conform, you will also need to refer to the appropriate sections to handle specific factors that could be part of your project. For example, you may want to know how to handle still graphics such as logos in your project.

- Converting HD Formats
- Notes on Conforming Graphics
- Notes on Conforming Matte Keys and Alpha Channels
- Notes on Conforming Titles
- Notes on Conforming Effects

Supported Conform Formats for Avid DS Nitris

When transferring files between systems, note the distinctions between the following:

Bin: A collection of the source material for a project—master clips, subclips, effects, and sequences. (In Avid DS Nitris, the equivalent is the project folder.)

Sequence: The actual arrangement of audio and video clips on the timeline, with information about edit decisions, and applied graphics and effects.

Media: The files containing the digital audio and video data needed to play Avid clips and sequences.

The table below shows the different types of formats available for exchange between systems.

Log (Bin) Formats for Conform	Sequence Formats for Conform	Video Media Formats for Conform
ALE	AAF	MXF
AFE	AFE	OMFI
	EDL	
	OMF	

Avid DS Nitris creates media in GEN format (via capture or processing). This media format cannot be shared with other Avid editing systems.

Subtopics

Log (Bin) Formats for Conform

Sequence Formats for Conform

Video Media Formats for Conform

Audio Media Formats for Conform

Log (Bin) Formats for Conform

Format	Description	Refer to
ALE	ALE (Avid Log Exchange) file is a format specifically designed to hold information about log files generated by other Avid systems. ALE files only contain information about the source material, so that you can import a bin and its clips into a folder in Avid DS Nitris. You can't import sequences, effects or other higher level information.	"Conforming ALE Files"

Sequence Formats for Conform

Avid DS Nitris accomodates many different sequence formats as described in the table below:

Sequence Formats	Description	Refer to
AAF	AAF (Advanced Authoring Format) is an industry standard, multimedia file format that allows interchange of media and composition information between AAF-compliant applications.	"Exporting AAF Files from Avid DS Nitris"

Sequence Formats	Description	Refer to
AFE	AFE (Avid File Exchange) files are the preferred method of conforming sequences created on other Avid editing systems as they offer the highest level of conform capability. AFE files are based on AAF (Advanced Authoring Format) technology. AFE files, however, are designed especially for sharing information among Avid applications. AFE files let you transfer one or more bins, their contents, and information about the contents, including master clips, subclips, and sequences.	"Conforming with AFE Files"
EDL	An EDL (edit decision list) is organized into a series of chronological instructions called *events*, that are used to create clips or a sequence on the timeline. Avid DS Nitris accommodates EDLs from many different systems, as well as CMX and GVG formats.	"Conforming EDLs"
OMF	OMF (Open Media Framework) files can contain both media and sequence composition information. This format is only recommended when exporting audio sequences to Avid DS Nitris.	"Conforming OMF Compositions"

Video Media Formats for Conform

When transferring projects or sequences between editing systems, you can also transfer their associated media, instead of recapturing the media again.

Avid DS Nitris can share compressed and uncompressed media with other Avid editing systems. You can share media on Avid Unity™ shared storage or by using removable SCSI drives.

Avid editing systems can share two media formats:

- MXF: An industry-standard format that encapsulates media and production metadata into a single file. Avid DS Nitris can link to existing MXF files created on other Avid editing systems, and play them in real-time. Avid DS Nitris can also create or modify MXF files and share them with other Avid editing systems. See “Sharing MXF Media”.

MXF media is conformed via an AFE file.

- OMFI: Avid DS Nitris can link to OMFI files created on other Avid editing systems, and play them in real-time. Avid DS Nitris cannot create OMFI files, it can only read them.

  Due to the file size limitation with OMFI media, we recommend using OMF only for audio.

Avid DS Nitris does not support the following formats:

- *Progressive resolutions
- Multicamera resolutions
- AVR resolutions
- You cannot share caches or precomputes between Avid DS Nitris and other Avid editing systems.

The following tables list how Avid DS Nitris supports the shared media formats. Avid DS Nitris can relink to these formats through AFE files and play the media in real-time (RT).

MXF Compression	Capture	Import (source)	Export	Relink & Playback
DNxHD (all 8-bit and 10-bit compressions)	RT	Yes	Yes	RT
For a list of shared DNxHD resolutions, see “Avid DNxHD Compressions”.				
1:1 (uncompressed 8-bit and 10-bit)	RT	Yes	Yes	RT
2:1, 3:1, 10:1, 20:1 (JFIF interlaced)	RT	Yes	Yes	RT

MXF Compression	Capture	Import (source)	Export	Relink & Playback
2:1s, 4:1s, 15:1s (JFIF single-field)	No	Yes	Yes	RT
DV 25	No	Yes	Yes	RT
DV 50	No	Yes	Yes	RT
DV 100	No	No	Yes	RT
DVCPRO HD	No	No	No	No
MPEG2 IMX (30, 40, 50)	No	Yes	Yes	RT

OMFI Compression	Capture	Import (source)	Export	Relink
1:1 (uncompressed)	No	Yes	No	RT
2:1, 3:1, 10:1, 20:1 (JFIF interlaced)	No	Yes	No	RT
2:1s, 4:1s, 15:1s (JFIF single-field)	No	Yes	No	RT
DV25	No	Yes	No	RT
DV50	No	Yes	No	RT
MPEG2 IMX (30, 40, 50)	No	Yes	No	RT

Audio Media Formats for Conform

If you want to use audio from another Avid editing system in Avid DS Nitris, make sure the frame rates match. To transfer the audio, you can output your sequence in OMF. Some frame rates may not be supported in OMF, but you can still recapture the audio once the OMF sequence has been imported into Avid DS Nitris.

You can also change the frame rate by using the Media Tool.

Refer to the following table for more specific information:

Avid editor project	Digital cut output format	OK to use OMF?	Avid DS Nitris format
30i NTSC (29.97 fps frame rate)	Standard NTSC	Yes	NTSC (29.97 fps)
25i PAL (25 fps frame rate)	Standard PAL	Yes	PAL (25 fps)
24p NTSC (24 fps frame rate)	24 (NTSC) Destination TC rate depends on output device.	Yes	1080 PsF, 24 fps
24p NTSC (24 fps frame rate)	23.976 (NTSC)	No[a]	1080 PsF, 23.97 fps
23.976p NTSC[b]	23.976 (NTSC)	Yes	1080 PsF, 23.97
24p PAL	24 (PAL)	Yes	1080 PsF, 24 fps

a. See the article “How to Reduce the Audio Play Rate from 24 fps to 23.976” in the Avid DS Nitris Support Knowledge Base (Previous Releases section)

b. Requires Symphony 4.5 or later, Media Composer or Film Composer 11.5 or later, Media Composer Adrenaline 1.0 or later, Avid Xpress 5.5 or later, or Avid Xpress Pro 4.0 or later.

Avid DS Nitris can also share the following audio formats:

- 48k/16 bit, 48k/24 bit
- 44.1k/16 bit, 44.1k/24 bit
- 32k/16 bit, 32k/24 bit
- 96k/16 bit, 96k/24 bit

Transferring or Sharing Media between Avid Systems

Before transferring or making your media available to Avid DS Nitris for final editing, you should duplicate your sequence, and clean up unwanted frames and media. This is done using the decompose and consolidate commands in your Avid editing system.

Decomposing your Sequence in Avid Media Composer

Decompose allows you to create new, shorter master clips based only on the material you have edited and included in your sequence, which saves system disk space.

Decompose your sequence when you have a project to conform in Avid DS. This is done when you are going to recapture the media once the sequence has been imported into Avid DS Nitris.

To decompose your sequence:

- Duplicate the finished sequence, copy the duplicate into a new bin, and decompose the duplicate. Refer to “Saving Two Versions of a Sequence When Recapturing” in the Media Composer Help.

The Avid editing system creates new master clips that use only the media in the sequence, plus any handles you specify. These new clips are not linked to media, but are intended for recapture. You can delete the decomposed clips from the bin, because Avid DS Nitris recreates the clips during the conform process.

Consolidating your Media in Avid Media Composer

Consolidating your sequence creates smaller source clips and media files, thereby saving time and disk space. Use the consolidate command when you want to finish a project in Avid DS Nitris. This is when you already have your media in its final resolution and will be transferrring along with the sequence to Avid DS Nitris. Refer to “Using the Consolidate Command” in the Media Composer Help

Transferring your Media

To transfer your media:

You have the following options when handling media created on different Avid systems.

- If you are transferring files on a removable SCSI drive, make sure that you can correctly transfer the drive.
  - Disconnect the drive from the offline system and connect it to the Avid DS Nitris system. For information on disconnecting and connecting removable drives, refer to your system setup guide and operating system help.
- If you are sharing media on an Avid Unity then you should first organize the source media in separate folders on your storage device—see “Sharing MXF Media” or “Sharing OMFI Media”.
- If you are transferring media, rather than sharing in an Avid Unity environment, then do the following:
  - Copy the files to the local storage device of the Avid DS Nitris system.

    Place the video files in an appropriate folder under the \VideoStorage folder. For example:

    D:\VideoStorage\AVI\Corporate\...

    D:\VideoStorage\OMFI MediaFiles\

    D:\VideoStorage\Avid MediaFiles\MXF\
  - Place the audio files in a similar folder on the \AudioStorage\ folder. For example:

    F:\AudioStorage\AVI\Corporate\...

    F:\AudioStorage\OMFI MediaFiles\

    F:\AudioStorage\Avid MediaFiles\MXF\

You will then need to configure these storage locations in Avid DS Nitris—see “Configuring the Media Indexing Service on your Workstation”.

Chapter 2
Conforming with AFE Files

Conforming is the process of bringing a project from an offline environment into Avid DS Nitris, so you can continue and finish the editing process. This chapter describes how to load an Avid File Exchange (AFE) file into Avid DS Nitris and recreate a sequence on which you can apply further edits and effects.

You can also conform OMF, EDL, ALE, and AAF files, but AFE files have a higher level of support for effects and titles.

In this information, the general term "Avid editing system" refers to Avid applications other than Avid DS Nitris, such as Symphony™, Media Composer®, Film Composer®, Avid Xpress®, and NewsCutter®.

This section includes the following topics:

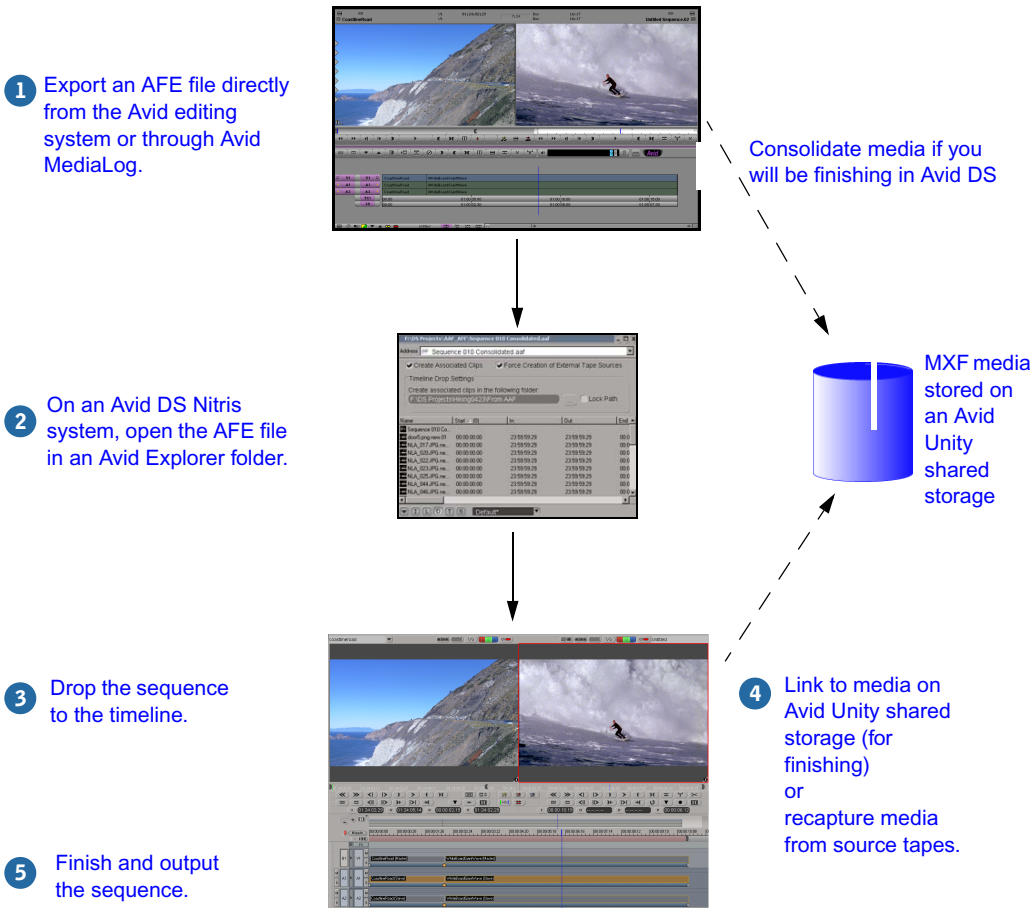
- Workflow: Conforming AFE Files
- Exporting an AFE File from an Avid Editing System
- Importing AFE Files

Workflow: Conforming AFE Files

In this workflow, an Avid editing system creates an AFE project that you can conform in Avid DS Nitris.

If your media has already been captured in its final resolution by the Avid editing system, then the corresponding MXF media can also be transferred to Avid DS Nitris.

The following illustration shows the basic steps in the conform process using AFE files.



To conform an AFE sequence in Avid DS Nitris, follow this basic workflow:

Follow these steps in the order that they are listed. Each time you link to a topic within a Step, come back to the checklist after completing the procedure. (Use the Previous View button in your Adobe Reader to return to the previous link).

☑	Step	Refer to
☐	On the Avid editing system, export your AFE.	"Exporting an AFE File from an Avid Editing System". See also "Exporting Projects and Bins Using AFE Files" in the Media Composer Help.
	On the Avid DS Nitris system:	
☐	Create a sequence with a frame rate that matches that of the source tapes.	
☐	Import the AFE file.	"Importing AFE Files" (see the Help).
☐	Open the AFE file from DS Explorer and drag it to the timeline.	"Create a Sequence and Master Clips from an Imported AFE File" (see the Help)
☐	Make sure any storage devices or Avid Unity workspaces are configured correctly.	"Configuring the Media Indexing Service on your Workstation" (see the Help).
☐	Depending on the number and types of effects, you may need to process or recreate effects. Refer to the AAF/AFE Conform Log as you review the sequence.	"AFE Effects Support Table" for a list of supported effects (see the Help)
☐	Finish and output the project.	

Exporting an AFE File from an Avid Editing System

Avid DS Nitris cannot directly open projects from Media Composer or other Avid editing systems. To transfer bins, clips, or sequences to Avid DS Nitris, you must use an intermediate file format.

AFE files are the preferred method of conforming sequences created on other Avid editing systems. AFE files are based on AAF (Advanced Authoring Format) technology. AFE files, however, are designed especially for sharing information among Avid applications. AFE files let you transfer one or more bins, their contents, and information about the contents, including master clips, subclips, and sequences.

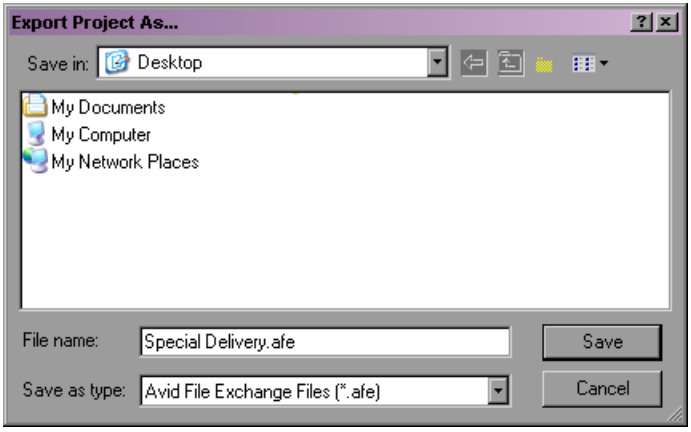
To export an AFE file from an Avid editing system:

1. On the Avid editing system, create a project and capture the source footage in MXF format at a supported resolution.

   Alternatively, you can capture in OMFI format and later use the Transcode feature to convert the media into MXF format.

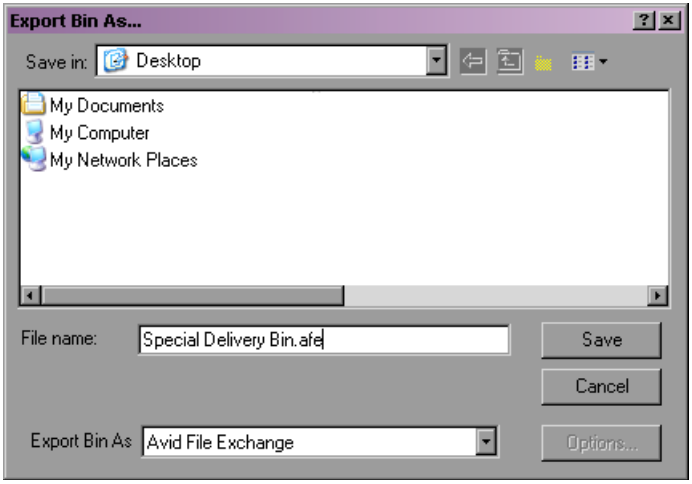
2. Do one of the following:

   - To create a file that includes all bins in a project, click the Project window and select **File > Export**. The Export Project As”” dialog box opens. Select Avid File Exchange. Select a location, name the file, and **Save** .



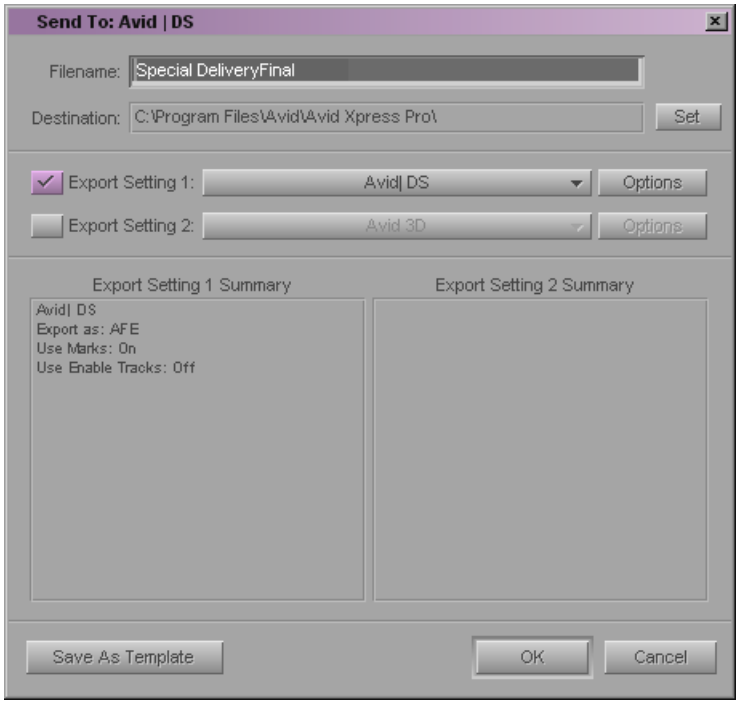
Or,

- To create a file that includes the contents of a single bin, open the bin, click the bin, and select **File > Export**. (Make sure no objects in the bin are selected.) The Export Bin As dialog box appears. Select **Avid File Exchange (*.afe)** from the “Export Bin As” list. Choose a location, name the file, and **Save** .



Or,

- To create a file that contains a clip or sequence, select the clip or sequence and then select **File > Send To > Avid DS**.



You cannot change options for this export, so click OK. The resulting file includes the source bin as well as the object you chose, but does not include other objects that might be in the bin.

3. Transfer the AFE file to a location that you can access from the Avid DS Nitris workstation.

   You can use removable media, a network server, or an Avid Unity shared storage system—see "Transferring or Sharing Media between Avid Systems".

Exporting AFE Files Using MediaLog

You can export AFE files only from the Windows version of MediaLog. You can run MediaLog on the Avid editing system or on the Avid DS Nitris system.

MediaLog is shipped with your Avid DS Nitris system, and is also available in the Download area of the Avid DS Nitris Support Center web site (http://www.softimage.com/avidds).

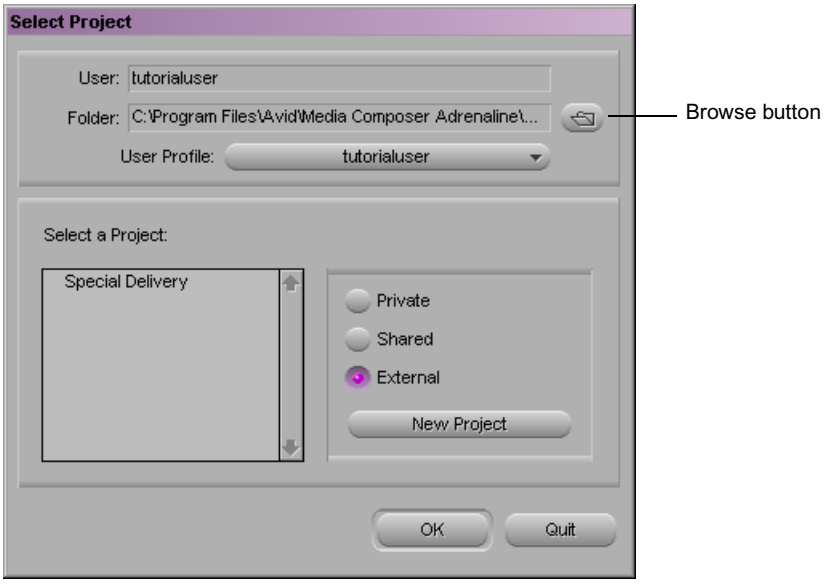
To export an AFE file from MediaLog v20.*x* or later:

1. On the Avid editing system, duplicate the finished sequence, copy the duplicate into a new bin, and decompose the duplicate. For more information on decomposing, see the documentation for your Avid editing system.
2. If you plan to run MediaLog on an Avid editing system, close the Avid editing application.
3. If you plan to run MediaLog on an Avid DS Nitris system, transfer the Avid editing project folder to the \MediaLog\Avid Projects folder on the Avid DS Nitris workstation or to an Avid Unity workspace. A project folder has the same name as the project, and is usually located in the Avid Projects folder on the Avid editing system. Alternatively, copy a single bin, then create a new project and add the bin. Bins are located in the project folder.

   For information about the location of project folders, see the documentation for your Avid editing system.
4. Open MediaLog by double-clicking the desktop icon or selecting **Start > Programs > Avid > Avid MediaLog**.

Do not share user settings between MediaLog and the Avid editing system. The settings might become corrupted.

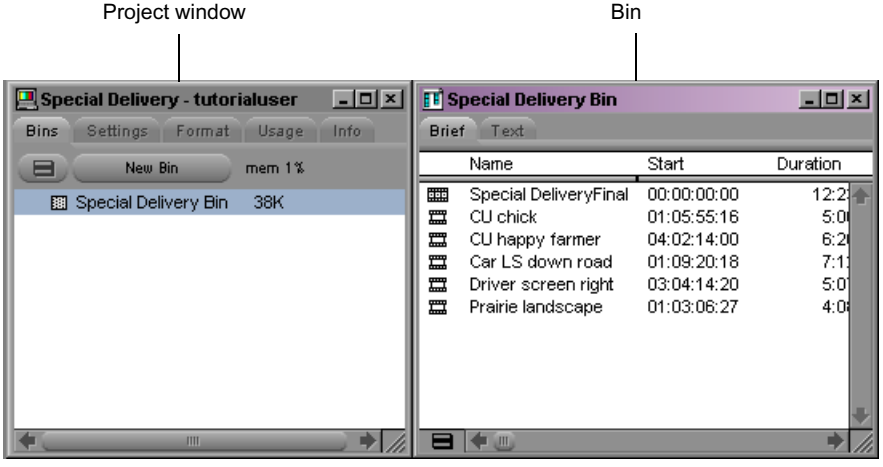
The Select Project dialog box opens.



The user and user settings are determined by the system login. If the project does not appear in the project list, use the Browse button to navigate to the project you want to transfer. Select the project and click OK.

5. In the Select Project dialog box, select the project and click OK.

   The project opens.



6. Do one of the following:
   - To create a file that includes all bins in a project, click the project window and select **File > Export**. The Export Project As dialog box opens. Select a location and click the **Save** button.
   - To create a file that includes the contents of a single bin, open the bin, click the bin (make sure no objects in the bin are selected), and select **File > Export**. Select **AFE** from the dialog box. In the Export Bin As dialog box, choose a location and click the **Save** button.
   - To create a file that includes selected objects, open the bin, select the objects you want to include in the file, and select **File > Export**. Select **AFE** from the dialog box. In the Export As dialog box, choose a location, name the file, and click the **Save** button.

   MediaLog creates an AFE file.

Make sure to close MediaLog before opening Avid DS Nitris. If MediaLog and Avid DS Nitris are open at the same time, Avid DS Nitris performance is seriously affected.

AFE export to a network drive takes much longer than export to a local drive. Avid recommends that you export to a local drive and then copy the exported file to a network location.

7. If you are running MediaLog on an Avid editing system, make sure the AFE file is in a location that you can access from the Avid DS Nitris workstation.

   You can use removable media, a network server, or an Avid Unity shared storage system.

If you open a project in an Avid editing system after you have created an AFE file from the project, the following message might appear: An incompatible (or damaged) setting has been skipped. The original project should not be affected.

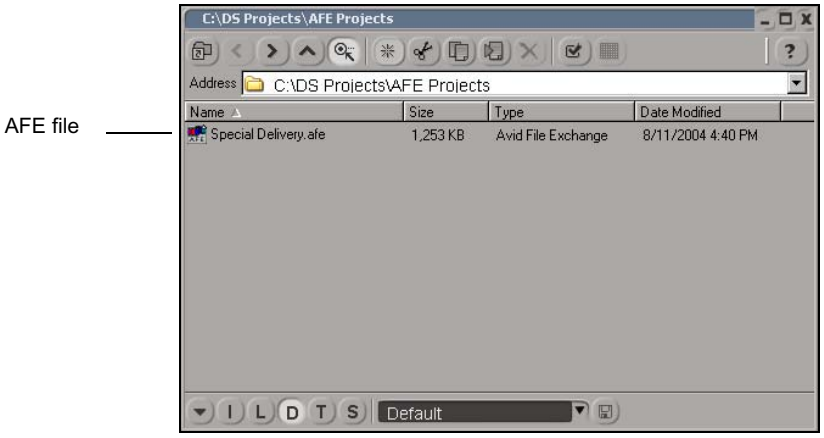
Importing AFE Files

After you have exported your AFE and media to a location where it can be accessed by Avid DS Nitris, you can import the AFE into your project.

To import an AFE file:

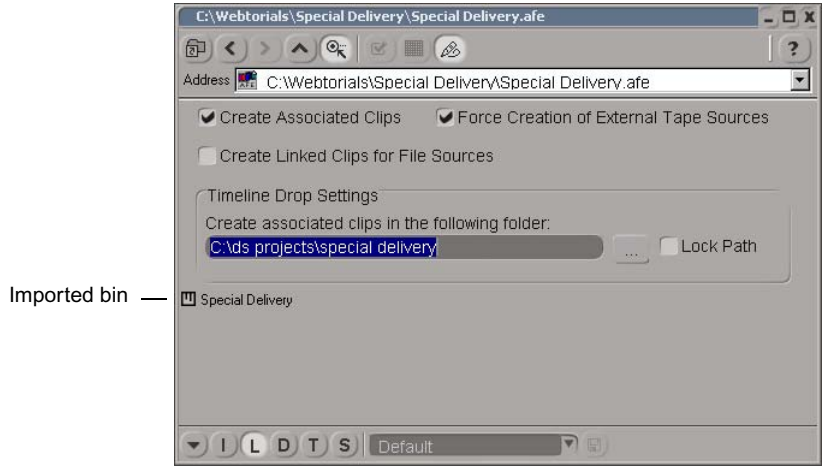
1. Open an Avid DS Nitris project with a frame rate that matches that of the source tapes.
2. Use the Avid Explorer to select the folder that holds the AAF or AFE file.

   The file opens in the AAF/AFE View.

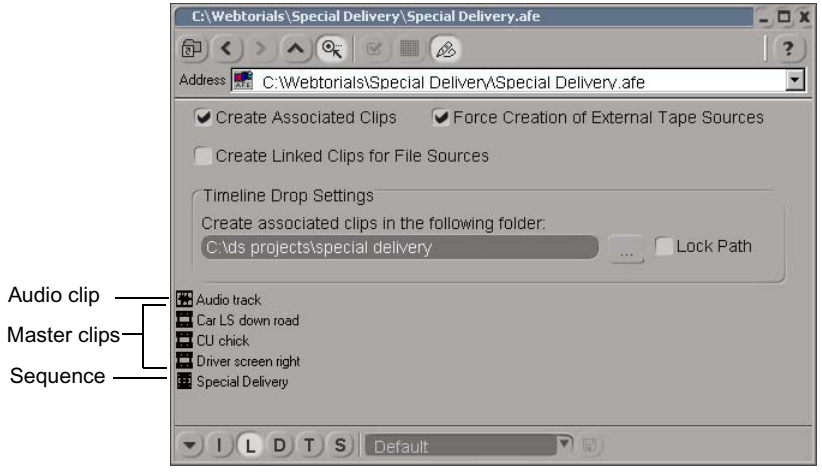


3. Double-click the file, or drop the bin directly into the Avid Explorer.

   The imported bin(s) will display.



4. Double-click an imported bin to display its contents.



The contents can include master clips, subclips, and sequences. For a description of Avid editing system icons, see “AAF/AFE List” in the Help.

The columns initially displayed match the columns displayed when the AFE file was created. You can show additional columns or hide selected columns, as described in “Customizing the Details and Script Views” in the Help.

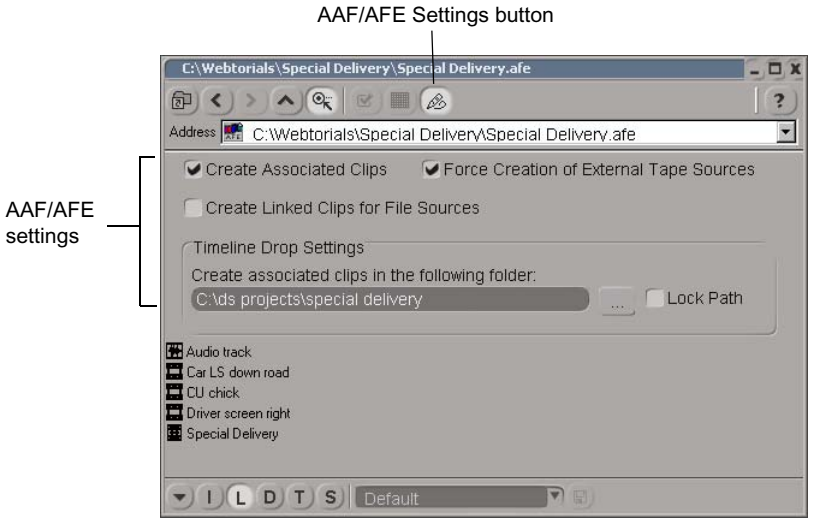
You can now create the sequence on the Avid DS Nitris timeline.

Create a Sequence and Master Clips from an Imported AFE File

After you have imported the AFE file, you can drag a sequence onto the timeline and create master clips that are associated with the sequence. You can also create master clips by dragging an imported clip or sequence to a bin or by dragging one or more bins to a folder.

To create a sequence and master clips:

1. Select the AFE file in the Avid Explorer.
2. If the AAF/AFE settings are not displayed, click the AAF/AFE Settings button.



3. In the AAF/AFE settings, select the **Create Associated Clips** option.

   Select this option if you want to create master clips by dragging an imported clip or sequence to the timeline.

   Deselect this option if you have already created master clips and you want to avoid creating a duplicate set. Duplicate clips are marked by the addition of a sequential number (001, 002, and so on).

4. To append the original project name to the master clip source names when creating master clips, select the **Force Creation of External Tape Sources** option. This option distinguishes between clips that are created

from tapes associated with the conform and clips that are not. Selecting this option does not prevent you from linking to shared media files or recapturing from the source tape.

For example, if you are conforming an AFE created on another Avid system and you want Avid DS Nitris to link to the media captured by that system, or recaptured media from the source tapes, select this option. If you are conforming an AFE and you want Avid DS Nitris to link to media that you have already captured (such as through an ALE file), do not select this option.

5. Specify the path for the folder in which you want to create the master clips after you drag a clip or sequence to the timeline. Click the browse (...) button to navigate to the folder.

   Avid DS Nitris checks the path to make sure the folder is within the project folder.

6. To keep the same folder for any new master clips you create, select the Lock Path option. Deselect this option to create master clips in folders that match the names of the imported bins. Deselecting this option lets you keep the original project structure when you conform with AFE files.

7. Open a new sequence in your project. Make sure the frame rate matches as the AFE that you imported.

8. Create or open a sequence with a timecode starting at 00:00:00:00 and drag a clip or sequence from the AAF/AFE View onto the timeline.

   - The timecode conversion in Avid DS is dependent on the type of sequence that you have opened. If you drag a Media Composer bin to the Avid DS Explorer that contains multiple sequences in both drop-frame or non-drop-frame timecodes, they are automatically converted to the timecode mode of the currently open sequnece. This might not necessarily be the result that you want.

     Therefore, you should first open a drop-frame sequence in Avid DS and drag all the drop-frame sequences to a folder in the Avid DS Explorer. Then open a non-drop frame sequence, and drag in all the non-dropframe sequences to a separate folder.

You can also drag a sequence directly to the timeline. If you drag a drop-frame sequence into a non-drop-frame sequence, the sequence will be conformed as a non-drop frame sequence. You can then change the timeline display from NDF to DF or from DF to NDF.

- Also, to make sure that the starting timecode on the Avid DS timeline matches that of the sequence you conformed from the Avid editing system, hold down the U key and drag the sequence to the timeline.

The conform begins and a progress bar is displayed during the process.

When the conform is complete, the sequence, its clips, and supported effects are recreated in Avid DS Nitris. Titles are recreated only if they are part of the sequence.

If you are sharing media, the clips are automatically linked.

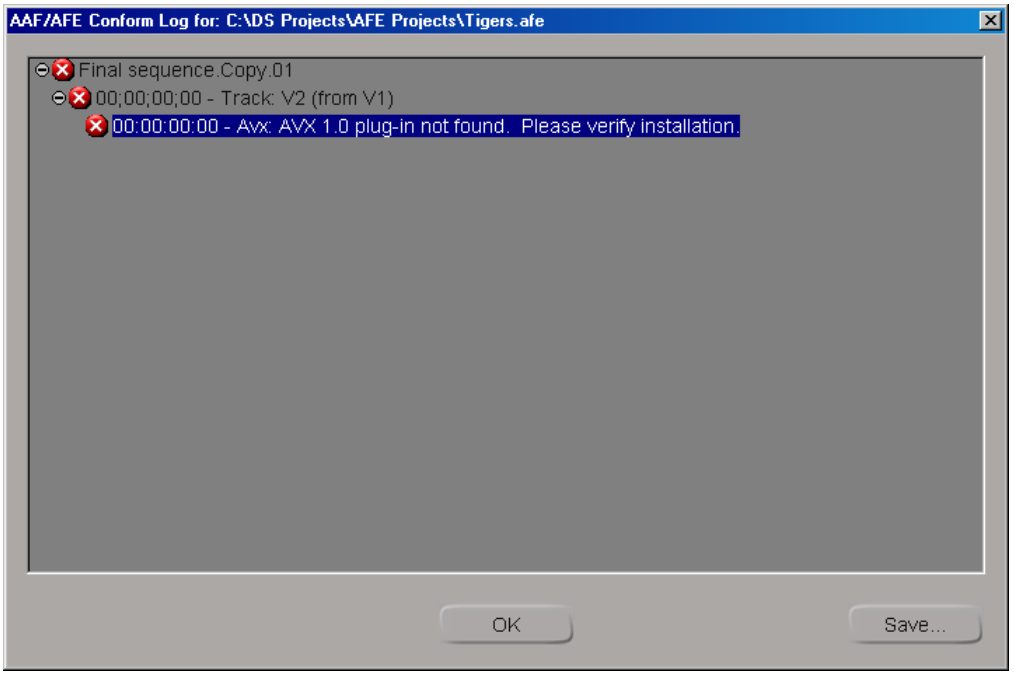
If you are recapturing media, empty master clips are created in the folder that you have specified. When you open the folder in a bin, the clip icons are red since no media has been captured yet.

If you are linking to media that does not match the compression of the sequence (for example, if you are linking to DV25 in an uncompressed sequence), make sure to set the option "Use the Closest Media Available" in the Sequence Preferences dialog box.

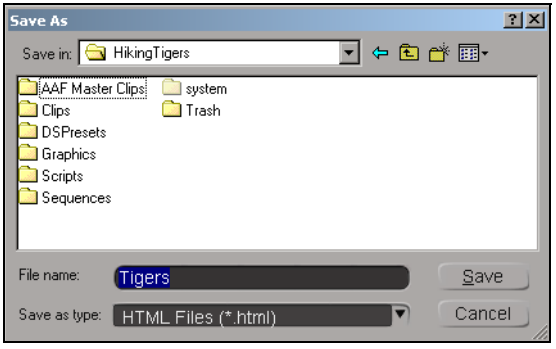
A message box displays a summary of the information contained in the AAF/AFE Conform Log and asks if you want to view the log.

9. To view the AAF/AFE Conform Log, click **Yes**.

   The AAF/AFE Conform Log window displays information about how the effects and parameters were supported. Use this information to finish the final sequence.



10. To save the log as an .html file, click the **Save** button.



11. When the Save As dialog box displays, navigate to an appropriate folder, type in a name for the log, and click the **Save** button. Click **OK** to close the log window.
12. Save the sequence.

Chapter 3
Conforming with AAF Files

AFE files are the preferred method for transferring projects that have been created on other Avid editing systems, to be conformed in Avid DS.

However, when transferring projects from Avid DS to other editing systems, you should use the AAF format.

Exporting AAF Files from Avid DS Nitris

Avid DS Nitris lets you create an AAF file from a master clip. The AAF file contains composition information in a format that can be shared with other applications, such as Avid Media Composer. These files contain the metadata for the master clip but not the media itself, so they need to be used through shared storage.

For example, you might have finished an effects-intensive scene on Avid DS Nitris, created from MXF media (see "Sharing MXF Media"). If you need to send the sequence to Media Composer, first use the Timeline to Clip command to create a new master clip in a shared storage area. Then export the master clip as an AAF file, and import the AAF into Media Composer. On the Media Composer system, relink the master clip to the media generated by Avid DS Nitris.

Because Avid DS Nitris creates AAF files from master clips only, you need to use the Timeline to Clip command to create an AAF file for a sequence.

You can import an AAF file from Avid DS Nitris into the following products:

- Media Composer Adrenaline v1.5 or later
- Avid Xpress Pro v4.5 or later
- Avid Xpress DV v4.5 or later
- NewsCutter Adrenaline FX v5.5 or later
- NewsCutter XP v5.5 or later

To create an AAF file:

1. Right-click one or more master clips in a bin and select **Export to AAF**.

   A browse dialog box is displayed. You cannot change any options; the entire master clip is exported.

2. Navigate to the folder where you want to save the file or files and click Select.

   AAF files are created with the same names as the clips.

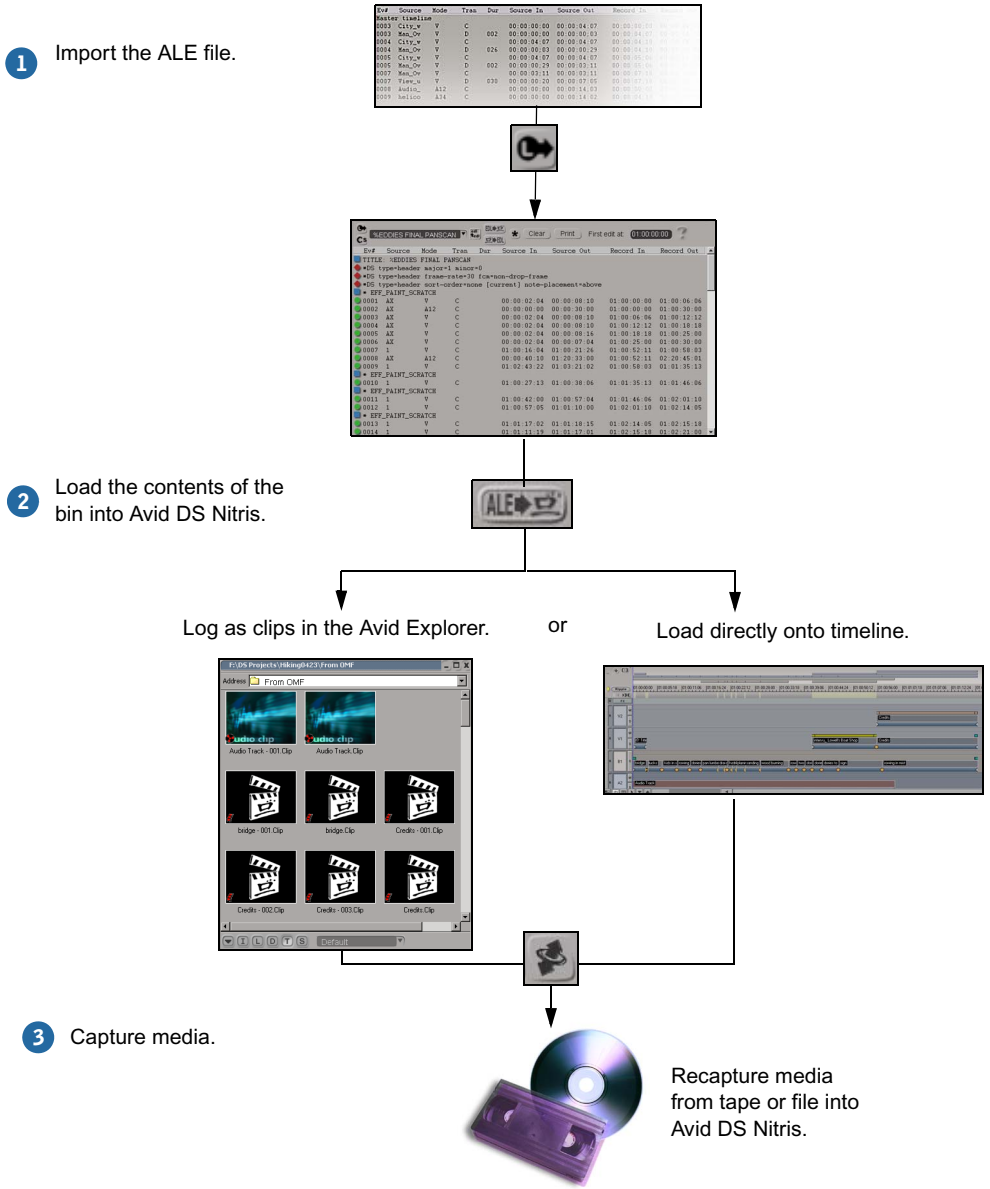
3. On the Avid editing system, import the AAF file and link to the media.

Chapter 4
Conforming with ALE Files

This chapter describes how to load an Avid Log Exchange (ALE) file into Avid DS Nitris and recreate a bin in the Avid Explorer.

Workflow: Conforming an ALE

The following illustration shows the basic steps in the conform process using an ALE.



Conforming ALE Files

Avid DS Nitris supports ALE (Avid Log Exchange) files—a file format specifically designed to hold information about log files generated by other Avid systems. ALE files contain only information about the source material, so you can't import sequences, effects or other higher level information.

Although the ALE file format was designed for log files generated by Avid editing systems, many other systems can output ALE files as well.

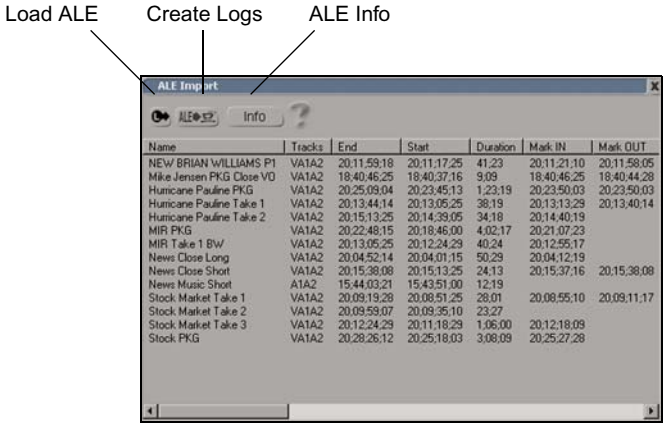
Importing an ALE File

ALE files can be imported and interpreted by Avid DS Nitris.

To import an ALE file

1. Select **View > Single-Instance Views > ALE Import**.
2. In the ALE Import view, click the **Load ALE File** button.
3. In the Open dialog box, select a file.

   The selected ALE file appears in the ALE Import view.



For information about the ALE view, click the **Help** button.

You can view the global properties of an ALE file, which includes the location of the file and the values of various global properties, such as video/audio format, fps, and more in the ALE Import view.

To get information on an ALE file:

- Click the **Info** button.

Logging Clips from an ALE File

After you've imported an ALE file into Avid DS Nitris, you can select the clips you want to log. However, before you can log master clips, the clips must have associated values for the following properties:

- End
- Name
- Start
- Tape (or a global tape property)
- Tracks

If any of these properties are missing an associated value, the Create Logs button appears dimmed and you need to supply the missing value.

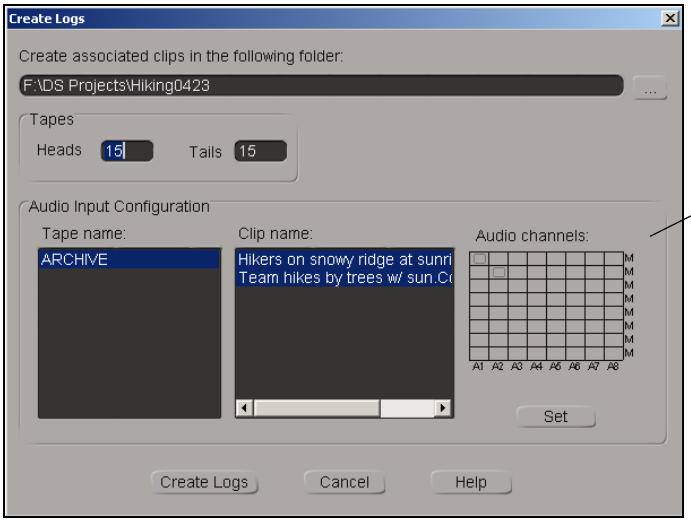
To log master clips from an ALE file:

1. Load an ALE file into the ALE Import view—see "Importing an ALE File" on page 577.
2. Select the clip(s) you want to log in a bin by clicking them. To select more than one clip at a time, select a clip, hold down the Ctrl key and click the others.

If no clips are selected in the ALE Import view, Avid DS Nitris creates logs for every clip.

3. In the ALE Import view, click the **Create Logs** button.

   The Create Logs dialog box opens.



4. Select the folder in which you want to create the logged clips. The default folder is displayed in the text box at the top of the dialog box. Click the browse (...) button to select a new folder.
5. To add material before the in-point and after the out-point of all tape sources, type the appropriate number of frames in the Heads and Tails text boxes.
6. If you need to reconfigure the audio tracks, select a tape name from the Tape Name list and assign the audio tracks to the audio channels of your clip by clicking in the audio channel routing matrix.

You can assign the audio tracks differently for each source name.

7. Click the **Set** button after you have assigned the audio tracks for each tape name to save the settings.
8. Click the **Create Logs** button to begin creating logs from the ALE file.

   In the Avid Explorer, master clips are created for each selected clip. Once the clips have been logged, you can capture the media at any time.

Only source material from tape can be recaptured from clips logged from an ALE file.

Transferring ALE Files using MediaLog

You can use ALE files to transfer information from MediaLog to Avid DS Nitris. MediaLog is a tool that helps you select and log footage *before* your editing session. Although you can log footage with Avid DS Nitris, using MediaLog can free up your Avid DS Nitris system for editing and effects. After logging shots, you can use Avid DS Nitris to digitize and edit the footage.

MediaLog is shipped with your Avid DS Nitris system. MediaLog is also available in the Download area of the Avid DS Nitris Support Center web site (http://www.softimage.com/avidds).

MediaLog 20.x and 21.1 do not support 24p PAL and 25p PAL projects. For these projects, use MediaLog 21.3 or later, which is available for download.

You can import bins created in MediaLog into Avid DS Nitris. To do this, either:

- Export the bin as an ALE file. You can then load the ALE file into Avid DS Nitris and create logs.
- Export the project and bins as an AFE file.

For more information, refer to the *Avid MediaLog User's Guide* or "Exporting AFE Files Using MediaLog" on page 558.

To import an ALE file into Avid DS Nitris, make sure the following columns are displayed in MediaLog:

- *End*
- *Start*
- *Tape*
- *Tracks*

You can display other columns as well. Only columns that are displayed in MediaLog will be displayed in Avid DS Nitris.

Chapter 5
Conforming with OMF Files

This chapter describes how to load an Open Media Framework (OMF) file into Avid DS Nitris and recreate a sequence on which you can apply further edits and effects.

This chapter includes the following topics:

- Conforming OMF Compositions

Conforming OMF Compositions

OMF (Open Media Framework) files facilitate the transfer of digital media from one system to another. They can contain both media and composition information. An OMF composition is basically an advanced form of an EDL. It contains instructions for transitions, timewarps, keys, titling, and some other effects information. Avid DS Nitris preserves all the layering information from an OMF file, so that you can select events and layers that you want to recreate on the timeline.

Avid DS Nitris supports many types of Media Composer and Symphony effects. Avid DS Nitris can import only OMF 2.0 files. *Support for OMF media is limited to the import and export of audio media only.*

Opening an OMF File

You can import OMF files created on other systems. By using the OMF file format to transfer sequences from an offline system to Avid DS Nitris, you can quickly import sequences with most of the offline editing and effects work intact.

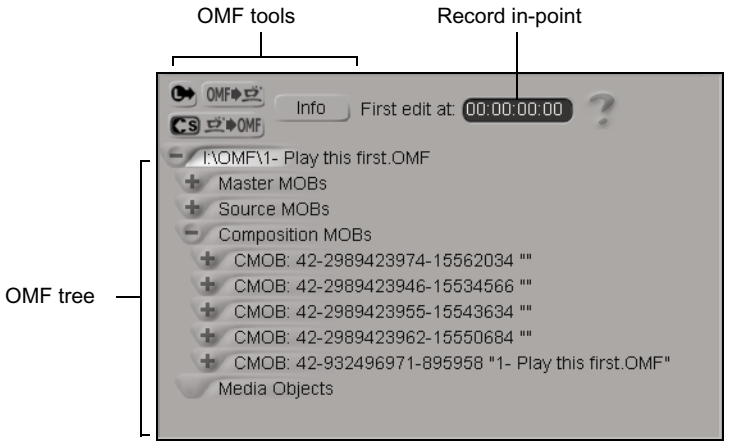
To open an OMF file:

1. Do one of the following:

   - In the view switcher, click the **OMF** button.
   - Select **View > Single-Instance Views > OMF**.

2. From the OMF view, click the **Load OMF** button and select a file from the Open dialog box.

   The selected OMF file is displayed in the OMF view.



When you load an OMF file with more than one composition, you are prompted to select the composition to import.

For more information about the OMF view, click the **Help** button.

Conforming an OMF File

You can log your clips in the Avid Explorer to create master clips that can be reused in other sequences, recreate your sequence in Avid DS Nitris by loading the OMF file onto the timeline, or both. It's a good idea to do both, so that when a clip is deleted from the timeline, you always have the master clip in a folder. You also have the option of importing any audio media in the OMF file.

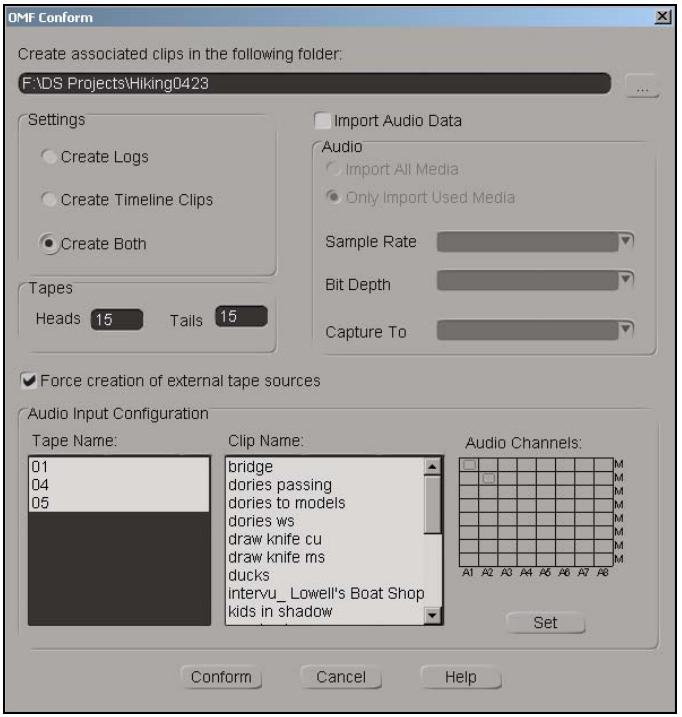
Conforming an OMF File without Audio Media

To conform an OMF file without audio media:

1. Open a new sequence in your project.
2. Load an OMF file into the OMF view.

3. In the OMF view, click the **Conform OMF** button.

   The OMF Conform dialog box opens.



4. If you want to log clips, select the folder in which you want to create the clips. The default folder is displayed in the text box at the top of the dialog box. Click the browse (...) button to select a new folder.
5. Select one of the following options:

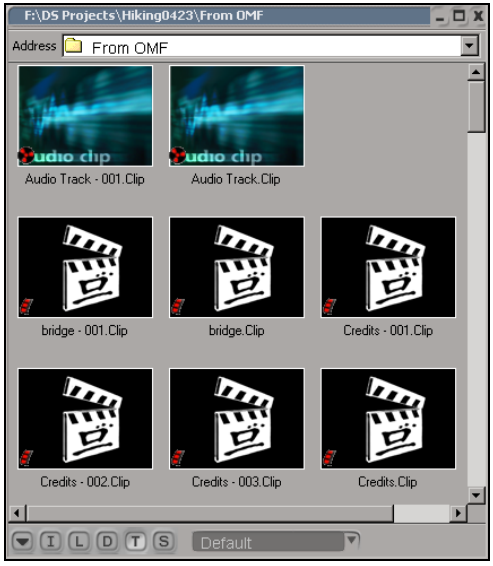
Option	To
Create Logs	Log the clips in the selected folder.
Create Timeline Clips	Recreate the sequence on the timeline based on the composition information in the OMF file.
Create Both	Log the clips in the selected folder and recreates the sequence based on the composition information in the OMF file.

6. To add material before the in-point and after the out-point of all tape sources, type the appropriate number of frames in the Heads and Tails text boxes.
7. To add the project name from the OMF file to the tape sources for the master clips, select the Force creation of external tape sources option.
8. If you need to reconfigure the incoming audio tracks, select a tape name from the Tape Name list and assign the audio tracks to the audio channels of your clip by clicking in the audio channel routing matrix.

You can assign the audio tracks differently for each tape name.

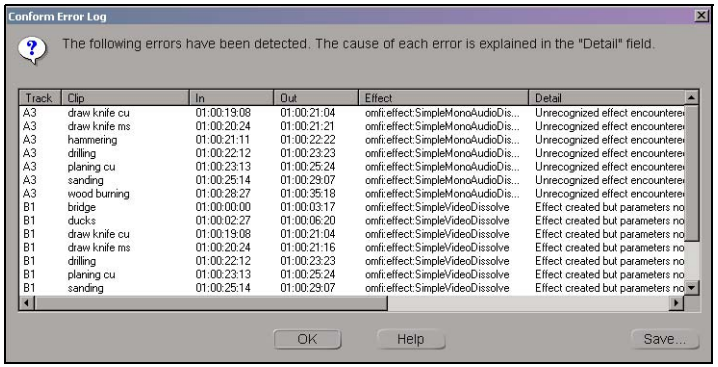
9. Click the **Set** button after you have assigned the audio tracks for each tape name to save the settings.
10. Click the **Conform** button to begin conforming the OMF.

    The clips, transitions, and supported effects are recreated on the timeline using the composition information and empty master clips are created in the selected folder. When you open the folder in a bin, the clip icons are red since no media has been imported yet.



Effects that are not supported by Avid DS Nitris are marked by effect bars that have been deactivated. These effect bars indicate where the effect was originally placed.

If there are any unsupported effects, a message is displayed, asking if you would like to view the error log. If you click Yes, the list is generated and displayed in the Conform Error Log dialog box.



The Conform Error Log dialog box displays the in and out-points of the effect, the name of the original effect, as well as a brief description of the type of error that occurred.

11. To save this log as an .html file, click the **Save** button.

    The Save As dialog box opens.

12. Navigate to an appropriate folder, type a name for the log and click Save.

    The log is saved as an .html file and can be viewed in any HTML browser.

Conforming an OMF File with Audio Media

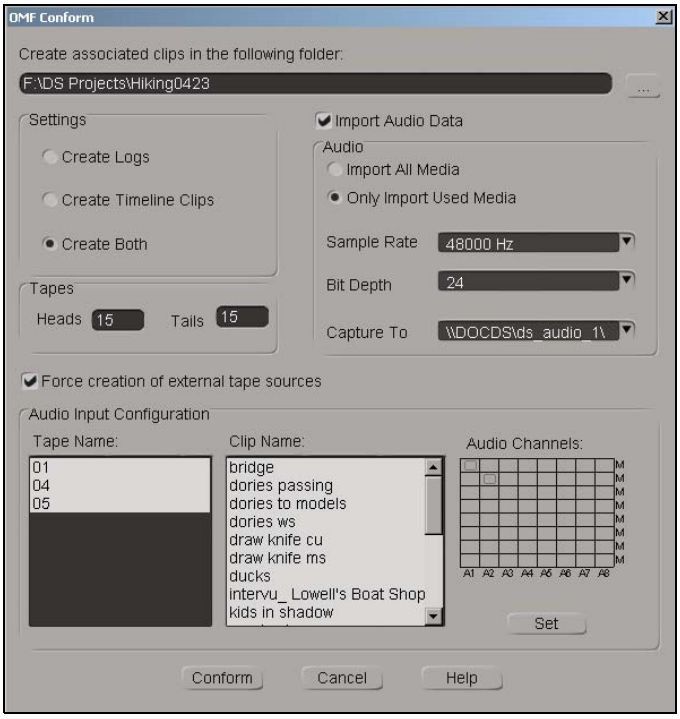
To conform an OMF file with audio media:

1. Open a new sequence in your project.

OMF files that are exported at a frame rate must be conformed in the timeline. OMF files that are exported as sample-accurate must be conformed in an audio container.

2. Load an OMF file which contains audio media into the OMF view.
3. In the OMF view, click the **Conform OMF** button.

   The OMF Conform dialog box opens.



4. If you want to log clips, select the folder in which you want to create the clips. The default folder is displayed in the text box at the top of the dialog box. Click the browse (...) button to select a new folder.
5. Select one of the following options:

Option	To
Create Logs	Log the clips in the selected folder.
Create Timeline Clips	Recreate the sequence on the timeline based on the composition information in the OMF file.
Create Both	Log the clips in the selected folder and recreates the sequence based on the composition information in the OMF file.

6. To add material before the in-point and after the out-point of all tape sources, type the appropriate number of frames in the Heads and Tails text boxes.
7. If you need to reconfigure the audio tracks, select a tape name from the Tape Name list and assign the audio tracks to the audio channels of your clip by clicking in the audio channel routing matrix.

You can assign the audio tracks differently for each source name.

The audio media will be imported using the assignment specified in the audio channel routing matrix and not those originally set in the file.

8. Click **Set** after you have assigned the audio tracks for each source name to save the settings.
9. Select the Import Audio Data option.
10. Select one of the following options:
    - **Import All Media** to import all the audio media contained in the OMF file into the current project.
    - **Only Import Used Media** to import only the audio media used in the actual sequence into the current project.
11. From the Sample Rate list, select a sampling rate at which to convert your audio media. The higher the sampling rate, the more accurate the conversion will be.

Make sure the sample rate you select matches the sample rate of your current sequence. If the sample rates do not match, no audio media will be available for playback.

To play back the audio media, you would have to change the sample rate of the sequence in the Sequence Preferences dialog box.

12. From the Bit Depth list, select a bit depth value. The higher the value, the more precise the audio conversion will be.
13. From the Capture To list, select a storage area on which your audio media will be stored.
14. Click the **Conform** button to begin conforming the OMF.

    Depending on the settings you chose, any of the following will occur:

- The clips, transitions, and supported effects are recreated on the timeline using the composition information.
- Master clips are created in the selected folder.
- The audio media is imported to your disk array.

Since no video media was imported, the video clip icons that appear when you open the folder in a bin are red, indicating that no media has been captured yet.

Effects that are not supported by Avid DS Nitris are marked by effect bars that have been deactivated. These effect bars act as markers to indicate where the effect was originally placed.

Although Avid DS Nitris may not be able to import certain effects, it will keep any keyframed information, which you can use as a reference to recreate the effect.

If there are any unsupported effects, a user message is displayed that asks you if you would like to view the generated list. If you click Yes, the list is generated and displayed in the Conform Error Log dialog box.

The Conform Error Log dialog box displays the in and out-points of the effect, the name of the original effect, as well as a brief description of the type of error that occurred.

15. To save this log as an .html file, click the **Save** button.

    The Save As dialog box opens.

16. Navigate to an appropriate folder, type a name for the log and click the **Save** button.

    The log is saved as an .html file and can be viewed in any browser.

Exporting an OMF File from Avid DS Nitris

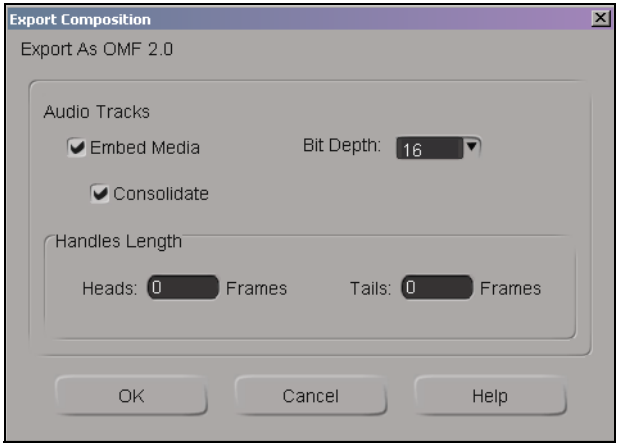
If you need to do some audio finishing on another system such as Digi Pro Tools, you can create, save, and export OMF files for the audio portion of your sequence. When you create and save an OMF file from within Avid DS Nitris, both the audio media and its composition information can be included.You can then transfer the file to another system.Note the following:

- Only the audio portion of your sequence can be exported to an OMF file. Any video clips on the timeline are ignored when you create an OMF file.
- No audio effects are exported, but edit points are created to show where effects were originally placed.
- You need DigiTranslator™, a Pro Tools option, to convert the OMF files into a format that Pro Tools can read. If DigiTranslator is not supplied with your Pro Tools application, you need to purchase and install it. See the Digidesign web site www.digidesign.com.
- Avid DS Nitris exports only OMF 2.0 files. See “OMF Level of Support”.
- OMF files have a size limit of 2 GB. If you are unable to export an OMF file for a large sequence, you need to divide the sequence into smaller segments.

To create and save an OMF file with audio media:

1. From the OMF view, click the **Timeline to OMF** button to create an OMF file of the audio portion of the current sequence.

   The Export Composition dialog box opens.



2. Select the **Embed Media** option to include the media in the OMF file you are creating.
3. Select the **Consolidate** option to include only the media that is being used on the timeline.

If the Consolidate option is not selected, the entire audio clip will be included in the OMF file.

4. From the Bit Depth list, select **16** (16-bit audio) or **24** (24-bit audio). The higher the bit depth value, the more precise the audio conversion will be.
5. In the Handles Length box, do the following:
   - Add a number in the Heads text box if you want to add extra frames before the material used on the timeline. These additional frames will be included in the OMF file for source material coming from tape only.
   - Add a number in the Tails text box if you want to add extra frames of material after the end of the material used on the timeline. These additional frames will be included in the OMF file for source material coming from tape only.
6. Click **OK**.

   The Save As dialog box opens.
7. Navigate to an appropriate folder, type a name in the File Name text box, and then click the **Save** button.

   All the information obtained from the audio tracks on the timeline are saved as an OMF file in the location you specified. You can now transfer it to another system.

Chapter 6
Conforming with EDL Files

This chapter describes how to load an Edit Decision List (EDL) into Avid DS Nitris and recreate a sequence on which you can apply further edits and effects.

This chapter includes the following topics:

Conforming EDLs

Avid DS Nitris supports the import of edit decision lists (EDLs). An EDL is a detailed list of the edits contained in a sequence, including all the timecode and supported effects information required to recreate the sequence in an online session. Avid DS Nitris accommodates EDLs from many different systems. It is compatible with the standard EDLs, as well as CMX, GVG, and OMF formats.

The EDL file is organized into a series of chronological instructions called *events*. You can use these events to create clips or to completely recreate the sequence on the timeline.

About the Avid EDL Processor

About the Avid EDL Manager

Avid EDL Manager is an application that lets you convert between different EDL formats, such as Sony, GVG, or CMX. You can also convert EDL files to OMF 1.0 files. Since Avid DS Nitris only supports OMF 2.0 files, you will need to further convert the OMF 1.0 files, so that they can be read by Avid DS Nitris.

You can use the Avid EDL Manager to read EDL files from RT-11 disks and then save the files in CMX or GVG format for import into Avid DS Nitris. Avid DS Nitris cannot read RT-11 disks.

You can also use the Avid EDL Manager to create an EDL that displays additional types of information, such as comments or patches. You can specify the different audio and video tracks in the sequence, as well as specify the assembly modes that the online edit controller uses when creating your sequence. For more information, refer to the *Avid EDL Manager User's Guide*.

The Avid EDL Manager application and guide are available on the Avid web site.

About the Avid EDL Processor

The EDL Processor is an application that lets you modify and save EDL files. You can use the application to modify the EDL content in many different way, from changing its title to converting timecodes. One use of the application is conversion of a sequence's timecode from 30 fps to 24 fps.

The EDL Processor and Help file are available for download from the Utilties page of the Avid DS Support Center at http://www.softimage.com/avidds.

Conforming an EDL File

When conforming your EDL, you have the choice of logging the events in the Avid Explorer, recreating the list of events on the timeline, or both. Once the events are logged, you can capture the media at any time from either the Avid Explorer or the timeline. For more information, look up "Batch Capturing" in the Help.

Before conforming your EDL, you should check if there are any layers to be composited. Offline editors often create multiple EDLs because the convention is to put separate layers into separate EDLs. Any audio or video events in the list are automatically loaded onto the appropriate tracks.

During the conform process, you can set up the appropriate heads and tails values for each clip. This is important if you need additional material at the beginning and end of each clip to do minor changes during the final stage of the edit. You can also configure the audio channel patching for each tape.

If you recreate your sequence on the timeline, you may want to process a rough cut and proof it against the original EDL. You can do this by reloading the EDL onto a new video track, adding a fade or crop effect to the video track and processing it, and then playing the sequence to make sure that the cuts and transitions on the two tracks occur in sync.

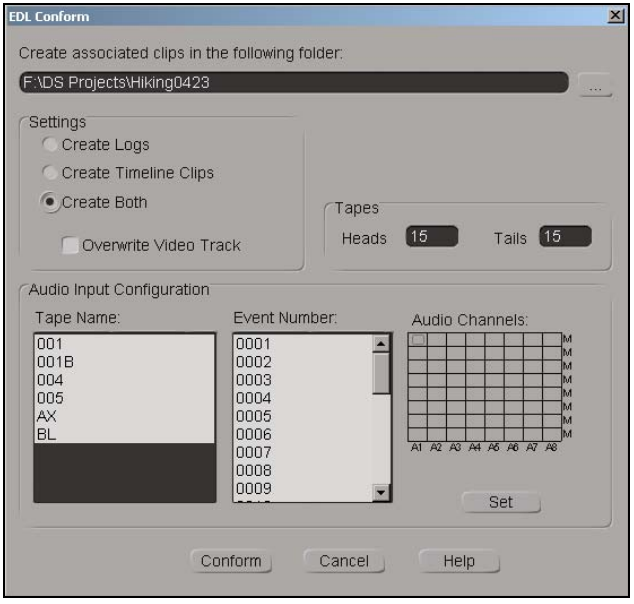
If the proofing session is successful, you can then remove the video track you added and continue to add effects and finishing touches to the original sequence.

To conform an EDL file:

1. Open a new sequence in your project.
2. Import or open an edit list in the EDL view.

3. From the EDL view, click the **Conform EDL** button.

   The EDL Conform dialog box opens.

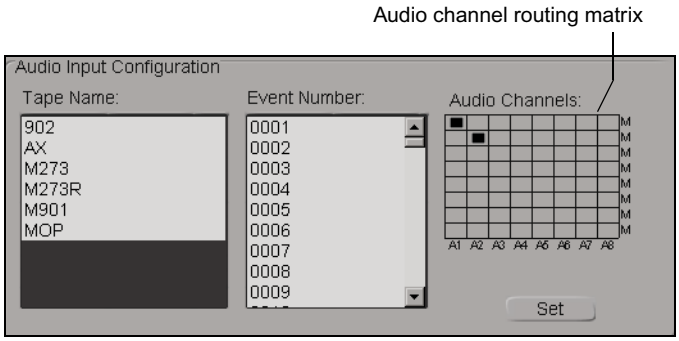


You can capture all events in the edit list, or hold down the Ctrl key and click the EDL events associated with the source material you want to capture.

4. If you want to log clips, select the folder in which you want to create the clips. The default folder is displayed in the text box at the top of the dialog box. Click the browse (...) button to select a new folder.
5. Select one of the following options:

Option	To
Create Logs	Create a log of events in the selected folder.
Create Timeline Clips	Recreate the events on the timeline.
Create Both	Create both a log of events in the selected folder and a sequence based on the events in the EDL.

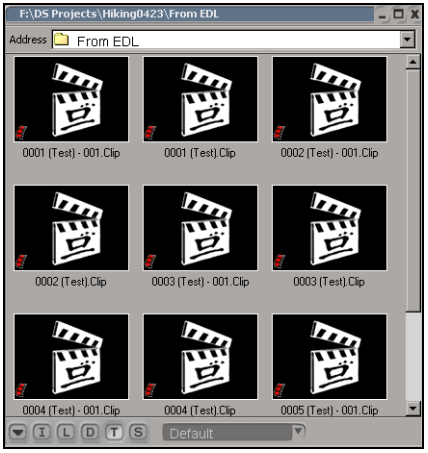
6. Select the **Overwrite Video Track** option to overwrite clips on the timeline at the same timecodes. If this option is not selected, the clips will be added to a new video track.
7. To add material before the in-point and after the out-point of all tape sources, type the appropriate number of frames in the Heads and Tails text boxes.
8. If you need to reconfigure the audio tracks, select a tape name from the Tape Name list and assign the incoming audio tracks to the audio channels of your clip by clicking in the audio channel routing matrix.



You can assign the audio channels differently for each tape name or you can multi-select the tape names, and make the audio channel assignment the same for all of them.

9. Click the **Set** button after you've assigned the audio tracks for each tape name to save the settings.
10. Click the **Conform** button to begin conforming the EDL.

    The events are recreated on the timeline as empty clips, and master clips are created in the selected folder for each event. When you open the folder in a bin, the clip icons are red since they have no media yet.



Audio events in the edit list do not support stereo clips. When a stereo clip (two streams) is created on the timeline, it is split onto two mono tracks; each track holds one stream.

Creating Layers from an EDL

Receiving multiple EDLs for different levels in a composite occurs frequently. For example, there may be an EDL for the background and another for the foreground. When this happens, both layers must be in sync on the timeline. You can either place the layers on video tracks, which allows more than one layer to be active at a time, or you can place these two layers in a container clip.For more information, see .

To create a layer from an EDL:

1. Open a new or existing sequence in your project.
2. Import or open an edit list in the EDL view.
3. From the EDL view, click the **Conform EDL** button.

   The EDL Conform dialog box opens.
4. Select one of the following:
   - **Create Timeline Clips** to recreate the events on a video track.
   - **Create Both** to create both a log of events in the selected bin and a sequence based on the events in the EDL.

5. Deselect the **Overwrite Video Track** option, so that each EDL is recreated on an individual video track.
6. Set the **Heads** and **Tails** and configure the audio inputs as required—see "Conforming an EDL File".
7. Click **Conform** to recreate the events on a video track on the timeline.

Avid DS Nitris ignores the current setting of the Ripple mode when performing an EDL to timeline. By default, all EDL conforms are performed with the Ripple mode off.

Opening an EDL File

The EDL view lets you import an EDL file produced on any external system, and capture material based on the edits in that EDL. When you import an EDL into Avid DS Nitris, it appears in the EDL view, where you can see the list of events. After importing your EDL into Avid DS Nitris, you can select the events that you want to recreate. To do this, you can either log the events as master clips in the Avid Explorer, or edit the list onto the timeline, or both. You can then capture media from either the clips in the Avid Explorer or on the timeline.

You can only recapture logged clips created from an EDL that originated on tape. Avid DS Nitris does not support recapture from file for logged clips created from an EDL.

Clip names are created from the event number. If you have more than one EDL in a project, however, there will be at least two clips with the same name. To avoid the conflict, the name of the EDL is appended to the clip name.
For example:

001 (NewYork1)
001 (NewYork2)

After the clips are created, you can rename them at any time. For more information, see .

To open an EDL:

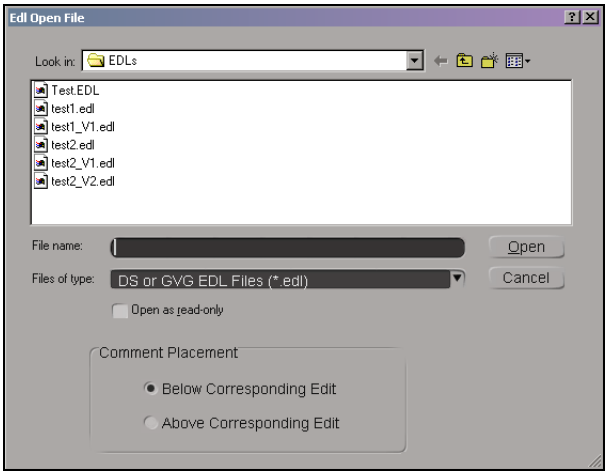
1. Do one of the following:

- In the view switcher, click the **EDL** button.
- Select **View > Single-Instance Views > EDL**.

The EDL view is displayed.

2. To load a new EDL, click the **Load EDL** button.

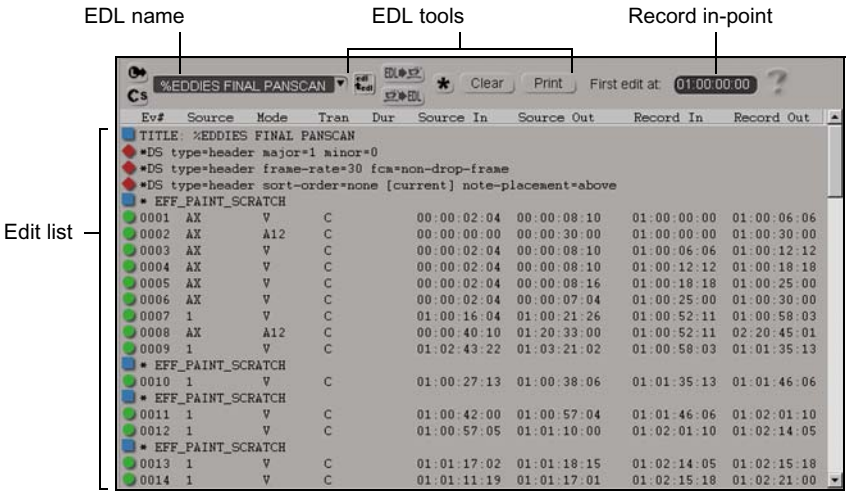
   The Open dialog box opens.



3. Select an EDL. If you know the system from which the EDL was generated, select the appropriate file type (DS, CMX, GVG).
4. In the Comment Placement box, indicate whether you want comments placed above or below the corresponding edit.
5. Click the **Open** button.

   The selected EDL is displayed in the EDL view.

   If you selected the wrong file type, you are prompted to convert the file to the appropriate type.



For more information about the EDL view, click the **Help** button.

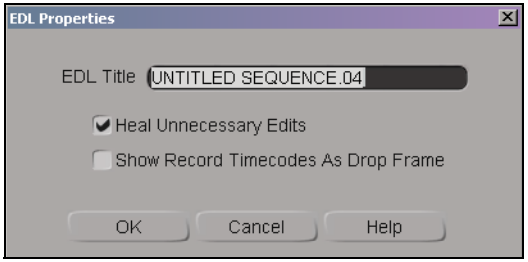
Setting EDL Properties

You can specify options for the currently displayed EDL in the EDL Properties dialog box, such as displaying timecodes as drop frame and determining comment placement.

To set EDL properties:

1. Right-click the main area of the EDL view and select **Properties**.

   The EDL Properties dialog box opens.



2. Use the controls in the EDL Properties dialog box to set the EDL properties.

For information about the EDL Properties dialog box, click the **Help** button.

Modifying an EDL File

Avid DS Nitris lets you modify certain properties of the EDL after you've loaded it into the EDL view. You can change the name of the source tape, as well as ripple the source timecodes.

Changing the Source Tape Name

If your source tape name is too long, or the name of the tape has changed between the offline and the online, you can modify the name of your tape directly in Avid DS Nitris. Once you've loaded an EDL into the EDL view, you can modify the source name of any one of the sources.

To change the source name of a tape in an EDL:

1. Load an EDL into the EDL view.
2. Right-click the main area of the EDL view and select **Change Source Name**.

   The Change Source Name dialog box opens.
3. From the Old Source Name list, select the name of the tape you want to change.
4. Type the new name in the New Source Name text box and click **OK**.

   The Source Name is changed in the EDL view.

Rippling the Source Timecodes

If there's a time delay between your master tapes and the offline EDL list, or the time of an event has changed, you can push or ripple any one of the source timecodes forwards or backwards directly in Avid DS Nitris.

To ripple all source timecodes in an EDL:

1. Load an EDL into the EDL view.
2. Right-click the main area of the EDL view and select **Ripple Sources**.

   The Ripple Sources dialog box opens.
3. In the Ripple By timecode box, type the amount by which you want the source timecodes to move.

To ripple the source timecode backwards, type the amount preceded by a minus (–) sign in the Ripple By timecode box.

4. Click **OK**.

   The source timecodes of all your source tapes are modified by the amount you specified.

To ripple the source timecode of one event in an EDL:

1. Load an EDL into the EDL view.
2. Select the event in the Edit list.
3. Right-click and select **Ripple Sources**.

   The Ripple Sources dialog box opens.
4. In the Ripple By timecode box, type the amount by which you want the source timecode to move.

To ripple the source timecode backwards, type the amount preceded by a minus (–) sign in the Ripple By timecode box.

5. Click **OK**.

   The source timecode of that one event is modified by the amount you specified.

To ripple the timecodes of all events from one source:

1. Load an EDL into the EDL view.
2. Right-click the main area of the EDL view and select **Ripple Sources**.

   The Ripple Sources dialog box opens.
3. Select the **Apply To All Edits From This Source** option to modify the source timecode of one of your source tapes.
4. Select the name of the tape from the list.
5. Type the amount by which you want the source timecodes to move in the Ripple By timecode box and click **OK**.

   All the timecodes for that one source tape are modified by the amount you specified.

Exporting an EDL File

If you want to perform certain tasks on another system, you can create an EDL of your current sequence, save it to file, and then transfer it.

Avid DS Nitris creates an EDL for each track of your current sequence and for some effects. Depending on the track, the EDL contains information about the timecode, transitions, and supported effects. Once you've created EDLs of the current sequence, you can save them and transfer the information to another system.

To create and save EDLs of the current sequence:

1. From the EDL view, click the **Timeline to EDL** button to create one or more EDLs of the current sequence.
2. If Avid DS Nitris created more than one EDL, select the EDL that you want to display from the EDL name list.

3. Click the **Save EDL** button to save your EDL to file.

   The Save As dialog box opens.
4. Navigate to an appropriate folder, type a name in the File Name text box, and click the **Save** button.

   The EDL is saved in the location you specified.

Printing an EDL File

When you need a hard copy of your EDL for review or want to keep a hard copy as a reference, you can print one out from within the EDL view. You can set the number of copies to print, as well as the orientation of the page.

To print an EDL file:

1. Load an EDL into the EDL view.
2. From the EDL view, click the **Print** button.

   The Print EDL dialog box opens.
3. In the Number of Copies text box, type the number of copies you want to print.
4. Select a page orientation for the EDL.
5. Click the **Print** button.

   The EDL is printed on your default printer.

To change your default printer, modify the printer settings in Windows.

Proofing an EDL

If you recreated your sequence on the timeline, you may want to process the rough cut, and proof it against the original EDL to make sure that the timing is correct.

To proof the EDL to timeline:

1. Reload the EDL onto a new video track. Make sure you deselect the **Overwrite Video Track** option.
2. Add a diagonal wipe or crop effect to the video track.
3. Process the effect.
4. Play the sequence to make sure that the cuts and transitions on the two tracks occur in sync.

   If the proofing session is successful, you can remove the video track and continue to add effects and finishing touches to the original sequence.

Chapter 7
Conforming Audio

Instead of recapturing or linking to audio media, you can capture or import an audio mix.

Possible workflows are:

- Creating a digital cut of the final audio mix in Media Composer (or other Avid editing system) and capturing the audio in Avid DS Nitris.
- Exporting an OMF file with embedded audio media from an Avid editing system and importing it into Avid DS Nitris.
- Instead of recapturing or linking to audio media, you can capture or import an audio mix. For more information, see “Audio Media Formats for Conform”.

This chapter includes the following topics:

- Exporting and Importing OMF Audio
- Capturing Audio as Separate Mono Tracks

Exporting and Importing OMF Audio

The following procedure outlines the workflow for exporting audio as an OMF file from an offline Avid editing system, transferring the audio to Avid DS Nitris, and importing the audio to Avid DS Nitris.

To export and import audio as an OMF file:

1. Make sure the project frame rates match—see "Audio Media Formats for Conform".
2. On Media Composer or another Avid editing system:
   - See "Preparing Audio for the Online Session" in the Avid Media Composer Help.
   - Export a sequence, project, or bins as an AFE file
   - Export the audio track as an OMF file (composition and audio media)

   If you are transferring the audio to Avid DS Nitris, embed the audio media and export it as OMF 2.0.

   For more information on creating an OMF file, see the Help or the documentation for the Avid editing system.
3. Transfer the OMF file to the Avid DS Nitris workstation and import.

   For more information, see "Conforming an OMF File" on page 583.
4. Create a new sequence and conform the OMF file.

Conforming an OMF file requires a new sequence, so conform the OMF file before conforming the AFE file.

OMF files that are exported at a frame rate must be conformed in the timeline. OMF files that are exported as sample-accurate must be conformed in an audio container.

5. Conform the AFE file by dragging the sequence from a bin to the timeline.
6. Batch capture the video media. Optionally, capture the audio if you want to use it for a scratch track.
7. Sync the sweetened sound.
8. (Optional) Delete the audio scratch track.

Capturing Audio as Separate Mono Tracks

By default, Avid DS Nitris creates a single .wav or MXF file and track from a multi-stream audio file. This is the most efficient way to work with audio files in Avid DS Nitris. However, other Avid applications cannot link to a multi-stream file. If you are capturing multi-stream audio to share with other Avid editing applications, you need to select the “Import audio into separate audio tracks” option. Selecting this option causes Avid DS Nitris to create multiple single-stream files.

You can set the option in the following dialog boxes: Capture Settings, New Sequence, New Project, and Sequence Preferences (Audio property page).

Appendix: Conforming Notes

When you start conforming sequences and projects, you should be aware of specific factors that could affect the conform process. Read the following sections if they pertain to your project:

- Naming Conventions when Conforming
- Notes on Conforming Titles
- Notes on Conforming Graphics
- Notes on Conforming Effects
- Notes on Conforming Matte Keys and Alpha Channels
- Notes on Conforming Audio

Naming Conventions when Conforming

To make it easier to move files between products and across platforms, use the following guidelines when naming files:

- Do not use the following characters in project, bin, or other file names: / \ : * ? ” < > |
- The Windows system does not recognize these characters in file names and will substitute other characters, possibly making the file name unrecognizable or causing other problems.
- Do not add spaces at the beginning or end of a file name. The Windows system will display such files, but might be unable to open them.
- Do not use a period at the end of a file name. The Windows system will display such files, but might be unable to open them.
- On Avid Macintosh systems, you can enable a setting that prevents you from using Windows restricted characters in file names and automatically adds the correct file name extensions to files for your project. When you select the Use Windows Compatible File Names setting, the file name extension .avp is added to project files and .avb is added to bin files when they are saved. These file name extensions are attached to existing files as well.
- Media Composer Macintosh systems, and other Macintosh-based Avid editors, cannot use MXF media created by Avid DS Nitris, due to a 31-character file name limit. This situation occurs when an Avid DS Nitris system creates a storage on a Unity volume to share with other Avid editing systems. This problem does not affect Windows systems.

Notes on Conforming Titles

- Place titles in the original sequence before you create an AFE file so that the title is conformed as part of the sequence. Avid DS Nitris does not conform titles as master clips. Titles promoted to 3D are not supported.
- **Titles in downconverted projects**: For HD projects offlined on a Media Composer or other Avid editing system, the preferred downconversion format is 16:9 anamorphic. Titles created in this 16:9 aspect ratio (created in the 16:9 viewer) conform correctly. However, if the sources were downconverted to 16:9 letterbox and titles were created in the 4:3 viewer, they do not conform correctly. There are two options to correct this problem:

In the Avid editing system:	In Avid DS Nitris:
Create the titles in a 16:9 viewer. If the titles are centered near the bottom of the screen (such as subtitles), they will conform correctly. For more precise titles, use the Avid DS Nitris option.	After importing the AFE file, adjust the titles individually. 1. In the graphics layout, select the title. 2. In the Object Properties list, click the Transformations button. 3. On the Transformations property page, change the Scale X value to 2.0.

- If the project includes titles and you are moving between Macintosh and Windows systems, make sure you have the same font with exactly the same name (preferably from the same manufacturer) on both the Macintosh and Windows systems. Check the font carefully because the same font can have slightly different names. For example, Times New Roman on the Macintosh system is named Times New Roman Regular on the Windows system.

  In some cases, you might need to convert the Macintosh font to a Windows font by using a font conversion program.

  For information on how Avid DS Nitris substitutes title fonts, see “Font Substitution for Titles”.
- For best results, use TrueType or PostScript fonts. Bitmap fonts can cause scaling problems.

- All fonts used must be made available for the online session. Copy them to a disk or a shared folder in the same path as the folder used in the offline editing session. As a best practice, you should always have a list of the fonts and foundry.

Subtopics

- Creating Real-Time Graphics from Conformed Titles
- Font Substitution for Titles
- AFE Titles Support Table
- AFE Effects Support Table

Creating Real-Time Graphics from Conformed Titles

After you have conformed the sequence, you might need to adjust conformed titles, so that they play as real-time graphics. The basic guidelines for real-time play are:

- All graphics objects must be applied on RGB channels (not on RGBA channels).
- Apply the Graphics effect directly on the clips and remove the filler.

In addition, make sure the graphics objects meet the following real-time conditions:

- Only the Airbrush, Color Blend, and Cutout effects can be played in real time. Color Gradient cannot be played in real time.
- Properties of the graphics objects must not be animated, except for the translation. Only translations in the X or Y axes can be played in real time.
- Animation that moves at different speeds cannot be played in real time. Make sure all graphics objects move in the same direction (either X axis only or Y axis only) at the same speed.

To create real-time graphics from conformed titles:

1. With the conformed titles on the timeline, double-click the corresponding Graphics effect.

   The Graphics layout is displayed.

2. Select all graphics objects.
3. On the Masks property editor, deselect the **Alpha** option in the Paint on Channel box.

4. Switch back to the Editing layout.
5. Select the Graphics effect and cut it by pressing Ctrl+X.
6. Select the clip below the Filler (if any) and paste the effect on it by pressing Ctrl+V.
7. Delete the Filler.

For more information, see "Processing Graphics" in the Help.

Font Substitution for Titles

If there is no exact match for the font used in a title, Avid DS Nitris substitutes a similar font. If none of the specified fonts are available, Avid DS Nitris substitutes the Arial font.

Avid editing system font	Avid DS Nitris font
Chicago	System or Mac Chicago
Courier	Courier New
Geneva	MS Sans Serif or System
Helvetica	Arial
Monaco	Terminal
New York	MS Serif
Palatino	Times New Roman
Times	Times New Roman

In some cases, you might need to convert the Macintosh font to a Windows font by using a font conversion program.

AFE Titles Support Table

The following table lists the level of support for conforming titles created in the following Avid editing products:

- Symphony 4.0 and later

- Media Composer and Film Composer 11.0 and later
- Media Composer Adrenaline 1.0 and later
- Avid Xpress 5.0 and later
- Avid Xpress DV 3.0 and later
- Avid Xpress Pro 4.0 and later

Titles from previous versions might not have the same level of support. For detailed information, consult the AAF/AFE Conform Log that is displayed at the end of the conform process.

When conforming a title, Avid DS Nitris always uses the Scale to Fit setting, rather than the Conversion Mode setting in Sequence Preferences.

For an explanation of the support level, see "Legend".

Category	Support level	Comment
General		
Video formats	A	4:3, 16:9 (NTSC and PAL) supported.
Format conversion	A	All formats supported.
Crawling and rolling titles	B	Might appear different because of different interline and intercharacter metrics. See the Text section of this table.
Marquee titles	B	The following attributes are not supported: • Edge effects (Profiles) • Enable Image Blur option • Use Main Surface Alpha shadow property
3D titles	D	Avid DS Nitris substitutes a 3D DVE effect. Title text and objects are not supported.
Background	A	Color and video both supported
Safe color	NS	Not supported
Object locking	A	Supported

Category	Support level	Comment
Object grouping	NS	Objects are imported as ungrouped.
Blend color 8 directions (gradient)	B	Appears slightly different, especially with 4 diagonal directions.
Low-pass filter	B	Avid DS Nitris applies antialiasing on individual graphics.
Effect parameters	B	All supported except crop parameter (no equivalent in Avid DS Nitris).
Text		
Position	B	Supported, but might appear different because Avid DS Nitris and other Avid editing systems use different metrics for interline spacing.
Font	B	Supported, with substitution if necessary. Arial is the default font for substitution.
Font size	B	Supported, but might appear different because Avid DS Nitris and other Avid editing systems use different font metrics.
Font style	A	Supported
Justification	A	Supported
Pair kerning	A	Supported
Global and per character kerning	NS	Not supported because Avid DS Nitris and other Avid editing systems use different metrics for intercharacter spacing.
Leading	B	Supported, but might appear different because Avid DS Nitris and other Avid editing systems use different metrics for interline spacing.
Fill	B	Supported, except for blend transparency (no equivalent in Avid DS Nitris). Video fill is not supported.
Outline	B	Supported, except for blend transparency (no equivalent in Avid DS Nitris). Maximum outline width is 10.

Category	Support level	Comment
Shadow	B	Supported, except for shadow type depth (no equivalent in Avid DS Nitris). Maximum offset of 200.
Objects (line, rectangle, oval)		
Position and size	A	Supported
Fill	B	Supported, except for blend transparency (no equivalent in Avid DS Nitris).
Outline	B	Supported, except for blend transparency (no equivalent in Avid DS Nitris).
Shadow	NS	No equivalent in Avid DS Nitris.

Notes on Conforming Graphics

- If you are conforming a sequence that includes still graphics, the graphics will link automatically if you copy them to a folder in the same path as the folder used in the offline edit. For example, if the offline sequence includes graphics imported from a folder named Graphics at the top level of drive D (D:\Graphics), create a folder named D:\Graphics on the online editing system and copy the graphics to it.
- **Layered Photoshop graphics:** Layered Photoshop graphics that have been imported as layers in the original sequence are not conformed correctly. You need to import the original layered graphic into Avid DS Nitris using the Generate > Import Photoshop command.
- If the original sequence includes graphics that use video levels (ITU-R 601 levels, which include “SuperBlack” and “SuperWhite”), Avid DS Nitris preserves information about the video levels when creating master clips (through AFE files). When you recapture the graphics, Avid DS Nitris automatically recaptures them at the original levels.

Notes on Conforming Effects

- **Level of support:** Be aware that not every effect in the original sequence will be completely conformed.

  For specific information, see “AFE Effects Support Table”, and “AFE Titles Support Table”, and the Avid DS Nitris release notes. Also, during the conform process, you can view a log which lists any effects and parameters that are not supported.

- **Multi-cam:** Multi-cam groups are not conformed. Only the selected clip is conformed.

- **Soft Cuts and Short Transitions:** Most Avid editing systems use a special interpolation for transitions to provide support for soft cuts and very short transitions (such as a four-frame dissolve). Avid DS Nitris does not yet support this type of interpolation, so these transitions will not conform totally and might require some adjustment after the conform process.

- **Color Correction:** Color corrections made in Color Correction mode with the Symphony Color Correction tool are not conformed. For color corrections to be conformed, you must apply the Color Correction effect from the Effect Palette, as described in the *Avid Symphony Color Correction Guide*. This problem does not occur if you use the Avid Color Correction tool (available with Avid editing products other than Symphony).

  Secondary color correction is not conformed.

  In Avid Symphony, the gamma is applied in RGB space between the superblack and superwhite range while in Avid DS Nitris, the RGB gamma is applied between the black and white range. Therefore, there is a small discrepancy in conform when conforming color corrected sequences from Avid Symphony with applied HSL gamma, particularly for gamma values close to 0 or much larger than 1.

- On the Avid editing system, always apply effects directly to a clip or use nesting to apply an effect to multiple clips.

- **Foreground level and effects on V1:** Avid DS Nitris always displays images on video track V1 as completely opaque and ignores any setting to Foreground Level (Opacity in Avid DS Nitris). On the Avid editing system, add Generated Black (created through the Title Tool or as an imported graphic) beneath any effects that use Level in this manner.

- **Effects applied to filler:** Color Correction and Pan and Scan applied to filler on the top track of the original sequence are conformed correctly in Avid DS Nitris, but other effects are not. Clips on lower tracks are not affected by the effect applied to the filler. For example, if a Color Effect is applied to filler on V2 and used to desaturate all the clips beneath it on V1, none of the clips will be desaturated when the sequence is conformed.

  On the Avid editing system, always apply effects directly to a clip or use nesting to apply an effect to multiple clips.

- **Motion effects:** Like titles, source-side motion effects are conformed only as part of a sequence.

  The following points apply to Timewarp (record-side) motion effects:

  - Timewarp effects that use speed ramp adjustments require the anchor frame to be on the first key value in order to conform correctly. If this is not the case, then the AAF/AFE Conform Log displays a message. To fix the effect in Avid DS Nitris, you need to adjust the Base Frame property accordingly.
  - Timewarp effects with speed graphs from some older versions of Avid editing systems, such as Media Composer Adrenaline v1.5.1, do not conform. Timewarp effects from Media Composer Adrenaline HD 2.0 conform correctly.

AFE Effects Support Table

The following table lists the level of support for conforming effects through AFE files created in the following Avid editing products:

- Symphony 4.0 and later
- Media Composer and Film Composer 11.0 and later
- Media Composer Adrenaline 1.0 and later
- Avid Xpress 5.0 and later
- Avid Xpress DV 3.0 and later
- Avid Xpress Pro 4.0 and later

Effects from previous versions might not have the same level of support.

For information about special cases, see “Beginning the Conform Process”.

For information about effects that did not conform or did not conform completely, consult the AAF/AFE Conform Log that is displayed at the end of the conform process.

AAF files created in the following products do not support many of these effects:

- *Media Composer Adrenaline v1.5 or later*
- *Avid Xpress Pro v4.5 or later*
- *Avid Xpress DV v4.5 or later*
- *NewsCutter Adrenaline FX v5.5 or later*
- *NewsCutter XP v5.5 or later*

You can use AFE files instead.

Legend

Support level	Description
A	Effect supported. The effect is imported as a corresponding Avid DS Nitris effect. All parameters and keyframes are set to match, as much as possible, the original effect.
B	Imported with some parameters and keyframes. See the Comment field for information about each effect's parameters.
C	Imported without parameters or keyframes. Avid DS Nitris loads a preset that matches the defaults of the imported effect.
D	Replaced when imported. Avid DS Nitris loads a similar effect without any parameters set.
NS	Not supported. The effect is ignored by Avid DS Nitris.

Notes on Conforming Matte Keys and Alpha Channels

- Matte Key clips: Place matte keys in the original sequence before you create an AFE file so that the matte key is conformed as part of the sequence. Avid DS Nitris does not conform matte keys as master clips.
- If your sequence includes any three-layered matte keys, collapse the effect in the Avid editing system. Make sure that the foreground, background, and matte effect are in the collapsed effect. Any effects over a filler layer should be moved onto the video layer they are affecting. Only Blend Masks and Pan & Scan effects should be applied to a filler layer.
- Traditional matte keys (Matte Key effect): On the Avid editing system, Foreground (fill) and Matte elements must be nested inside the Matte Key effect or the effect will not be conformed correctly. Use the Collapse function on the fill and matte before you apply the Matte Key effect. Then replace the Submaster effect with a Matte Key effect.
- Matte Key effects are conformed as Matte containers. If the fill and matte were not nested on the Avid editing system, you can fix the problem in Avid DS Nitris by cutting the fill element and pasting it into the container.

  For more information, see Working with Mattes in the Help
- Imported matte keys: Matte keys created from still graphics and imported to an Avid editing system are conformed as Matte containers with all parameters intact.

  However, imported graphics promoted to 3D Matte Keys are not conformed. Avid DS Nitris replaces the 3D Matte Key as a DVE within a Composite container without the original effect parameters.

  To set up the matte key correctly:

  - Open the composite container.
  - In Layers View, marry the fill and matte by dragging the matte to the fill layer.
  - Invert the alpha channel.
  - Delete the old matte layer and the DVE effect on the alpha channel.
  - Apply a Layer DVE inside the container or a DVE clip to the outside and recreate any animation.

- QuickTime movies: Imported QuickTime movies with alpha are not conformed correctly. You need to manually invert the alpha channel using the Avid DS Nitris Matte container properties.
- Sequential file formats: Sequential file formats with alpha channels that have been imported to an Avid editing system are now conformed correctly.

Notes on Conforming Audio

- Audio pan, Audio EQ, and AudioSuite plug-ins are not conformed. In the original sequence, you can mix down the areas that contain these adjustments or effects and then output an audio mix—see “Audio Media Formats for Conform”.
- If you are conforming a clip or sequence captured from a BWF (Broadcast Wave Format) source, Avid DS Nitris marks the master clip as a tape source. As a result, you cannot recapture media from the source BWF file.

  To work around this problem, do one of the following:

  - Directly relink to the original media through shared storage
  - Import the media from an OMF file containing embedded media.
  - On the Avid editing system, transfer the media to tape. On the Avid DS Nitris system, recapture the media from that tape.

  However, you cannot relink to BWF .aif media nor can you import an OMF file containing BWF .aif or .mxf media captured in one of the following products:

  - Media Composer Adrenaline
  - Avid Xpress Pro
  - Avid Xpress DV
  - NewsCutter Adrenaline FX
  - NewsCutter XP

  For these products, relink to .wav or .mxf media, or import an OMF file with embedded .wav media.

Editing

This book includes information about editing with Avid DS Nitris. For links to specific information. see the following topics:

- Working with Projects
- Working with Sequences
- Opening a Film-based Project
- Building a Rough Cut
- Trimming Clips
- Applying Image Transition Effects
- Processing
- Working with Effects and Transitions
- Working with Time Effects
- Animating Objects
- Mixing Audio
- Working with Audio Effects
- Working with Effects and Transitions

Related Topics

Editing Reference

Chapter 1
Working with Projects

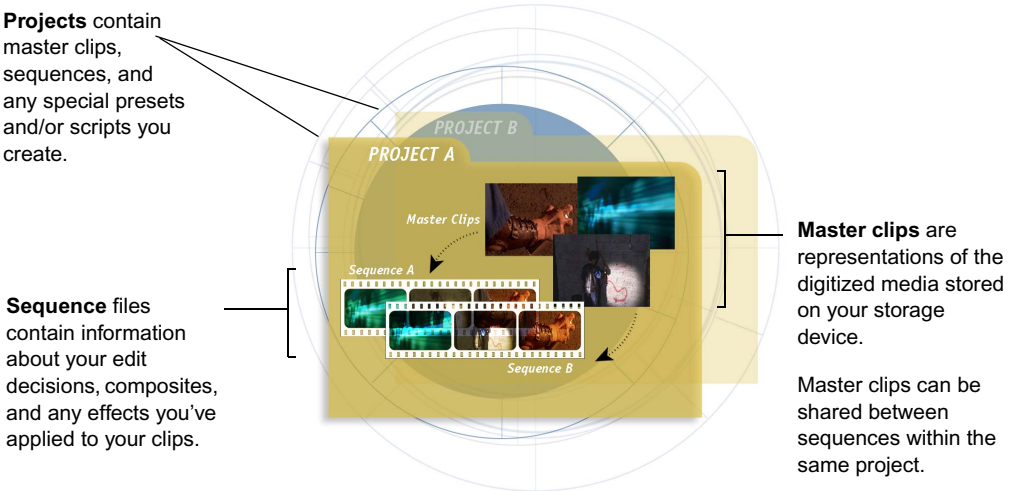
This chapter describes how your project files and media are handled in Avid DS Nitris. Since project organization plays a key part in the editing process, you will learn how to create projects, and use the Avid Explorer to organize your media into folders.

The following sections describe how to work with projects and media:

- Starting a Work Session
- Managing Files and Folders
- Working with Bins
- Viewing Events

Starting a Work Session

When you start Avid DS Nitris, the Open Project dialog box is displayed, so that you can view and manage all projects anywhere on the network. Each project has its own associated sequences. When you open a sequence, you have access to all the master clips and custom presets in the project.



By default, all projects created with Avid DS Nitris are stored in their own folder under the DS Projects folder. It's important that you keep all the files related to a project inside the project folder, so that they can be archived, restored, and/or purged.

If you're running more than one version of Avid DS Nitris on your workstation, new projects will be classified by version and stored in a subfolder of the DS Projects folder.

To filter the list of projects, you can:

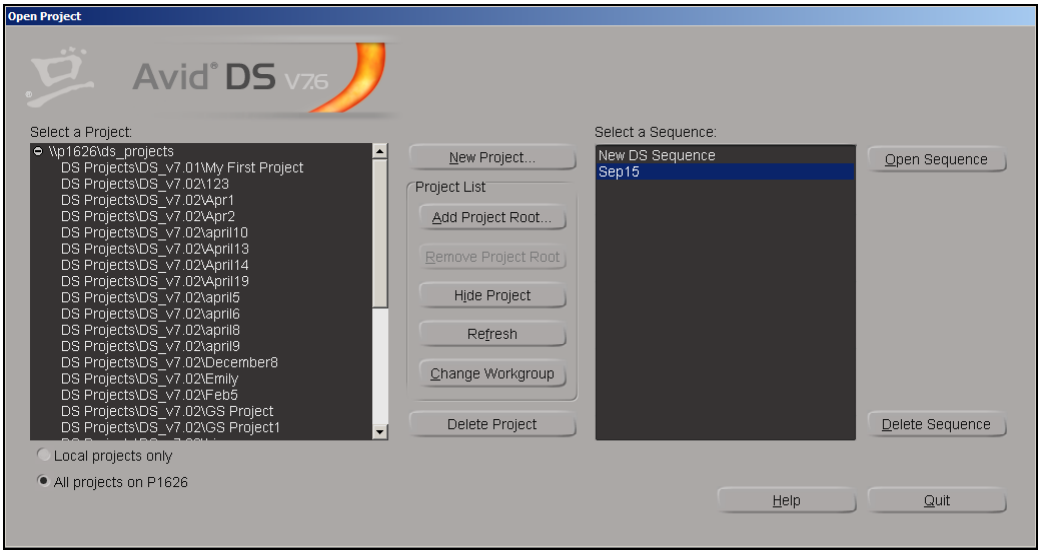
- *Hide individual projects using the appropriate button.*
- *Refresh the list of projects by clicking the Refresh button.*
- *Reveal all hidden projects by pressing Ctrl + Refresh button.*

To start Avid DS Nitris, do one of the following:

- Double-click the Avid DS Nitris icon on the Windows desktop.
- Click **Start** > **Programs** > **Avid Products** > **Avid DS Nitris** > **Avid DS Nitris v*x.x***.

*Tip: If you selected the **Load Last Sequence at Startup** option in the User Preferences dialog box and want to bypass this option, press Shift and double-click the Avid DS Nitris shortcut on the desktop. This starts the application and displays the Open Project dialog box from which you can select a different project.*

The Open Project dialog box is displayed.



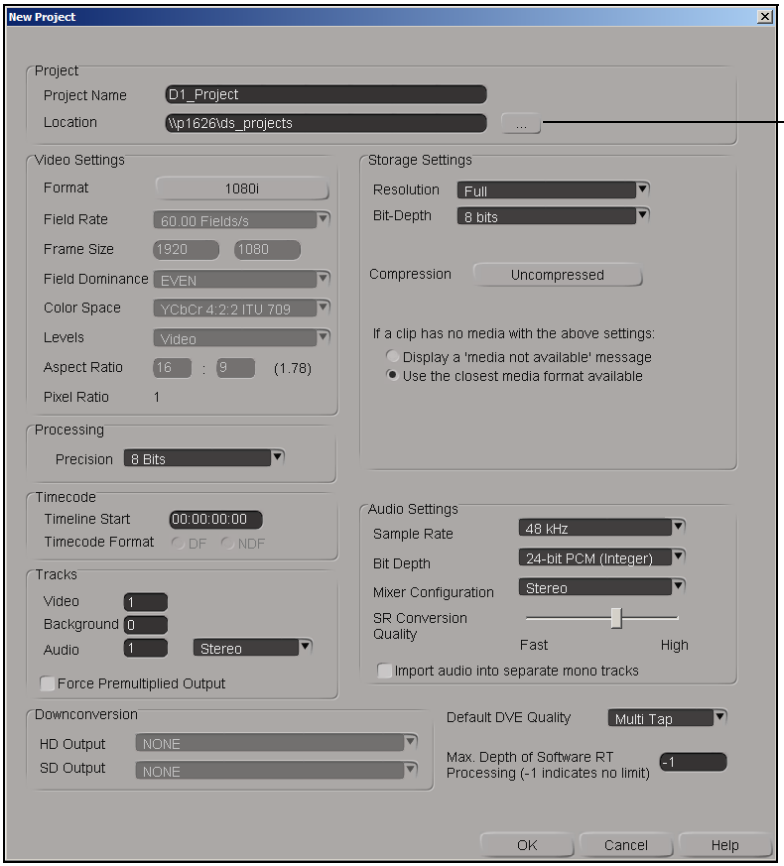
You can now create or open an existing project or sequence.

Creating a New Project

When you first start Avid DS Nitris or when you want to start a new project, you are prompted to name your project, designate a location for it, and set the project's preferences. Once you've done this, a project folder is created at the specified location. By default, all sequences associated with this project are saved in this folder.

To open a new project:

1. Do one of the following:
   - From the Open Project dialog box, click the **New Project** button.
   - Select **File** > **New** > **Project**.



2. In the New Project dialog box, enter a unique name for your project in the **Project Name** text box.
3. In the Location text box, type the path where you would like the project files to reside. You can also use the browse (...) button to locate the folder in which to save your project.
4. Set the appropriate preferences for your project.

Project preferences define the way your material is captured, processed, and output by Avid DS Nitris. Once you set the project preferences, they become the default settings for the sequences that you create in this project. Most of these preferences can be changed during the course of your work.

For detailed information on setting these preferences, click the **Help** button.

5. Click **OK** to save the project preferences.

   The Editing layout is displayed for you to start building your sequence, and the Avid Explorer displays your project as the favorite.

Opening an Existing Project

Once you've created a project, it is available to all other users in your workgroup. Opening any sequence in the project gives you access to all master clips and presets used in that project.

A project can only be opened by one user at a time.

To open an existing project on your workstation:

1. Select **File** > **Open** > **Project**.

   The Open Project dialog box is displayed.

2. From the **Select a Project** list, select a project name.

3. From the **Select a Sequence** list, do one of the following:

   - Click **New DS Sequence** and then click **New Sequence.**
   - Double-click an existing sequence name.
   - Select a sequence and click **Open.**

   If you created a new sequence, the New Sequence dialog box is displayed for you to set the sequence preferences—see "Setting Sequence Preferences" on page 675.

   A new or existing sequence is opened.

To open an existing project on another workstation in your workgroup:

1. Select **File** > **Open** > **Project**.

   The Open Project dialog box is displayed.

2. Select **All Projects on *workgroup_name***.

3. From the **Select a Project** box, choose a project under the appropriate workstation.
4. From the **Select a Sequence** box, select a New DS Sequence or open an existing one.

   You will be notified if another user has this project opened.

If you need to work on a sequence within that project, but it is heavily used by other users, you should create a project on your own workstation and then import the sequence into your project. Avid DS will automatically link to the media. When you have completed the sequence, you can import it back to the original project—see *"Importing Sequences and Master Clips from Another Project" on page 673*.

Setting User Preferences

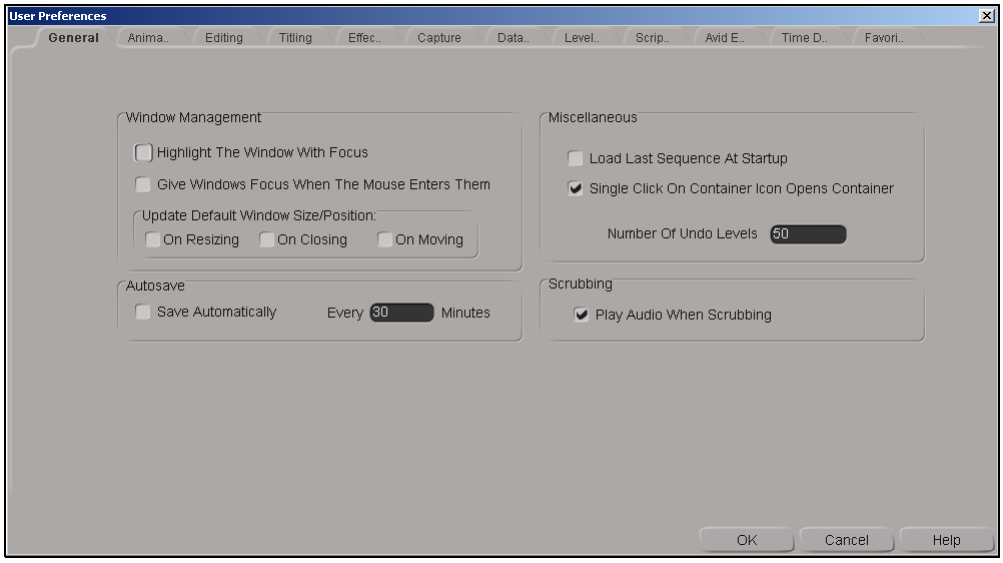
You can work more efficiently by setting some personal preferences, such as automatic saves, number of undo levels, animation preferences, and the number and type of tracks to display when you open a new sequence. You can also set editing preferences, such as pre-roll and post-roll frames.

After setting the preferences, they become part of your user profile under your user name. The next time you start Avid DS Nitris, these preferences are used.

Do not customize the fonts, windows scheme, or taskbar properties on the Windows desktop or Avid DS Nitris may not function properly.

To open the User Preferences dialog box:

- Select **File** > **User Preferences**.



For information about the User Preferences options, click the **Help** button.

Choosing a Scripting Language

Avid DS Nitris supports several popular scripting languages. To use a scripting language with Avid DS Nitris, you must first install the scripting engine for that language.

Although Avid DS Nitris logs commands in its History pane using VBScript syntax, you can write and run scripts using any language that is ActiveX-compliant. ActiveX is a technology for sharing data between programs. Some ActiveX-compliant scripting languages include:

- ActivePerl
- JScript
- Python ActiveX Scripting
- VBScript (default)

To set a preferred scripting language:

1. From the User Preferences dialog box, select the Scripting/Logging tab.
2. From the **Scripting Language** list, select your preferred scripting language.

No matter what language you've specified in your preferences, Avid DS Nitris logs commands using the VBScript syntax.

The Scripting Language list contains the ActiveX scripting languages whose engines are installed on your workstation. If you just installed an engine and it's not listed, restart Avid DS Nitris. If it still isn't listed, restart your computer.

Setting Up the Command Log

Avid DS Nitris not only creates a command log in the History pane of the Script Editor, but can also create a separate log file that is saved to disk for each Avid DS Nitris session.

You have the option of setting a limit to the number of commands logged in the History pane. You can also save a log file to disk, containing all commands used in each Avid DS Nitris session.

To set the command log size:

1. From the User Preferences dialog box, select the **Scripting/Logging** property page.
2. The number of commands kept in the History pane of the Script Editor by default is 200. To modify this number, click in the **Lines** text box and type a new number. To set no limit to the number, select the **Unlimited** option.

To activate the log file:

1. On the Scripting/Logging property page, select the **Log Commands to File** option to create a command log file.

   A log file will be created the next time you start Avid DS Nitris.
2. To specify a location for the log file, type a path in the **File Name** text box.

Avid DS Nitris overwrites the existing command log file each time you start a new session. If you want to keep the log file, make sure you rename it before starting Avid DS Nitris.

You can only use the logging and scripting tools to capture media.

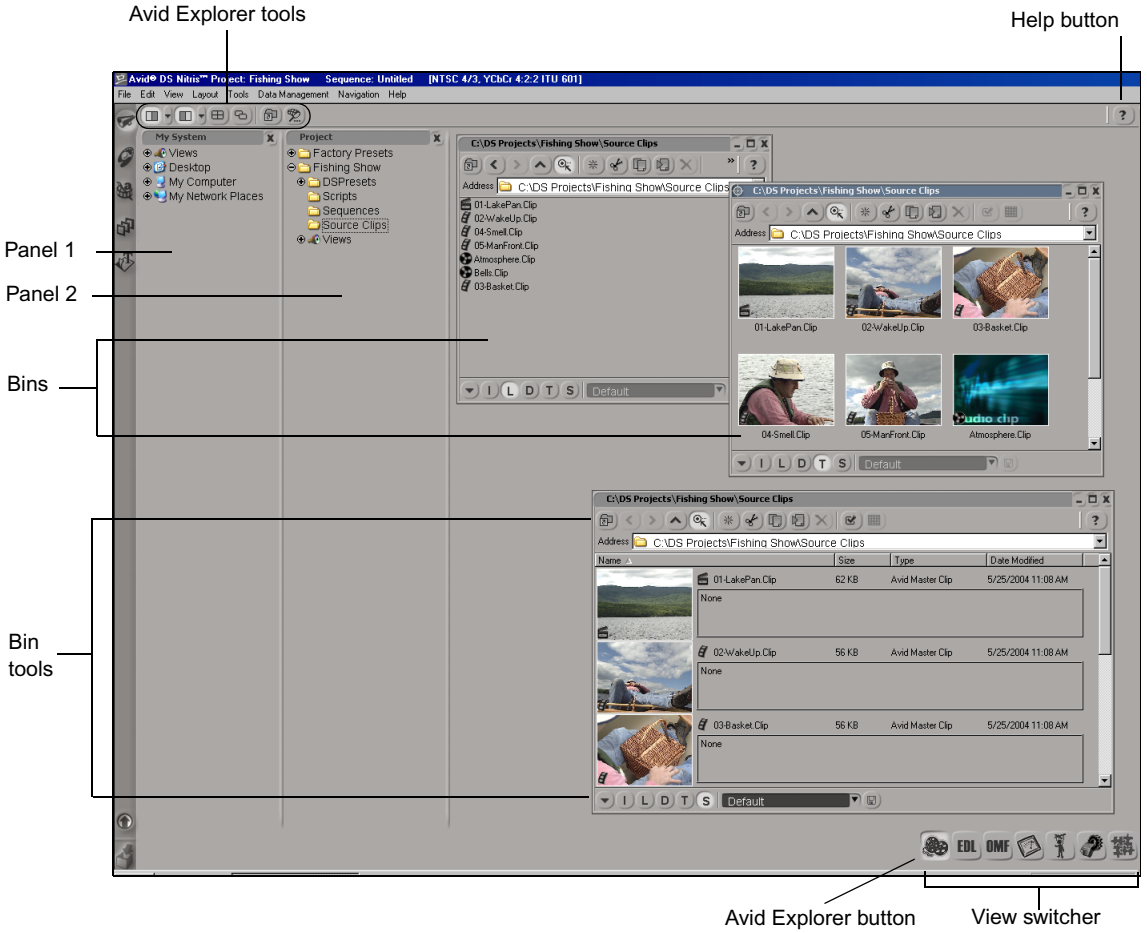
Managing Files and Folders

After you start a project, you can organize your project files to suit your project's needs. When you work with files, folders, and the windows that contain them, you are working in the Avid Explorer view.

Working with the Avid Explorer

The Avid Explorer is a view that opens by default when you start a project. By using the Avid Explorer, you can

- Navigate and view the entire contents of your workstation
- Organize a project's clips, sequences, and effects in a tree structure of folders.
- Capture from file and import clips from other projects



Any files or applications that you can open on your Windows desktop you can also open in the Avid Explorer. For example, imagine that you are working on a commercial and the producer sends you a Microsoft® Word document that lists the latest changes. You can open the document within the Avid Explorer and refer to it while you are editing, without needing to switch back and forth between application windows. You can also open files associated with your Web browser through the Avid DS Nitris Web viewer, which you launch by selecting View Multi-instance Views > Web.

When you select a folder, the folder's contents are displayed in a *bin*. For more information, see "Working with Bins" on page 648.

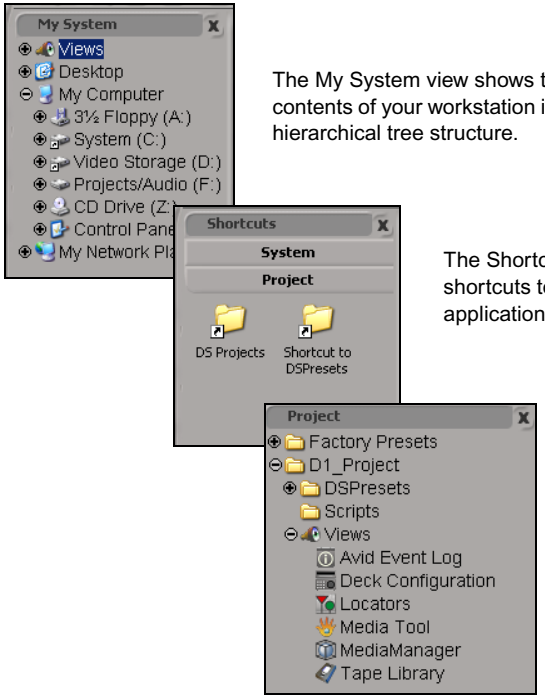
You can include the Avid Explorer as a single-instance view or a multi-instance view in any views that you create.

To access the Avid Explorer from another view:

- From the view switcher, click the Avid Explorer (Main) button.

Using the Avid Explorer Views

The left side of the Avid Explorer includes two panels. Each panel can contain one of three views: My System, Shortcuts, or Project.



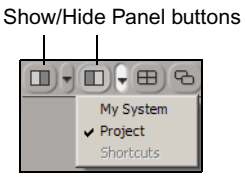
The My System view shows the contents of your workstation in a hierarchical tree structure.

The Shortcuts view shows shortcuts to files, folders, or applications.

The Project view shows the folders for the current project.

To show or hide a panel:

- Click the Show/Hide Panel button.



The Show/Hide Panel button is highlighted for the panel that is displayed.

To choose a view to display in a panel:

- Click the pop-up menu next to a Show/Hide Panel button and select **My System**, **Shortcuts**, or **Project**.

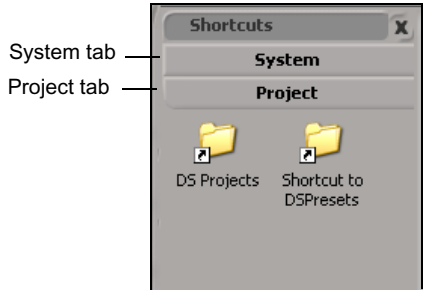
A check mark indicates which view is displayed.

Using the Shortcuts View

The Shortcuts view lets you create and access shortcuts that suit your work requirements. For example, you can create a shortcut to a folder with your favorite presets or to a graphics application. Any shortcuts you can create in Windows can be created in the Shortcuts view.

The Shortcuts view is divided into two tabs: System and Project.

- Shortcuts that you create on the **System** tab are available in all projects.
- Shortcuts that you create on the **Project** tab are available only when the project in which you created them is open.



To switch between tabs:

- Click the **System** tab or the **Project** tab.

To create a shortcut, do one of the following, depending on what is displayed in a bin:

- Drag a folder or file from a bin to either tab in the Shortcuts view.
- Drag the folder icon from a bin's address bar to either tab in the Shortcuts view.
- In either tab of the Shortcuts view, right-click an empty area and select **New Shortcut**. The Windows Shortcut Wizard is displayed. Follow the instructions to create a shortcut in the Shortcuts view.

To delete a shortcut, do one of the following:

- Right-click the shortcut and select **Delete**.
- Select a shortcut and press Delete on the keyboard.

To access the Shortcuts context menus:

- Right-click the background. Use this context menu to change the way shortcuts are displayed (large icons, list, thumbnail) and how they are sorted and arranged.
- Right-click a shortcut. Use this context menu to cut, copy, paste, delete, and other system functions.

The Create Shortcut command, which is displayed when you right-click an object, does not create a shortcut in the My System view or Project view.

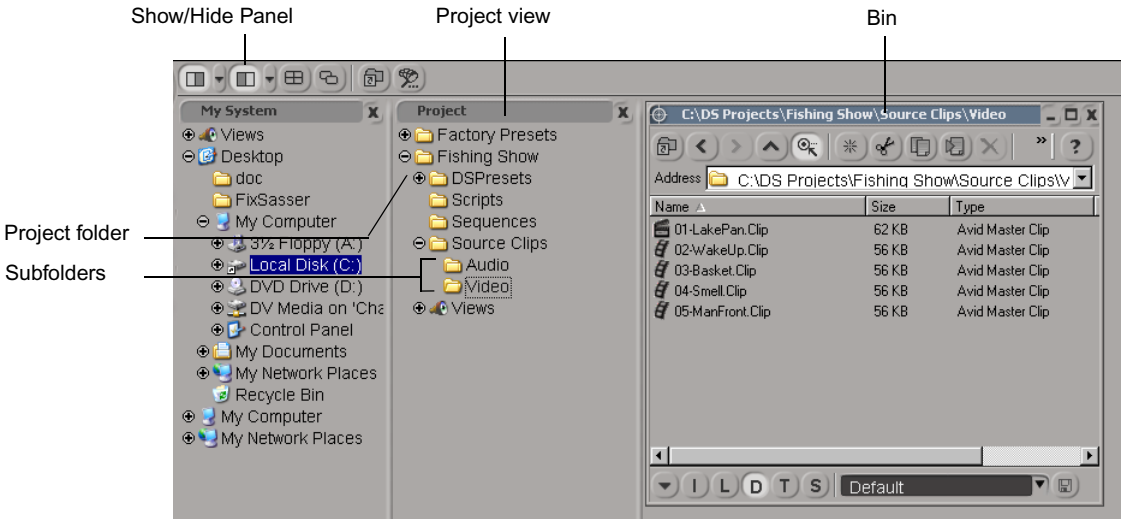
Organizing Your Project Folder

Before you start capturing material and editing sequences, create subfolders in your project folder to hold master clips, sequences, and custom presets. You'll find that creating subfolders helps organize your project, so that you can locate files quickly and easily.

Also, when Avid DS Nitris archives a project, it gathers and archives all the files in the project folder. Therefore, it is important that you keep all the project files within the project folder.

When you create a new project in Avid DS Nitris, a project folder is automatically created and displayed in the Avid Explorer. It also creates subfolders for DSPresets and scripts. This default structure can be customized, so that all projects you create are already organized. For more information, see "Creating a Standard Folder Structure" on page 644.

There are ways to set up your folders that make tasks, such as recapturing, much easier. Here is an example of a simple but effective folder setup:



When capturing clips, you can select Auto-Source as the capture target. This automatically creates a folder for your master clips with the same name as the tape from which you are capturing material.

Creating or Deleting Folders

To create a folder:

1. In the Project view, select your project folder.

   The contents of the folder are displayed on the right in a bin.

2. Do one of the following:

   - In the bin toolbar, click the New button.
   - Right-click an empty area of the bin and select **New** > **Folder**.

   The new folder is displayed in the bin with the name New Folder highlighted.

3. Type in a new name and press Enter.
4. Continue adding as many folders as you need. You can create subfolders under your new folders. Simply click the new folder in the Project view and then right-click the bin to add a new folder.

To delete a folder:

- In the Project view or bin, right-click a folder and select **Delete** from the Windows section of the menu.

Moving Files between Folders

You can rearrange the files in your project folders by dragging them to a new folder.

To move a file to another folder:

- Drag a file from a bin to a folder in the Project view or to another bin.

The No Entry icon changes to a Move icon when you place the pointer over a folder in the Project view.

You cannot move clips or sequences between projects, but you can import sequences and master clips into another project. For more information, see *"Importing Sequences and Master Clips from Another Project" on page 673.*

To make a copy of a file:

- Select the clip or sequence that you want to copy, press Ctrl and drag the clip to an empty area in the current folder, or to another folder in the tree.

Renaming Project Files

You can rename a master clip, sequence, or folder in your project.

You cannot change the name of a clip or sequence if it is open or when previewing it in the Source viewer.

To rename a clip, sequence, or folder:

1. In a bin, click the name of a clip, sequence, or folder.
2. Type in a new name and press Enter.

When you rename a clip, sequence, or other Avid DS Nitris file, make sure to keep the file extension (.Clip, .Segment, and so on). Avid DS Nitris cannot manage the file properly without the extension.

*A file name can contain up to 255 characters and include spaces. It cannot contain any of the following characters: \ / : * ? " < > |*

Creating a Standard Folder Structure

If you want Avid DS Nitris to create a standard folder structure for new projects, you can create an .ini file that will specify the folders that will appear in the Avid Explorer when a new project is created. The .ini file must be called *folder.ini* and must be stored in the \Preferences*username* folder. You can have different .ini files for each Avid DS Nitris user.

To create a standard folder structure for new projects:

1. Open a text file using a text editor.
2. On the first line of the file, type the following in uppercase letters: `[FOLDERS].`
3. Type the names of the folders you want to appear in the Avid Explorer, one on each line. For example:

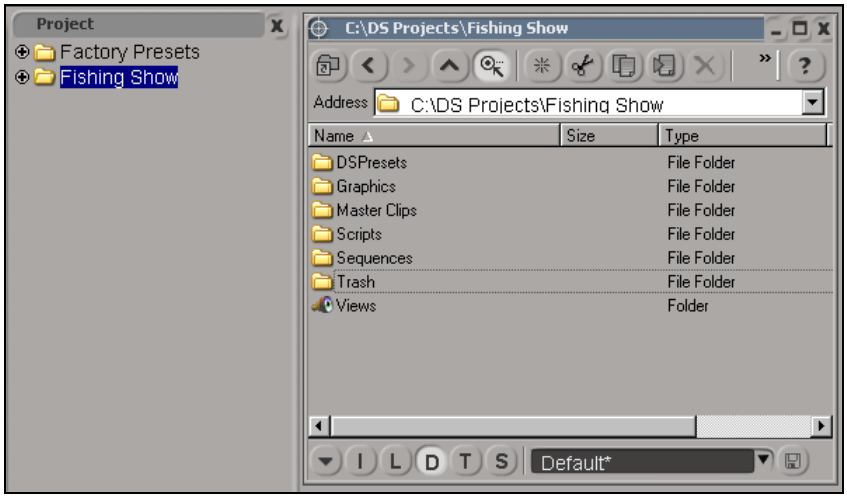
   ```
   Graphics
   Master Clips
   Sequences
   Trash
   ```

The order of the folders is not important, as they will be sorted in alphabetical order or according to the sorting method used in the Avid Explorer.

4. Save the file as *folder.ini* and save it in the following location:

   C:\Program Files\Avid\DS_v*x.x*\Preferences*username*

   Any new projects that are created will contain the folders specified in the .ini file.

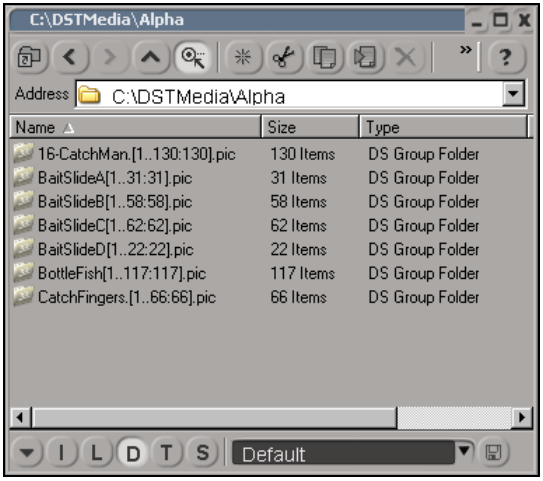


The DSPresets, Scripts, and Views folders are created by default.

Avid DS Nitris Group Folders

As part of a project's workflow, you might need to work with groups of sequential files, such as a series of scanned image files or files from a graphics program. Typically these files share a file name that increments by a single digit, such as beach001.jpg, beach002.jpg, and so on. The Avid Explorer automatically combines these files into a special kind of folder, called an Avid DS Nitris Group folder, or virtual folder. You can then capture and manage the sequential files more easily.

The following illustration shows a list of Avid DS Nitris Group folders.



The folder is identified with the following syntax:

filename[*first..last*:*#files*].*extension*

For example, a folder that contains 66 files, named CatchFish1.pic through CatchFish66.pic, is labeled:

```
CatchFish[1..66:66].pic
```

To view the individual files:

- Double-click the Avid DS Nitris Group folder.

If a group does not include a complete series of numbers, a yellow circle and exclamation point is displayed over the icon. The folder name displays the total number of files, indicating that one or more files are missing. For example, if CatchFish30.pic is missing, the folder is labeled:

```
CatchFish[1..66:67].pic
```

Sequential Avid DS Nitris files (.Clip, *.Segment, *.Preset) are not grouped in a folder.*

When a folder contains a file that does not conform to the pattern of the group, Avid DS Nitris isolates the file and the part of the group that is affected. To combine the files into a single folder again, remove or rename the non-conforming file.

Grouping Files as Frames or Fields

By default, Avid DS Nitris groups files as a series of frames. If, however, the file names of a group include field numbers (Frame01.1.jpg, Frame01.2.jpg, Frame02.1.jpg, and so on), you should deselect the default option. The folder name then includes the total number of files followed by the letter F (field). For example,

```
Frame[01..06:12;F].jpg
```

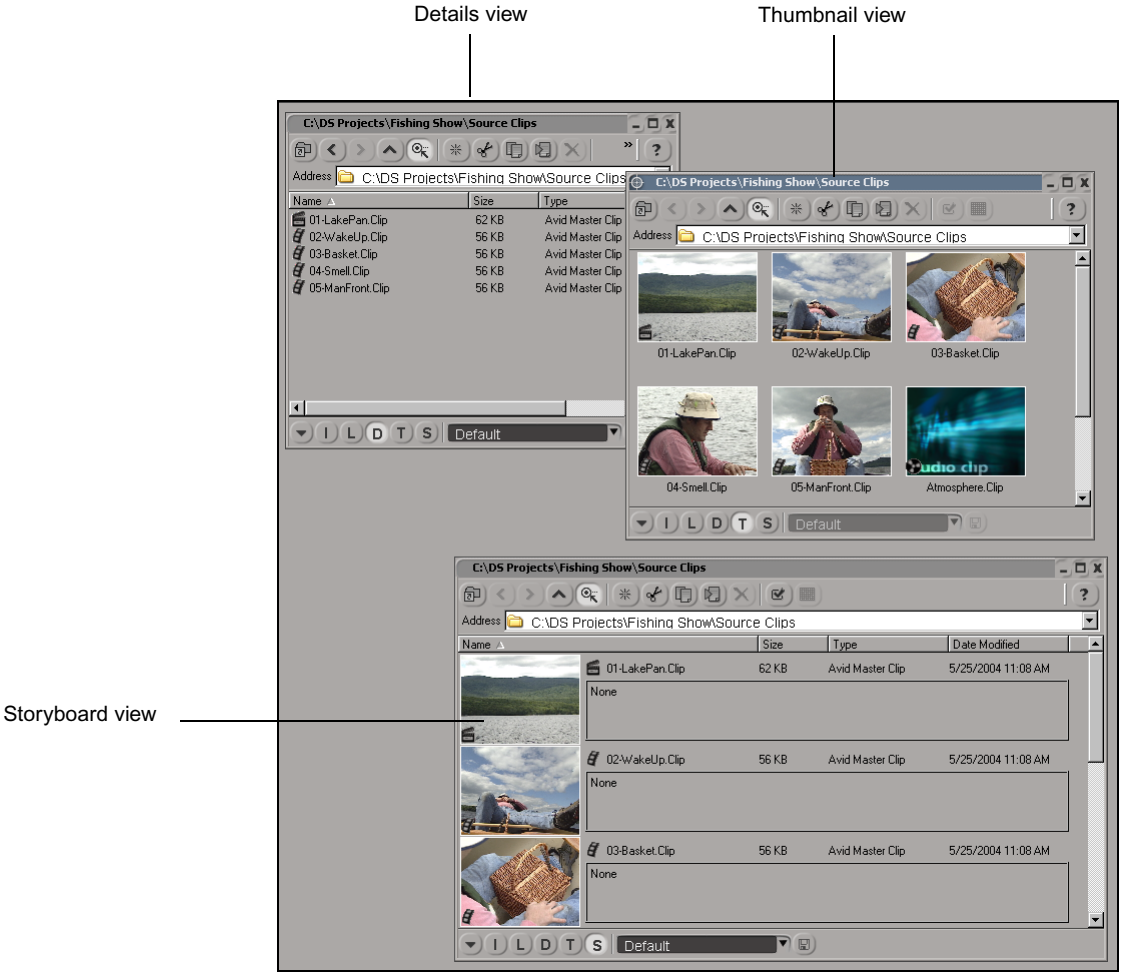
To group files as frames or fields:

1. Select **File > User Preferences**.
2. Select the **Avid Explorer** property page.
3. Select or deselect the **Group files as frame** option.

Working with Bins

A bin is a window that displays the contents of a folder or other object. Bins appear within the Avid Explorer view. You can minimize, maximize, resize, and close bins using standard Windows control methods. You can also cascade and tile bins.

The following illustration shows three bins within the Avid Explorer view. Each bin displays its contents in a different view.



To open a bin:

- Select a folder or other object in the tree.

  If a folder in the tree is already selected, double-click it.

To open additional bins, do one of the following:

- Press Shift and click a folder or other object in the tree.

  If a folder in the tree is already selected, press Shift and double-click it.

- Press Shift and double-click a folder in a bin.

You can open one or more Avid Explorer windows that are not docked in the Avid Explorer view. From the View menu, select ***Multi-Instance Views*** *>* ***Avid Explorer****. These windows include only bin tools. You can include this Avid Explorer window as a multi-instance view in any views that you create.*

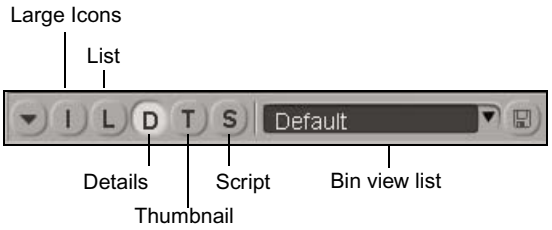
Changing the Bin View

You can display a bin in one of five different views:

- **Large icons**: Displays files with large icons
- **List**: Displays files with small icons in list format
- **Details**: Displays files as a list with details, using columns. You can choose and save which columns to display—see "Customizing the Details and Script Views" on page 654.
- **Thumbnail**: Displays the files as pictorial icons. This view is especially useful for media files. You can rearrange the thumbnails in any order within the bin by clicking and dragging.
- **Script**: Displays the files as pictorial icons with an area for comments. Clip information is displayed above the text box.

To change the bin view:

- Click a button at the bottom of the bin.



Changing the Frame in Thumbnail and Script View

By default the first frame of a clip is displayed in Thumbnail or Script view. Avid DS Nitris lets you select a different frame to display.

To change the frame displayed in the Thumbnail or Script view:

1. Open the clip in the Source viewer.
2. Go to the frame you want to display.
3. Click the **Update Thumbnail** button, located below the Source viewer.

Identifying File Types

Each file in a bin is identified by an icon. Because a bin displays the same files as your workstation, you see the same icons that appear in your Windows Explorer.

Files that are specific to Avid DS Nitris display a generic icon when viewed in the Windows Explorer.

Avid DS Nitris media files have their own icons, which appear on or beside clips in a bin. When an icon is highlighted in red, it means that Avid DS Nitris could not find any media associated with a clip. This clip must be recaptured before you can work with it.

Icon	File Type	Icon	File Type
	Audio clip		Background or composite container clip

Icon	File Type	Icon	File Type
	Video clip		Sequence
	Combined audio and video clip		Still image
	Audio container clip		Linked still image

Displaying File Properties

Each master clip or sequence contains information about its location on the storage device, the name of the project to which it belongs, the start, end, and duration of the clip, as well as your own comments. In addition, master clips contain information on the clip type, quality, resolution, dominance, color space, bit depth, coverage, and location. For a description of these properties, click the **Help** button.

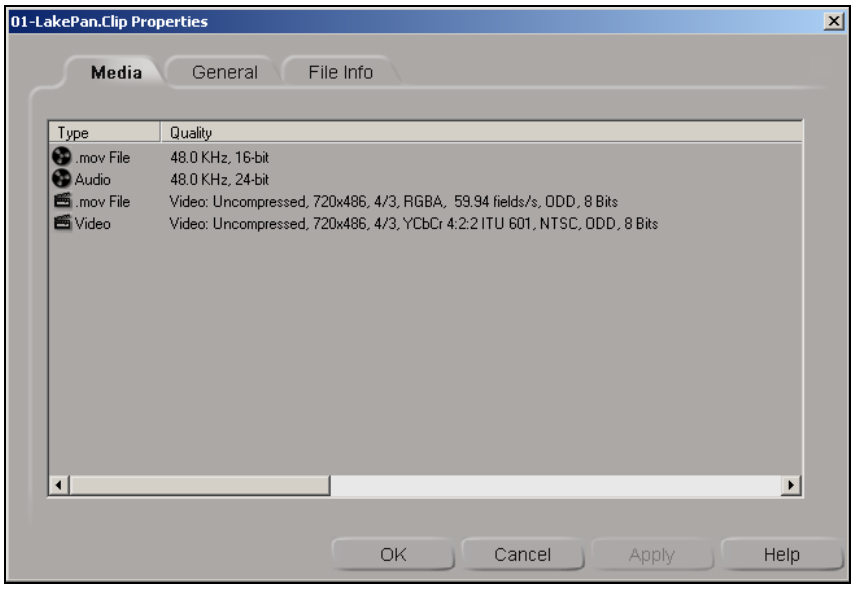
To view master clip properties:

1. In a bin, right-click a master clip, and in the Avid DS Nitris section select **Properties**.

   The Properties dialog box is displayed.

2. Select the **Media** tab to view information about the media associated with the master clip.

   The Media property page displays information about the selected clip. Audio and video media files are listed separately.



The Media property page displays the types of media associated with the clip you selected in the Avid Explorer. Purged media is indicated by a red dot on the icon. It is possible to have one type of media indicated as purged and another not.

3. Select the **General** tab to view the file properties.

   The location of this file, its in and out times, and duration are displayed. You cannot edit these properties, but you can add notes for the file in the Comments text box, unless the clip is displayed in a viewer.

4. Select the **File Info** tab to view information about how the original file was captured.

   The original file location, resolution, capture settings, and file status are displayed. This information is read-only and cannot be modified, except to re-establish a link for a linked file that has been moved from its original location.

5. Select the **Track Patching** tab to view information about the audio format (such as mono or stereo) and the audio input assignment for master clips that were captured from tape.

   You can use this property page to reassign hardware inputs to different audio channels if necessary when recapturing audio media.

To view sequence properties:

- In a bin, right-click a sequence, and in the Avid DS Nitris section select **Properties**.

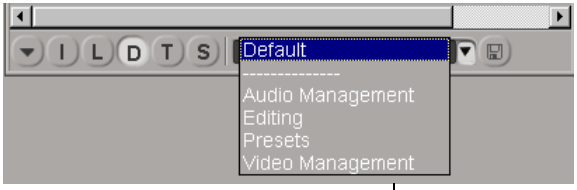
  The Properties dialog box is displayed. These properties are read-only.

Customizing the Details and Script Views

Avid DS Nitris lets you customize the columns of information in Details and Scripts views by displaying and hiding file parameters.

You can choose from Avid DS Nitris parameters, parameters from the Windows operating system, or parameters that have been added to your Windows system from other applications. You can also rearrange the order of columns, adjust the size of columns, and save the arrangement.

You can select a preset bin view from the Bin View column at the bottom of the bin. These bin views display columns that are appropriate to a particular task and include Editing, Audio Management, Video Management, and Presets. You can also create and save your own bin view—see "Saving or Deleting a Bin View" on page 656.



Bin view list

To display information specific to media files, such as Video Compression, you must have media files displayed in the bin. Use the Avid Explorer or Media Tool to display media files.

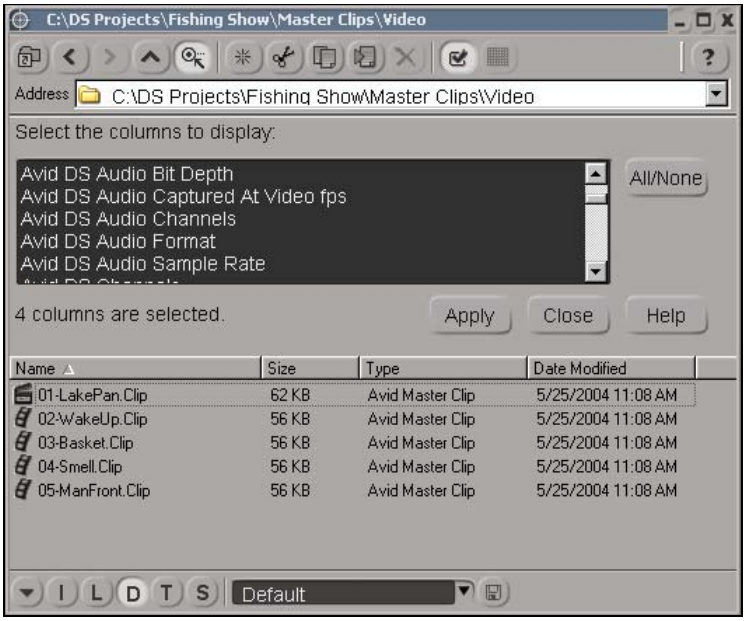
To create a more compact display, Avid DS Nitris parameters do not include the product name in the column heading. Column headings for these parameters use a darker shading.

To hide or display bin columns:

1. Do one of the following:

   - In the bin tools, click the **Settings** button.
   - Click the **Fast Menu** button and select **Settings > Add/Remove Columns**.

   A dialog box is displayed, either within the bin or separately. The currently displayed column headings are marked by colored bands.



For a description of the bin columns, click the **Help** button.

2. Do one or more of the following:
   - Select the columns that you want to display.

     Selected columns are highlighted by a colored band.
   - Deselect highlighted columns that you do not want to display.
   - Click the **All/None** button to select all columns.
   - Click the **All/None** button again to deselect all columns
3. Click the **Apply** button to apply your changes.
4. Click the **Close** button to close the dialog box.

To display a preset bin view:

- Select a preset view from the Bin View list.

To rearrange columns:

1. Click the heading of the column that you want to move.

   The entire column is selected.
2. Drag the column to the desired position.

The column is displayed in the new position.

To change the width of a column:

- Drag the border of a column heading.

Saving or Deleting a Bin View

If you change the bin view by adding columns, changing the order of columns, or other customization, an asterisk is displayed at the end of the bin view name. Avid DS Nitris lets you save and display this customized bin view.

To save a bin view:

1. Click the **Save Current Column Setting** button.

   The Save As dialog box is displayed.
2. Accept the current name or type a new one, and click **OK**.

   The Bin View list includes the new bin view.

To display a bin view:

- From the Bin View list, select the view you want to display.

To delete a bin view:

1. From the Bin View list, select the view you want to delete.
2. With the Bin View list displayed, press the Delete key.

   A confirmation box is displayed.
3. Click **Yes**.

Sorting Files

By default, clips in Details view are sorted by name, in ascending alphabetical order (from A to Z). You can change the way clips are sorted, using the information in any column or combination of columns.

You can change the sorting for any files that you view through the Avid Explorer.

To change the way clips are sorted:

1. In Details view, click the column that you want to act as the primary sorting criterion.

   The clips are sorted according to the information in that column. The number zero (0) is displayed in the title bar of the column indicating the primary sorting status. An upward or downward pointing arrow is also displayed, specifying the direction in which the information is sorted (ascending or descending).

2. Press Ctrl and click a new column to act as the secondary sorting criterion.

   Any clips with the same criterion in the primary sort are now sorted according to the information in the second column. The number one (1) is displayed in the title bar of the column, indicating the secondary sorting status. An upward or downward pointing arrow is also displayed, specifying the direction in which the information is sorted.

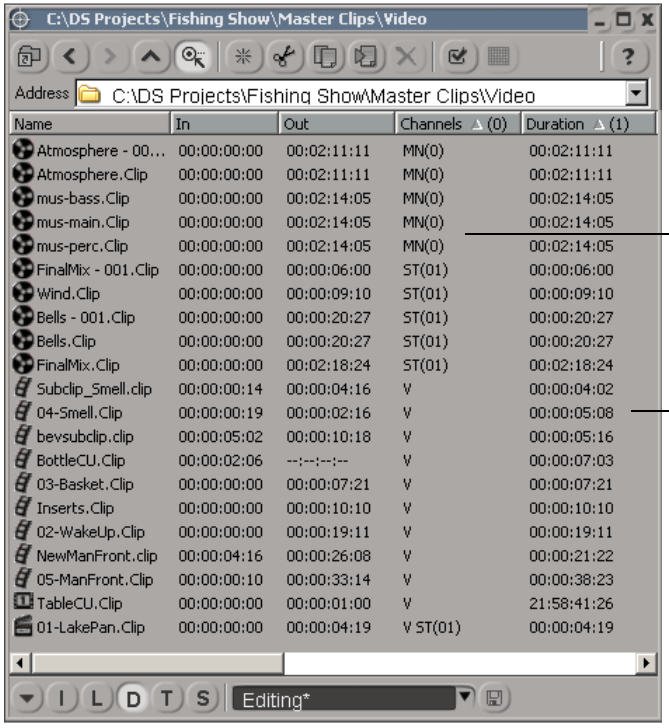
3. Continue pressing Ctrl and clicking the columns to further refine your column sorting.

When performing a single-column sort, click the column a second time to change the direction in which the column is sorted. Click again to remove the sorting.

When performing multi-column sort, press Ctrl and click a column a second time to change the sorting direction. Press Ctrl and click again to remove the sorting.

Example

In this example, clips are first sorted by channel. Notice that all video clips are grouped together. Since they are all the same, you can sort them further using another criterion. In this example, they are sorted further by duration.



Sifting Files

By sifting files, you can customize any window that you view through the Avid Explorer so that it displays only those files that meet a specific set of criteria.

For example, in a bin that contains master clips, you can create a custom sift to display only clips from a particular tape or only clips with a name that contains the letters CU (for close-up). Sifting is not limited to clips; you can use it with any files that you view through the Avid Explorer. You can also use it to modify the files displayed in the Media Tool (see "Using the Media Tool" on page 1075).

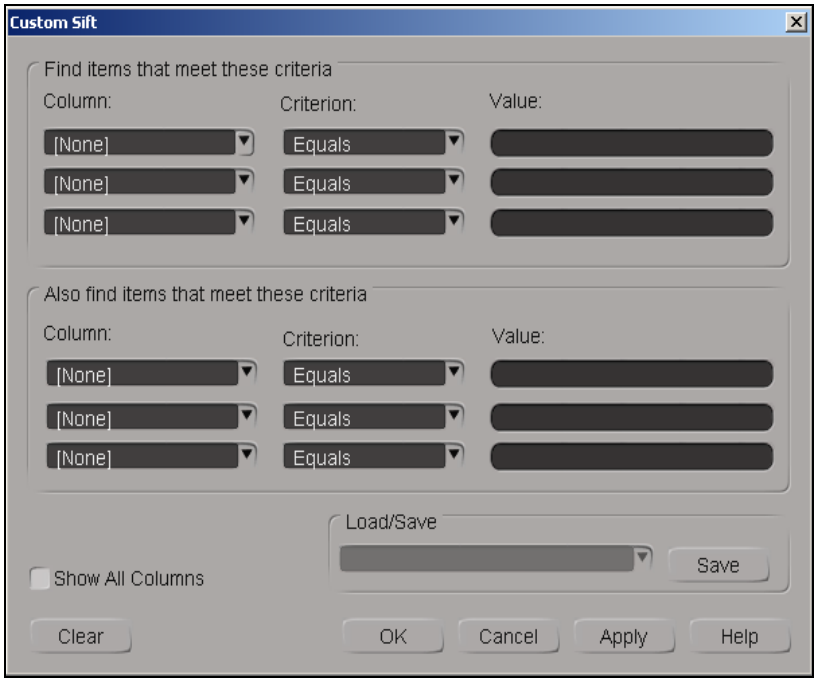
The Custom Sift dialog box provides ten types of criteria (such as Equals or Contains) and lets you set up to six sets of criteria.

*Tip: To view bin columns, click the **D** (Details) button in the bottom bar of the bin. To change the visible bin columns, click the **Settings** button in the Avid Explorer toolbar.*

To sift clips or sequences:

1. In an open bin, click the **Fast Menu** button and select **Custom Sift**.

   The Custom Sift dialog box is displayed.



2. From the Column list, select an Avid DS Nitris column heading to which you want to apply the criterion.
   - To view all column headings on your system, select the **Show All Columns** option.
   - To clear the Column entry, select **None** from the Column list.
3. From the Criterion list, select one of the sifting options.

4. In the Value text box, and type the text that you want to use as a sift criterion.

   Type the text exactly as it is displayed in the column. For example, to view clips with a duration of more than 5 seconds, select **Greater Than** as the criterion and type 00:00:05:00.

   An exception is size. For example, to view clips greater than 54 KB, select **Greater Than** as the criterion and type **54000**.
5. Repeat these steps to add additional sift criteria (up to six sets).
6. To clear all data, click the **Clear** button.
7. To preview the results of your selections, click the **Apply** button.
8. To save your view:
   a. Click the **Save** button.

      The Save As dialog box is displayed.

   b. Type a name for the sifted view and click **OK**.
9. In the Custom Sift dialog box, click **OK**.

   Only the clips or sequences that meet your criteria are displayed in the bin.

Displaying a Sifted or an Unsifted View

After you have sifted the clips in a bin, you can switch between the unsifted view and the currently selected sifted view.

To switch between a sifted and an unsifted view, do one of the following:

- In a bin, click the **Fast Menu** button and select **Show Sifted**.
-
  In the Avid Explorer toolbar, click the **Sifting** button.

Loading and Deleting a Sifted View

You can load or delete a saved set of criteria.

To load a sifted view, do one of the following:

- In the Custom Sift dialog box, select the view that you want to load from the **Load/Save** list, and click **Apply** or **OK**.

- Click the **Fast Menu** button, select **Load Sift**, and select the view you want to load.

To delete a sifted view:

1. Select the view that you want to delete from the **Load/Save** list.
2. Keep the menu open and press the Delete key on your keyboard.
3. In the dialog box, click **Yes**.

Viewing Events

While working with Avid DS Nitris, you can track important processes, such as the start up and shut down of Avid DS Nitris applications, Avid DS Nitris RP processing messages, or errors when a folder cannot be accessed. This is done using the event logging service in Avid DS Nitris. The event-logging service stores events from various sources in a single collection called an *event log*. Notifications of events include informative messages, errors, and warnings.

The event log records important software and hardware events to help you determine the conditions that caused the error and the context in which it occurred. By periodically viewing the event log, you may be able to identify problems before they cause damage.

The event logging service does not replace direct messages that are displayed when an action is necessary. The event log simply lets you to view the results of any actions.

A reasonable amount of disk space is reserved for the event log. When the log is full, older events are erased to make room for new ones.

The following Avid applications log events in the event log:

- Avid DS Nitris
- Avid Media Indexer
- Avid Project Indexer

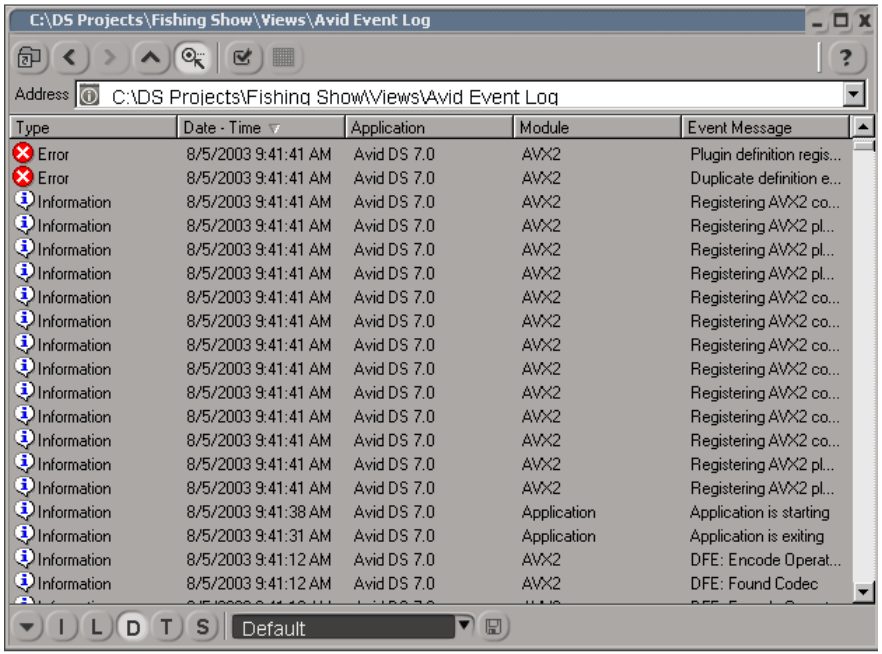
Viewing the Avid Event Log

The event logging system consists of two parts, the viewer and the event log file. The Avid Event Log is a list of all previously logged events.

To view the Avid event log,

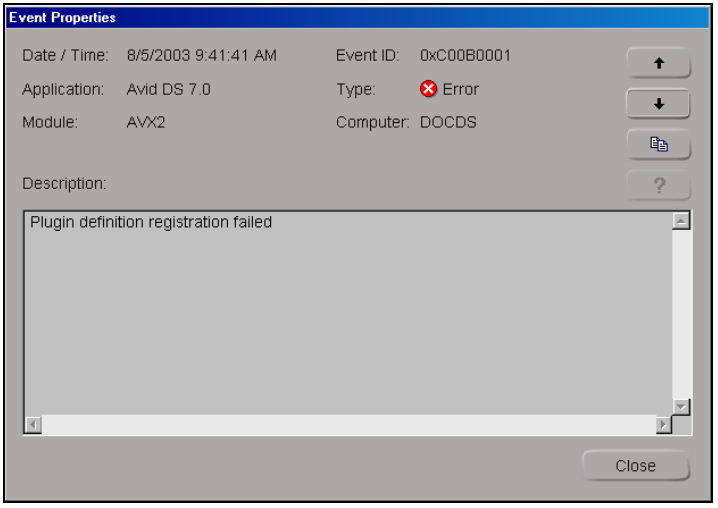
1. Do one of the following:
   - Select **View** > **Multi-Instance Views** > **Avid Event Log**.
   - In an Avid Explorer panel, select Avid Event Log in the Views folder.

The Avid Event Log view is displayed in a bin, along with a list of software and hardware events that have occurred. If you open the log from the Views folder, bin tools are displayed at the top of the bin.



For more information on the Avid Event Log, click the Avid Explorer **Help** button.

2. Double-click an event log entry to display additional information.



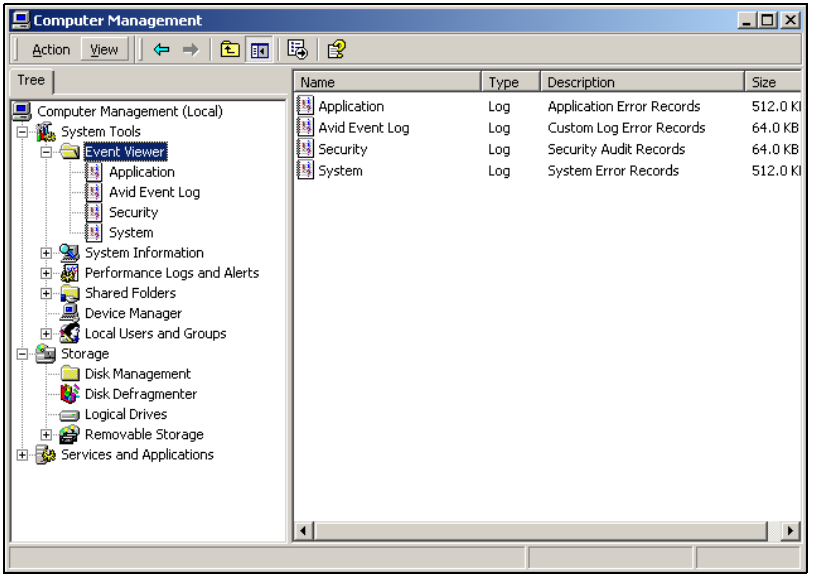
Viewing the Windows Event Log

If you cannot start Avid DS Nitris due to a fatal error, Windows also has an Event Viewer so that you can browse through the event logs. In the Windows Event Viewer, events from all open applications, the operating system, and other system services are logged.

To view the Windows event log:

1. On the Windows desktop, right-click the My Computer icon and select **Manage**.
2. Click **System Tools** > **Event Viewer**.

   A list of event logs is displayed for different Windows applications.



3. Double-click the Avid Event Log to view the Avid DS Nitris events.

Sorting Columns and Events

You can reorder the columns and events that are displayed.

To set the column order:

- Click on a column heading and drag it left or right to a new position.

To sort the list of events:

- Click on the column heading to sort the contents below the column in ascending or descending order.

You can perform secondary sorts on multiple columns for better grouping of events. For instance if you want to sort the events by type and then by time, click the Type column heading, press Ctrl and click the Date - Time heading. A (0) and a (1) appear in the respective columns.

You can also sort the columns in the reverse order by pressing Ctrl and clicking the column heading again. An up or down arrow appears in the column heading to indicate the direction of the sort.

Chapter 2
Working with Sequences

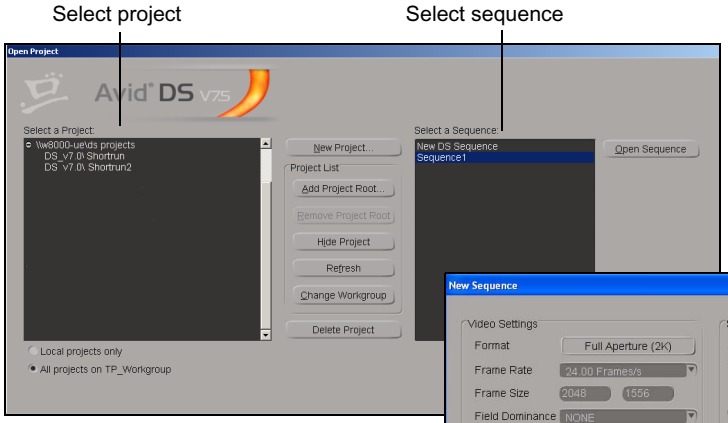
This chapter describes how to work with sequences, search for sequences, and set your video and audio preferences.

- Workflow: Working with Sequences
- Opening Sequences
- Setting Sequence Preferences
- Working with Media of Different Qualities
- Saving Sequences
- Searching for Sequences
- Deleting Sequences

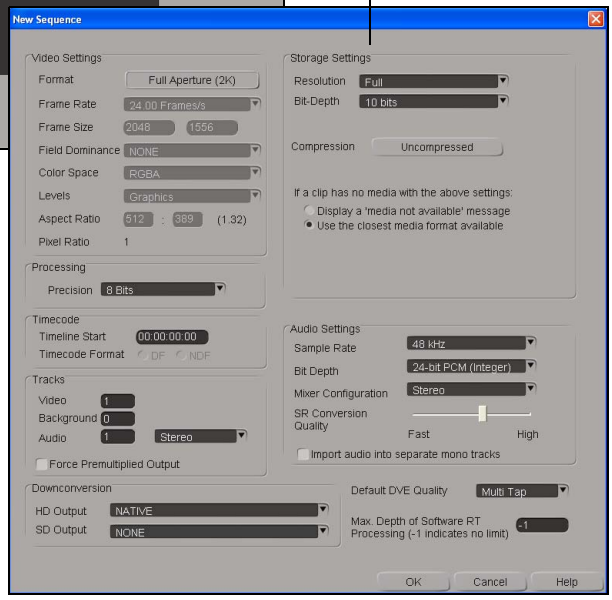
Workflow: Working with Sequences

Before you open a sequence, you must first select the project to which it belongs. The following illustration shows a simple editing scenario in Avid DS Nitris.

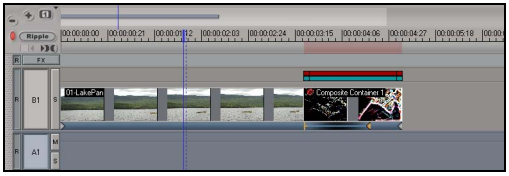
1 Open project and sequence.



2 Set sequence preferences.



3 Construct sequence on timeline.



Sequence preferences can be changed during the course of a project so that you can work with media at different qualities.

Opening Sequences

You can easily create, open, and manage the sequences in your project using the Open Project dialog box. A sequence is an arrangement of clips on the timeline; it contains information about edit decisions, applied graphics and effects, animation settings, and working preferences.

When you open a sequence in the timeline, you can immediately begin audio/video editing, compositing, painting, titling, or audio mixing. Because the Avid DS Nitris environment is nonlinear, these tasks can be performed in any order, changed at any time, and moved to any location.

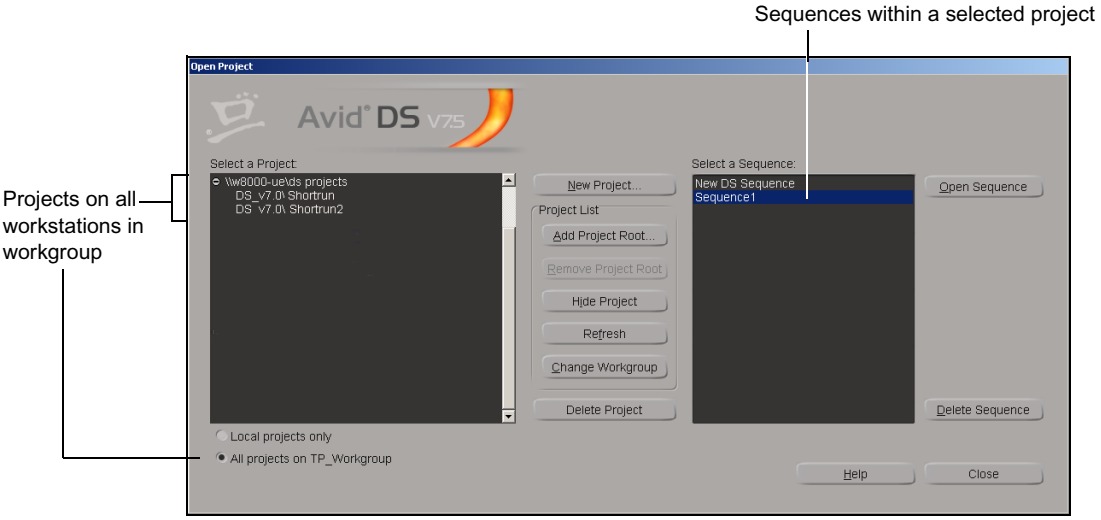
Avid DS Nitris also gives you the flexibility to work with different media qualities within your sequence. For example, working with media at a higher resolution increases processing time, so initially, you may want to process your clips at lower resolution to obtain quicker results. When you're ready to output the final sequence, you can recapture the media at a higher resolution, and reprocess the effects.

Sequences always belong to a particular project. To access your sequences, you must first select the project to which it belongs. To get a quick view of all the projects on any workstation in your workgroup, use the Open Project dialog box.

To access the list of projects and sequences:

1. Select **File** > **Open** > **Project**.

   The Open Project dialog box is displayed.



2. If you want to see all projects and sequences in your workgroup, select **All Projects on *workgroup_name***.

For detailed information on the Open Project dialog box, click the **Help** button.

Creating a New Sequence

You must create sequences from within a project. You can either select a project from the Open Project dialog box and then create a new sequence, or if your project is already open, you can create a new sequence directly from the File menu.

To create a sequence:

1. Select **File** > **Open** > **Project**.

   The Open Project dialog box is displayed.

2. From the Select a Project box, select the project to which your sequence will belong.

   The Select a Sequence box opens any other sequences that belong to this project.

3. From the Select a Sequence box, select **New DS Sequence** from the list.

4. Click the **New Sequence** button.

   The New Sequence dialog box displays the sequence preferences.

By default, the sequence preferences are inherited from the settings established when the project was created. These settings can be changed. For more information, see "Setting Sequence Preferences" on page 675.

Avid DS Nitris requires at least 10% of your system memory (RAM) to be free at all times. If not, you may not be able to create sequences with custom formats that have resolutions much greater than the standard video resolution, such as 2000×1500.

5. Click **OK** to accept the settings.

   A new sequence is opened and the Editing layout is displayed.

To create another sequence within the current project:

1. Select **File** > **New Sequence**.

   If the sequence you're currently working on has not been saved, you are prompted to do so.

2. Click **Yes** to save the sequence.

   A new sequence is opened in your current project with the same preferences as those of the project.

*If you want to create a new sequence with preferences that are different from the project, select **File** > **New** > **DS Sequence**.*

For detailed information on these sequence preferences, click the **Help** button.

Opening an Existing Sequence

You can open a sequence in one of three ways:

- From the File menu (if you want to open a sequence from the current project)
- From the Open Project dialog box (if you want to open a sequence from another project)
- By double-clicking the sequence in the Avid Explorer

Each time you start Avid DS Nitris, you can automatically load the last sequence on which you were working by selecting the Load Last Sequence at Startup option in the User Preferences dialog box. For more information, see "Setting User Preferences" on page 634.

To open a sequence from the File menu:

1. Select **File** > **Open** > **Sequence**.

   If the sequence you are currently working on has not been saved, you are prompted to do so.

2. Click **Yes** to save the current sequence.

   The Load Sequence dialog box is displayed.

3. Browse through the folders and select a sequence. (All sequences are indicated by the sequence icon.)
4. Click **OK** or double-click the sequence to open it.

To open a sequence from the Open Project dialog box:

1. Select **File** > **Open** > **Project**.

   If the sequence you are currently working on has not been saved, you are prompted to do so.

2. Click **Yes** to save the current sequence.

   The Open Project dialog box is displayed.

3. From the Select a Project box, select the project to which your sequence will belong.

   The Select a Sequence box displays all sequences that belong to this project.

4. From the **Select a Sequence** box, select a sequence and click the **Open Sequence** button.

To open a sequence from the Avid Explorer:

- Double-click the sequence in the Avid Explorer.

Importing Sequences and Master Clips from Another Project

If you need to use the same sequence or master clips in more than one project, you can import the sequence and/or master clips from one project to another (as long as that project is on a workstation in your workgroup).

You then have the option of linking to the existing media or creating copies of the media. By creating a link to the media, the media is shared between the two projects, which saves space on your storage device.

If you import a sequence or master clips from a workstation in another Avid DS workgroup, you cannot link to or copy the media. You will have to recapture this media once the sequence/clip has been imported to your project.

Importing of sequences is useful when there are one or more users in the workgroup that need to work on the same project. A project can only be opened by one user at a time. Therefore, if you need to work on a sequence within a project that is heavily used by other users, you should create a project on your own workstation, and then import the sequence into your project. Avid DS will automatically link to the media. When you have completed the sequence, you can import it back to the original project.

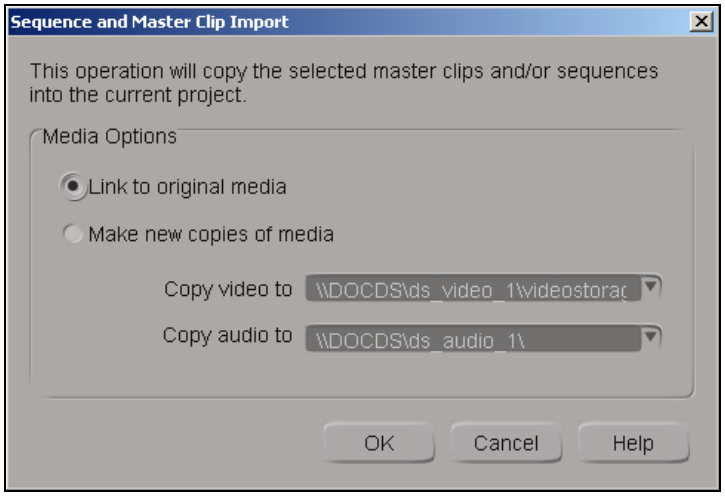
A shared storage device can be a storage area on your local workstation or anywhere on the network. The limitation with media sharing is that, unless you are connected to an Avid Unity™ system, the storage device may not have sufficient bandwidth to provide real-time access to the media for more than one user at a time.

If you are not getting real-time playback on effects, you can either reprocess your effects or copy the media from the shared storage to your local storage. For more information, see "Copying Media" on page 1084.

To import a sequence or master clips from another project:

1. In the Avid Explorer, locate and open the folder that contains the sequence or master clips you want to import.
2. Right-click the sequence or master clips and select **Import to Current Project**.

   The Sequence and Master Clip Import dialog box is displayed.



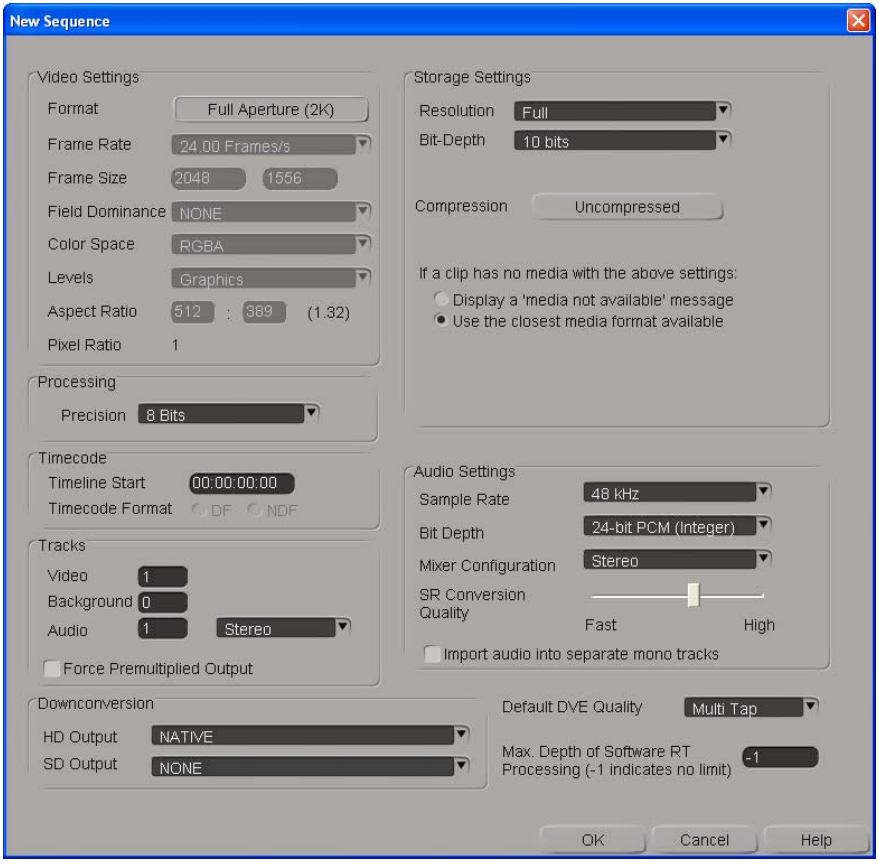
3. Select an option:
   - **Link to original media** links the new sequence or master clips to the original media
   - **Make new copies of media** creates copies of the media at the locations you specify for the new video and audio media.
4. Click **OK**.

   A new folder is displayed in the current project folder, entitled “Imported from project *projectname*”, containing the sequence and master clip files.

Setting Sequence Preferences

Sequence preferences define the format and quality of the audio and video clips in your sequence. By default, the sequence preferences are inherited from the settings you created for the current project.

During the course of building your sequence, you can switch your sequence preferences to work with video at a lower resolution, or with compression. Working at a lower resolution is useful when producing a rough cut of your sequence, because your clips are processed at a much faster rate. Working with compressed media lets you save storage space on your storage device. For more information, see “Working with Media of Different Qualities” on page 679.



For descriptions of all the options in this dialog box, click the **Help** button.

To set the sequence preferences:

1. In the Video Settings box, select a video format from the **Format** list.

   When you select a video format other than Custom, Avid DS Nitris automatically sets frame rate, frame size, field dominance, aspect ratio, and pixel ratio based on the format you chose—see "Understanding Video Settings" on page 681.

These settings cannot be changed after you save your sequence preferences.

2. Set the **Precision** at which you want to process the effects in this sequence—see "About Bit Depth" on page 692.

The precision applies to all effects in the sequence but can be changed when you process effects individually.

3. Set the **Timecode Start** if other than 00:00:00:00.

If you select a drop-frame video format, such as NTSC, you have the option of displaying timecode as either drop frame or non-drop frame. This option only affects the timecode display and not the sequence frame rate. For more information, see "About Video Format" on page 682.

4. Set the number of **Video**, **Background**, and **Audio** tracks you will require in your sequence.
5. In the Storage Settings box, make a selection from the **Resolution** list.

   Setting it at **Full** resolution results in large, high-quality media and cache files, while lower resolutions result in smaller, lower-quality media and cache files—see "About Video Quality" on page 684.

For film-based formats (2K or 4K). Use the Real-time Proxy resolution to play your effects in real-time while you're editing. The Real-time Proxy resolution is actually HD resolution which is an excellent visual quality for editing your sequences, while giving you the efficiency of using lower resolution media. In this mode, playback is supported in the Viewer, but not in the external monitor. In addition, any RT effects will need to be processed.

For HD formats. On some workstations where the processing power and bandwidth does not allow you to work with HD media at full resolution, you can work in quarter resolution mode to play your effects in real-time. On these workstations, there will be additional options for Quarter Resolution working mode.

6. Set the **Color Space** to be used for your media.

   The options you have available depend on your video format and resolution.

7. Set the **Bit Depth** to be used for your media. This is the default setting that will be used when storing your processed media.

   The bit depth capacity list varies depending on your resolution and color space settings.

8. Select one of the following options:

   - **Uncompressed** to work with media that is not compressed.
   - **Compressed** to work with compressed media. From the Preferred Ratio list, select a compression ratio that best suits your needs.

9. Since Avid DS Nitris supports multiple qualities for your video material, you can select the version of the captured/processed media that you want to use. For more information, see "Understanding Video Quality Matching" on page 686.

   Select one of the following options:

   - **Use the closest media format available** if it is not crucial that you have an exact video media match with your sequence preferences. If Avid DS Nitris cannot find an exact match, it finds and displays the closest alternative.
   - **Display a "media not available" message** if you only want to work with video media of a specific quality.

     Avid DS Nitris uses only the media that matches the selected resolution and compression settings. If it cannot find an exact match for both, a "Media Not Available" message is displayed in the viewer as you playback your clips. This serves as a good indicator when you've captured video that does not conform to your sequence preferences.

10. Select a **Sample Rate** for the audio in your sequence. The higher the sampling rate, the more accurate the audio—see "Understanding Audio Quality Matching" on page 690.

Audio quality defines the sample rate and bit depth at which an audio signal is captured. You can set the sample rate conversion quality, so that Avid DS Nitris can convert audio material that has a different sample rate than the current sequence. The higher the sample rate, the more accurate the digital representation of the signal. A higher sample rate, however, does use more disk space.

When you place audio clips on the timeline that contain different sampling rates than the current sequence, you are prompted to convert the clip to match the current sequence sampling rate. If you do not convert the clip, you will not have access to the audio media unless you change the sequence preferences.

11. Select a **Bit Depth** value from the list. The higher the value, the more precise the audio will be.
12. Drag the **SR Conversion Quality** slider in the direction of one of the following:
    - **Fast** to convert the sample rate quickly, but at a low quality.
    - **High** to preserve quality, but this setting takes longer to convert the sample rates.
13. Select **Import audio into separate audio tracks** to import a multi-stream audio file into single-stream files.This is especially important if you are going to share the audio file with another Avid editing system. For more information, click the Help button.
14. Click **OK** to save your settings.

When working with sequences of custom formats with resolutions that are much greater than the standard video resolution, such as 2000×1500, a minimal amount of system memory (RAM) must be kept available at all times. Otherwise, you may notice significant slowdown when working on your system.

Working with Media of Different Qualities

The resolution that you set for your sequence controls the default resolution at which your media is processed (for example, for effects, transitions, layers, etc.) and also affects how media is displayed in the viewer and/or external monitor.

The Nitris DNA workstation supports Full and Real-time Proxy resolution. Half or Quarter resolution is available when working in an HD sequence on non-Avid Nitris DNA workstations only.

Depending on your hardware, you can work in different resolutions and with compressed media at different ratios. This multi-quality feature lets you balance image quality and system performance during the different phases of your work. The working video settings (compression and resolution) determine the quality in which your media is displayed in the viewer, as well as the quality at which it is processed by Avid DS Nitris. You can change the video settings at any time if you want to display or process media at a different quality.

The video format cannot be changed once you create the sequence.

The quality you choose to work with at any given time depends on the task at hand. Media can use up large amounts of disk space, and the higher the quality of the media, the more disk space is consumed.

If you want to conserve disk space, you can do your rough cut on material captured at low resolution or in compressed form. When your sequence is ready for finishing, you can redigitize a specific clip, so that you can work at the quality at which you will be outputting.

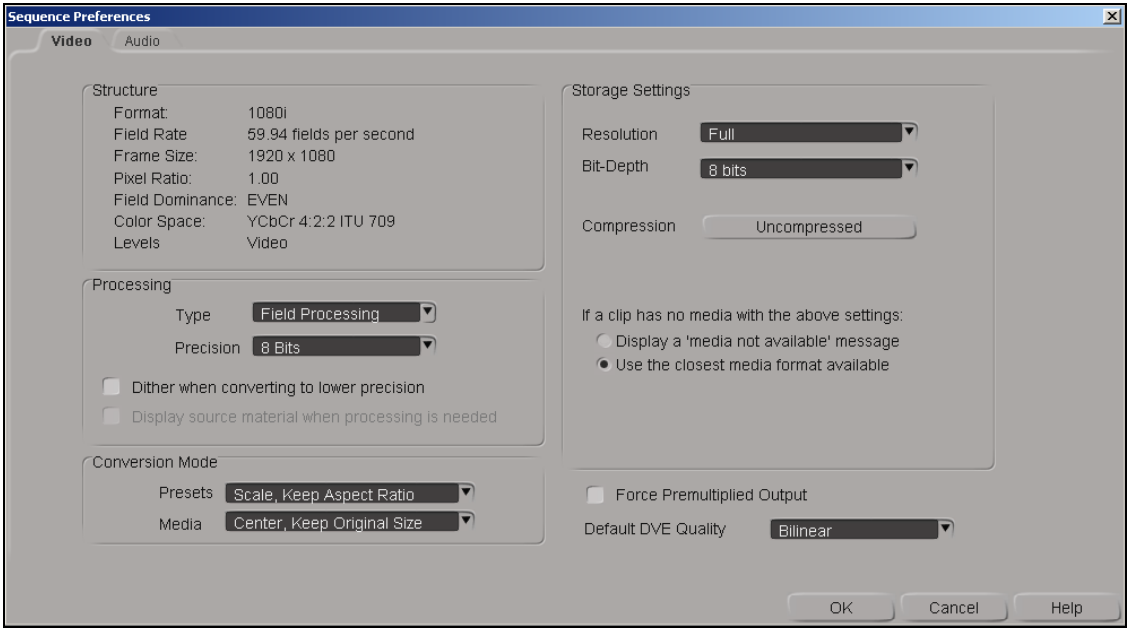
When you’re ready to output the entire sequence, you only need to recapture the portions of the master clips actually used in the sequence at full, uncompressed resolution before you output to tape.

If you’re working with only compressed media, you can mix different compression ratios within a sequence. If you’re working with both compressed and uncompressed media, you may encounter circumstances where both cannot be used at the same time within the same sequence.

To change the sequence preferences:

1. Select **File** > **Sequence Preferences**.

   The settings that you chose for this sequence are displayed.



   For descriptions of all the options in this dialog box, click the **Help** button.

2. In the Processing box, select the **Type** of processing.

   This selection depends on the type of source material that you have—see "Processing in Fields versus Frames" on page 693.

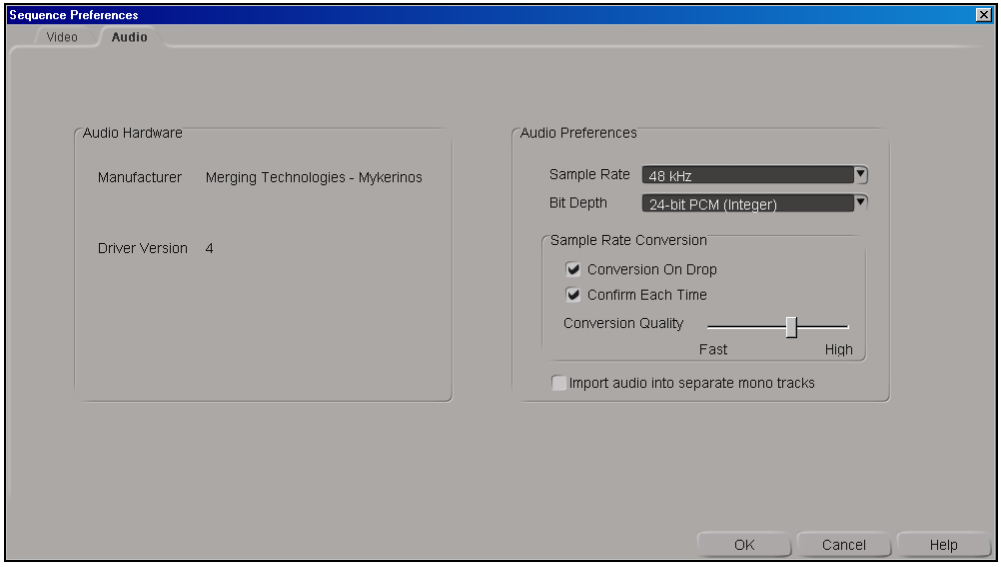
3. Set the **Precision** at which you will process the video effects.

4. From the Conversion Mode box, select a mode for **Presets** and **Media**.

   From now on, when you place clips or sequences on the timeline, they will be converted using the mode you selected—see "Understanding the Working Conversion Mode" on page 693.

You can still change the conversion mode for an individual clip on the timeline by right-clicking the clip and selecting Properties.

5. Set the video resolution, bit depth, and compression at which you will be capturing your media—see “About Video Quality” on page 684.
6. To change the audio settings, select the **Audio** tab.



7. From the Sample Rate Conversion box, select the **Conversion on Drop** option if you want to convert all sample rates imported into your sequence to the sample rate of the current sequence.
8. Drag the **SR Conversion Quality** slider in the direction of one of the following:
   - **Fast** to convert the sample rate quickly, but at a low quality.
   - **High** to preserve quality, but this setting takes longer to convert the sample rates.
9. Click **OK** to save the new settings.

Understanding Video Settings

Although Avid DS Nitris automatically sets the industry-standard video size and frame settings for the video format you choose, you may want to read about the various video settings, especially if you intend to work on a custom format.

About Video Format

Video format refers to the size or aspect ratio of a picture frame. Depending on your hardware configuration, you can work in a variety of video formats, such as PAL D1, NTSC D1, 720p, 1080i, 1080p, or other custom formats. When you select a video format (other than Custom), Avid DS Nitris automatically sets the industry-standard video size and frame settings.

Drop Frame versus Non-Drop Frame

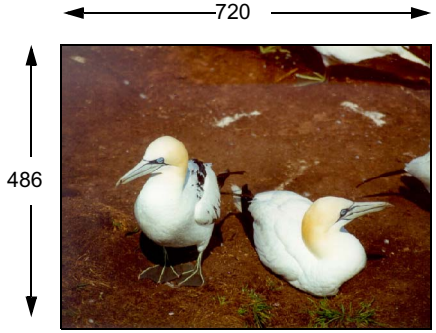
Some formats such as NTSC (the standard North American video format), may require a timecode adjustment if you are making a video that has to fill an exact time slot.

NTSC video runs at 29.97 frames per second, and since timecode counts at 30 frames per second, it means that the timecode will gain on actual time at a rate of about 3.6 seconds per hour.

Using non-drop timecode (which runs at 30 frames per second), will gradually differ from actual time. If you use drop frame timecode, however, it will make slight adjustments by skipping frame numbers periodically to keep the timecode synchronized with real time. Depending on your purpose, you may either keep the timecode synced with real time or count the frames exactly. It is important to understand that no frames in the video are actually dropped when you choose drop frame. The video is identical in both cases with only the timecode counter being modified.

About Frame Size

The frame size is the dimensions of a picture frame in Avid DS Nitris. These measurements are based on pixels.



An NTSC D1 4:3 image by default has a frame size of 720×486 pixels.

A PAL D1 4:3 image, however, has a default frame size of 720×576 pixels.

A 16:9 HD image can have a variety of frame sizes, such as 1920×1080 pixels or 1280×720 pixels.

About Pixel Ratio

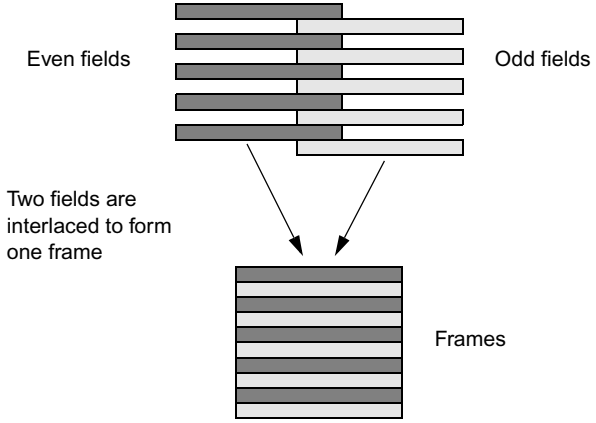
Aspect ratio is the numerical ratio of picture width to height. The standard aspect ratio for NTSC and PAL video and television is 4:3. For material shot on film or HD, 16:9 is the standard aspect ratio. You can also create non-standard aspect ratios.

Pixel ratio refers to the shape of one pixel. Different video standards have different pixel ratios. NTSC and PAL pixels have ratios of 0.9 and 1.07 respectively, while computer-generated image, typically have square pixels with a ratio of 1.0.

Avid DS Nitris can compensate for different pixel ratios so that a captured image does not appear distorted. When you capture material from file, you must set the file's pixel ratio, which tells Avid DS Nitris the original state of the material. For example, if you are importing a computer-generated image, set the pixel ratio to 1.0.

About Field Dominance

Video images are displayed half a frame at a time, where each half, referred to as a *field*, is comprised of alternate lines of video information (odd and even). The two fields are combined (interlaced) to form one frame.



The order in which odd and even fields occur over time is referred to as *field order* or *field dominance*. With even field dominance, even fields come first. In odd field dominance, odd fields come first. With NTSC, the first field contains

all the odd numbered scan lines and the second field contains all the even. PAL is the opposite of NTSC in terms of field dominance. That is, field 1 contains all the even-numbered scan lines and field 2 contains all the odd lines.

NTSC, PAL, and HD video material can either be interlaced or progressive, such as 1080i or 1080p. Interlaced video contains two fields, which make up every frame. Progressive video, however, creates full frames by scanning each line sequentially. As a result, field dominance is not an issue.

When you need to invert your fields, you can apply the Field Invert effect. This is useful when retouching clips or creating paint animation and field-based rotoscopy.

If you drop a clip of a different frame rate on the timeline, it might not have the same field dominance as the current sequence. You can either apply the Field Invert effect to the clip, or if you already have a time effect on this clip, you might need to select the Invert Fields option in the effect's property editor to compensate for the difference in field dominance.

About Color Space

Color space determines how the color components of the video signal are stored in Avid DS Nitris. There are three pixel formats available in Avid DS Nitris: YCbCr 4:2:2 (601), YCbCr 4:2:2 (709), and RGBA. Avid DS Nitris converts all imported material to the color space of the sequence. All material imported in RGBA color space uses 32 bits per pixel, even if you did not import the alpha channel. YCbCr 4:2:2 uses 16 bits/pixel and YCbCrA (YCbCr with alpha) 4:2:2 uses 24 bits/pixel.

Cache media, created from processed effects, transitions, or composites, is treated the same way as source media. Some effects, however, require an internal conversion to RGBA. As a result, some banding may occur when you're working with a YCbCr sequence with these effects. To solve this problem, you can apply the RGB-YCbCr Dither effect. For more information, see "Color Space Adjustment Effect" in the Help.

About Video Quality

Video media quality is determined by three factors:

- Resolution, which is the amount and degree of detail in a video image,

- Compression, which is a technique used to reduce the amount of space necessary to store video data, and
- Bit depth, which is the number of bits per pixel, per channel.

The resolution of an image depends on the number of pixels in the image, and the bit-depth of each of those pixels. Naturally, the larger your image format, the higher the clarity of the image, and the larger the number bytes required for storage.

For example:

Format	Size (in pixels)
SD	720 x 576
720-HD	1280 x 720
1080-HD	1920 x 1080
2K Film	2048 x 1536

The resolution quality that you set in Avid DS Nitris (Full, Proxy, Half or Quarter), affects the size of the captured or processed media. The higher the resolution, the larger the media. Setting the resolution to ‘Half’, reduces the pixels along the width and the height by half. For instance, for 720-HD media, half resolution would be 640 x 360 pixels.

Similarly, the higher the bit depth, the more tones (grayscale or color) that are available for storage, and more accurate color representation in the digital image. Higher bit depth also increases file size.

When you’re performing a rough cut, you can increase throughput and limit storage requirements by working at low resolution. Later on in the editing process, you can use high-resolution media to obtain better results.

Compression is a technique used to reduce the amount of space necessary to store video information. Compression keeps the same amount of pixels in the original image, but uses some form of encoding to lower the byte size of the media. Compressed data can suffer some loss or degradation from the original source (depending on whether you choose lossy- or lossless-type compression).

You can compress material at capture time to reduce the size of the media file. High compression is useful when you capture media for your initial edit. This lets you store large amounts of material using the least amount of storage space. After you've done a rough cut, you can purge the compressed media, and recapture the edited material with less or no compression. For more information, see "Working with Media of Different Qualities" on page 679.

Understanding Video Quality Matching

When you set your video storage sequence preferences, such as the working resolution, bit depth, compression, or sample rate, you defined the quality at which clips are previewed and processed. If a video clip was captured at a different quality than the option set in your sequence preferences, Avid DS Nitris can either:

- Display no media, or
- Use the media which best approximates the resolution, compression ratio, bit depth, or audio sample rate.

Quality matching is different for audio than it is for video—see "Understanding Audio Quality Matching" on page 690.

Working with Exact Media Matches

If you choose to display only the media that *matches your sequence preferences*, Avid DS Nitris looks for an exact match when the position indicator passes over the clip on the timeline.

1. **Resolution**: Checks if there is media captured or processed at the specified resolution.
2. **Precision**: For caches only. Checks if there are caches processed with the same precision as the sequence settings.
3. **Aspect ratio**: Checks if the aspect ratio matches that of the current sequence.
4. **Frame rates**: Verifies that the frame rates are identical.

Linked clips use the frame rate of the sequence.

5. **Compression ratio**: Checks if there is media captured or processed at the specified compression. For the purposes of quality matching, uncompressed media has a compression ratio of 1.0.

6. **Field dominance**: Checks if the field dominances are compatible. For this criteria, the match does not have to be exact, since some media files, such as stills, can be tagged as having a field dominance of None. The matching criteria works as follows:

	Media Quality		
Field Dominance Sequence preference	**None**	**Even**	**Odd**
None	Yes	Yes	Yes
Even	Yes	Yes	No
Odd	Yes	No	Yes

7. **Image formats**: Verifies if the following are identical:
   - Color space
   - Frame size
   - Pixel ratio
   - Bits per Channel (Number of bits used to encode a channel)
8. **Compatible Resolution:** Checks if the current hardware settings support real-time effects in this resolution.
9. **Compression type and ratio:** Checks if there is media captured with the same cache and at the same ratio than the sequence settings.
10. Only caches generated in Exact match mode are accepted in exact match (This restriction does not apply to media).

The checks are done sequentially. If it finds video media that meets all the criteria, then the media is displayed in the viewer. If any one of the criteria fails, then the “Media Not Available” message is displayed in the viewer.

Working with Closest Media Matches

If you choose to display media that is *closest to your sequence preferences*, Avid DS Nitris first verifies that you have media that matches your frame rate.

1. **Frame rate**: Verifies if the frame rate is identical, except for linked clips.

   If, after this search, no candidates are found, the “Media Not Available” message is displayed in the viewer.

If more than one candidate is found, Avid DS Nitris uses the following criteria to determine which media file is a closer match and will be displayed:

2. **Captured versus linked media**: Captured media is considered a closer match than linked media.
3. **Conversion needs**: Media with an image format, size, resolution, compression, bit depth, or field dominance that does not need to be converted to match the preferences of the current sequence is a closer match than media that needs to be converted.
4. **Compression**: If the compression type or ratio of the two qualities are different, then a quality match will be based on criteria in the following order:
   - its codec type and ratio exactly matches those of the sequence.
   - its codec type is the same as the sequence but not its ratio.
   - its codec type can be read in real-time by the hardware.
5. **Resolution width**: If none of the candidates match the resolution width of the current sequence, then the media with the greater resolution width is the closest match.
6. **Resolution height**: If none of the candidates match the resolution height of the current sequence, then the media with the greater resolution height is the closest match.
7. **Image format**: Uses the exact or closest match.
8. **Aspect ratio**: Uses the closest match.
   - **Width in square pixels**: If none of the candidates have the same width as the current sequence, then the media with the greater width is determined to be a closer match.
   - **Height in square pixels**: If none of the candidates have the same height as the current sequence, then the media with the greater height is determined to be a closer match.
9. **Bit depth:** If none of the candidates has the same bit depth as the current sequence, then the one with the greatest bit depth is the closest match.

10. **Processing precision:** For caches only. If none of the candidates has the same precision as the current sequence, then the one with the higher precision is preferred.

Once it finds the candidate that is the closest match, Avid DS Nitris determines if it needs to convert the media to fit into the current sequence. The conversion method is based on the following properties:

1. **Image format**: If the image format is different than the current sequence, it will need to be converted.
2. **Image size**: If the image size is different than the current sequence size, it will need to be converted.
3. **Resolution**: If the resolution is different than the current sequence, it will need to be converted.
4. **Field Dominance**: If the field dominance is set to None, then no conversion is needed. Odd and even are incompatible, so a field conversion is required. The following table shows where conversion is required:

	Media Quality		
Field Dominance Sequence preference	**None**	**Even**	**Odd**
None	No	No	No
Even	No	No	Yes
Odd	No	Yes	No

5. **Compression:** If the compression type is not hardware real-time playable, a conversion is needed.

Quality Matching Example

Here's an example of video quality matching. Your sequence preferences have been set to:

- 4:3 aspect ratio
- Full resolution

- 4:1 compression
- Use the closest media format available

You have the following media available on disk:

- Quality 1 – 4:3 aspect ratio, Full resolution, uncompressed
- Quality 2 – 4:3 aspect ratio, Full resolution, 2:1 compression
- Quality 3 – 4:3 aspect ratio, Full resolution, 3:1 compression
- Quality 4 – 16:9 aspect ratio, Full resolution, 3:1 compression

Using the quality matching formula in Avid DS Nitris:

Step	Discards	Reason
Step 1	None	All media segments are at the same resolution.
Step 2	None	No match for compression ratio. Keeps all but notes that the smallest compression ratio will be the closest.
Step 3	Quality 4	Does not match the aspect ratio.

Between Quality 1, 2 and 3, Quality 1 is chosen because it is the least compressed of the three.

Processed media (caches) are also created based on the video resolution and compression settings. The same quality matching method is used to select the quality of the cache during playback.

Understanding Audio Quality Matching

An audio clip can have media at multiple sample rates, just like a video clip can have media at multiple resolutions, compression ratios, or aspect ratios.

With audio, Avid DS Nitris first tries to play media that matches the sample rate set in your audio sequence preferences. If it doesn't find such media, the audio tracks turn red and you're prompted to convert the audio media to the sample rate of the current sequence.

If an exact audio media match is found, then that audio media is used. If more than one candidate meets this match, then Avid DS Nitris looks at the following criteria:

1. **Captured versus linked media**: Captured media is considered a closer match than linked media.
2. **Bit Depth**: If none of the candidates match the bit depth, media with a greater bit depth is the closest match.

Understanding the Processing Settings

The media resolution, bit depth, compression, or sample rate that you set in your Sequence preferences define the quality at which clips are captured. During processing, you can use these same settings, or you can change them to process the captured media at a different resolution, bit depth, or compression. This is useful if you want to process your effects at a lower quality for preview purposes, and save on processing time. When your sequence is ready for finishing, you can change the settings back to a higher quality and reprocess the effects.

About Bit Depth

Bit depth is used to describe the number of bits used to store information about each pixel of an image. The higher the depth, the more colors that are available for storage and more accurate color representation in the digital image.

In Avid DS Nitris, this is known as the Storage format bit depth, and is used when storing captured media and processed media (caches).

Avid DS Nitris supports 8 or 10-bit storage bit depth for SD or HD non-Custom sequences, and up to 16 and 32-bit for film or custom sequences. The bit depth is also dependent on your resolution and color space settings.

Setting the Processing Bit Depth

Effects can be processed at 16 or 32-bit depth. This is known as Precision.

Avid DS Nitris supports 8, 10, 16 or 32-bit media and caches. This Precision can be set for the individual effects that support these levels, or it can be set in your sequence preferences and applied globally to all effects that support these levels. For a list of 16 bit/32 bit float effects, see “Effects Supporting 16 or 32 Bits (Float) Processing” in the Help.

Although Avid DS Nitris can support higher bit depths during processing, the caches may be stored at a lower bit depth depending on your resolution and color space settings. Note that, using a higher precision bit depth generates smoother effects during processing, and still produces better quality output even though the quality may be downgraded when storing the cache at the lower bit depth.

Processing in Fields versus Frames

When applying effects, you must decide whether to apply the effect to each frame or each field. This will usually depend on the type of source material you're using. Knowing how your source material was created will play a role in determining how to process your effects. If processed incorrectly, you may notice unwanted jittering or unusual artifacts.

- **Field** to convert the image to fields, which processes each field of your effects and graphics separately (using different property values if there is animation), and then reconverts the video information to frames to display the results. This option is better for animated effects, such as dissolves, fades, and motion paths.
- **Frame** processes the entire frame (both fields together) using the same property values. Use this option with frame-based source material. Static graphics images, 30 fps film, and 30 fps CGI (computer-generated images) are some examples of frame-based material.

Understanding the Working Conversion Mode

Since Avid DS Nitris is resolution independent, you can work with media and sequences with different size and resolutions, all within the same sequence. When dealing with media of different formats, you can specify how Avid DS Nitris should handle the conversion.

There are different situations in which media is converted:

- When media is imported
- When linking to media from within a sequence
- When using media of different formats than the current sequence

When you digitize or import media, it is digitized according to the video sequence preferences or capture settings—see "Understanding Video Settings" on page 681.

Since the scale/pan settings applied to the media are fixed, you cannot change these settings when you recapture the media.

In the second and third cases, you're dealing with how clips are converted when they're placed on the timeline. The conversion mode you select determines how clips and sequences of different resolutions are displayed when they're placed on the timeline. You can set the conversion mode in the Sequence Preferences dialog box.

The clips that are already on the timeline will not be affected. Only clips placed on the timeline after the sequence preferences are changed will be converted.

You can also set the conversion mode for each clip individually using the conversion mode settings in the Clip Properties property page. This overrides the conversion mode in the Sequence Preferences dialog box.

As previously explained, when you place a clip on the timeline which has a different resolution than the current sequence, the image will be converted using the method you set in the Sequence Preferences dialog box.

However, when you place a sequence on the timeline, the conversion becomes a little more complicated, since you may be dealing with various resolutions within that sequence. Avid DS Nitris treats the clips within that sequence as a single unit in order to preserve the relationship between the clips. By doing so, Avid DS Nitris ensures that the ratio between each clip remains the same. Once the clips are grouped together, Avid DS Nitris uses the conversion mode you set in the Sequence Preferences dialog box to convert all the clips as a single unit.

If your clip is converted more than once, it can't be assigned one of the defined conversion modes. Instead, a separate conversion mode called "Multiple Conversions" is used to specify that the clip has been converted multiple times.

When you insert a sequence within another sequence, you can always override the current sequence preference conversion mode by modifying each clip's conversion mode individually in the Clip Properties property editor. Only the clip whose conversion mode you modified will be affected. All other clips will remain as they are.

If you use a sequence that has processed effects within another sequence, the caches will remain valid as long as both sequences have the same settings. If, however, you change the conversion mode, you must process the effects again.

The following table summarizes how each item is converted in Avid DS Nitris:

Items	Media conversion treatment
Captured clip	Frame size, at the time of capture, is scaled and panned to the current sequence size
Linked clip	Image size is scaled and panned to the current sequence size
Sequence	Sequence size is scaled and panned to the current sequence size

Example

The following is an example of how a sequence, which contains linked images of various resolutions, is converted when inserted into a sequence that has a different resolution.

Sequence A is an NTSC D1 sequence at 720 × 486 resolution. It contains the following images:

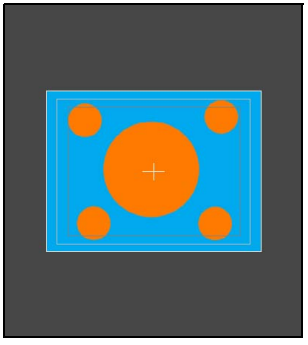


Image 1: 1440×972 linked image set to Scale to Fit.

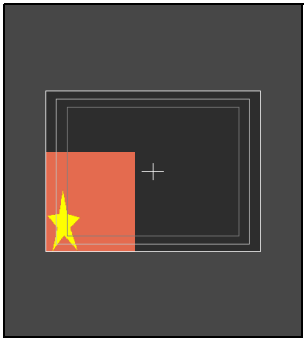


Image 2: 300×300 linked image set to Keep Original Size and Position.

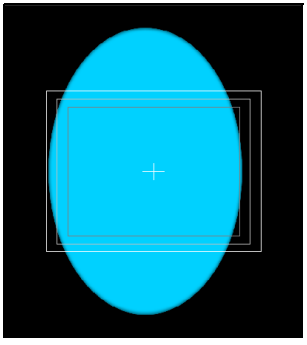
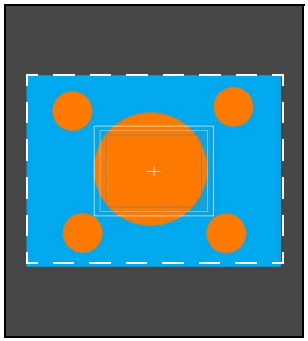


Image 3: 1000×1000 linked image set to Center, Keep Original Size.

Sequence B is a custom sequence at 360 × 243 resolution. The conversion mode in the Sequence Preferences dialog box is set to Center, Keep Original Size. When you place sequence A into sequence B, the following occurs (the original frame size of sequence A is outlined in white):



The clips are grouped together and treated as a single unit. Since image 1 was centered in the original sequence, it will remain centered in the new sequence. Since sequence B has a smaller resolution, the image just fills up more of the viewer. This clip has been converted in both sequences, so its conversion mode will be set to Multiple Conversions.

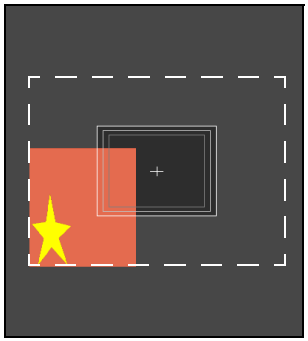
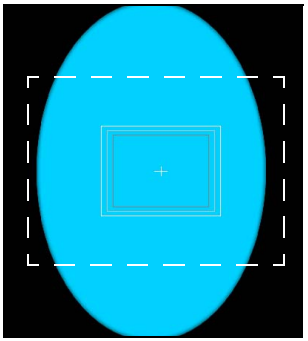
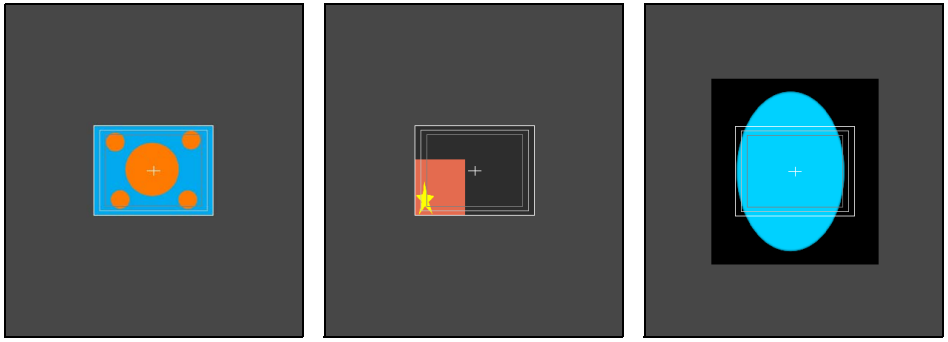


Image 2 was not centered in the original sequence, so in this sequence, the star gets cut out of the viewer. Since the original linked clip was set to Keep Original Size and Position, it has only been converted once and its conversion mode will be set to that of the current sequence.



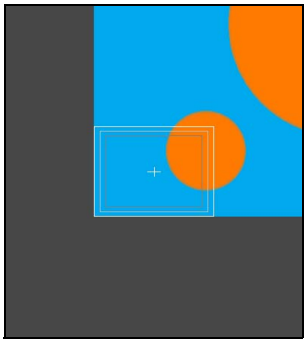
Since image 3 was centered in the original sequence, it remains centered. Because the circle is so large, it fills the entire viewer. This clip has been converted in both sequences, so its conversion mode will be set to Multiple Conversions.

If you change the conversion mode in the Sequence Preferences to Scale to Fit, and place sequence A into sequence B again, the following occurs:



If you compare these images with the images in the original sequence, they will be exactly the same, except smaller. Since the images are grouped together as a sequence, the individual images are not scaled to fit the resolution of the current sequence. Instead, the whole sequence is scaled down to fit the new sequence resolution, which, in this case, produces a smaller version of the original sequence.

You can then go into the Clip Properties property page and change the conversion mode for each clip individually.



When applying a conversion mode to a clip individually, the original sequence settings are ignored and Avid DS Nitris refers back to the original image.

For example, the conversion mode for image 1 was set to Keep Original Size and Position. Notice how the displayed image is the 1440×972 clip. If Avid DS Nitris had referred back to the original sequence, then the clip would have been displayed at 720×486 resolution.

After changing the conversion mode of an individual clip, you can always change it back to its original setting.

To change the conversion mode of individual clips:

1. Right-click a clip and select **Properties**.
2. In the property editor, change the **Conversion Mode**.

***Tip**: To change the conversion mode of multiple clips, press Ctrl and select additional clips. Now change the Conversion Mode in the property editor and it will apply to all the selected clips.*

Saving Sequences

When you save a sequence, you are saving the contents of the timeline. Any clips, container clips, transitions, caches, effects, and edit markers are saved with the sequence.

It is good practice to save your sequences at regular intervals, or when you have completed an important part of your work. The first time you save a sequence, all information related to the sequence is saved. However, the next time you save the sequence, only the modifications to the sequence are saved, so it takes less time.

You can also create a crash recovery file for your current sequence at regular intervals. This lets you recover the latest work on your sequence in the event of a system failure. For more information, see "User Preferences Dialog Box" in the Help.

To save a sequence for the first time:

1. Select **File** > **Save**.

   The Save Sequence dialog box is displayed.

2. Use the Avid Explorer tools to navigate to the folder in which you want to save the sequence.

3. Type in a name for your sequence in the **File Name** text box and click **OK**.

   The sequence is saved and a sequence icon with the sequence name is displayed in the Avid Explorer. You can now continue editing or close the current sequence, and begin work on a new sequence or project.

To save an existing sequence:

- Select **File** > **Save**.

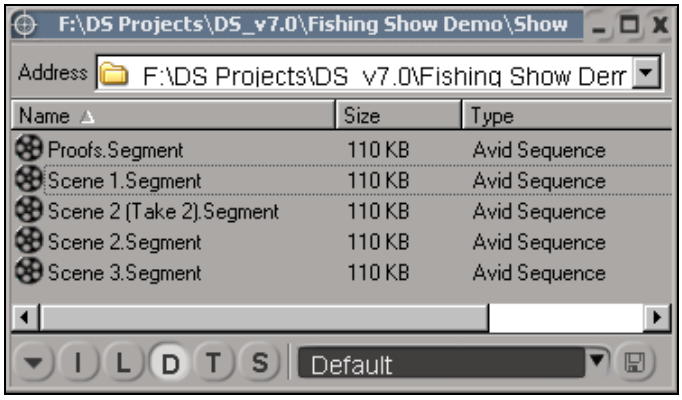
  The existing sequence is overwritten.

  The sequence is saved and a sequence icon with the sequence name is displayed in the Avid Explorer. You can now continue editing or close the current sequence, and begin work on a new sequence or project.

Creating a Copy of a Sequence

You can save different versions of a sequence in a project folder. If, for example, you've been hired to create a series of spots for a client, you create a project that is completely contained in a single folder. Inside that folder, you create a number of subfolders to store elements, such as master clips, presets, mattes, and backgrounds.

Inside that project, you create a sequence for the first spot by dragging clips to the timeline, and saving the sequence in your project folder. For the second spot, make a copy of the sequence calling it "Scene 2 (Take 2)", and make the necessary adjustments. Continue to do the same for each of the spots.



To save a copy of a sequence:

1. Select **File** > **Save As**.
2. Type a new name for the sequence.

   The sequence is saved. You can now make the necessary edits to this sequence.

Another way to create versions of your sequence is by selecting the sequence in the Avid Explorer, pressing the Ctrl key, and dragging the file to an empty area of the folder. Copying the sequence in the Avid Explorer takes less time than creating a copy with the Save As command.

Searching for Sequences

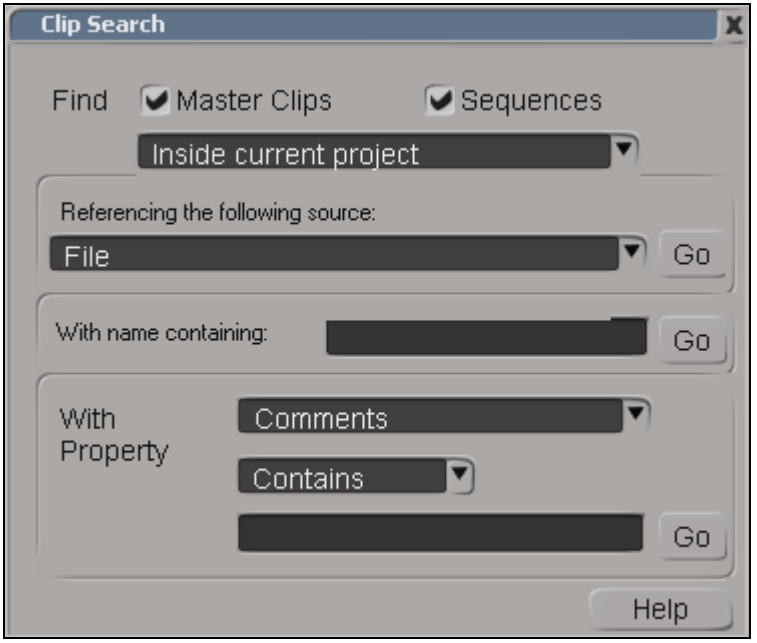
Large projects can contain many sequences and even more master clips. Although you can use the Avid Explorer to find a particular sequence or clip, it can be more efficient to search for sequences and master clips using the Clip Search tool.

The Clip Search tool lets you search for master clips or sequences within your current project. You can do searches by source, file name, or file properties. All clips found in the search appear in the clip tray.

To search for sequences or master clips:

1. Select **View** > **Single-Instance Views** > **Clip Search**.

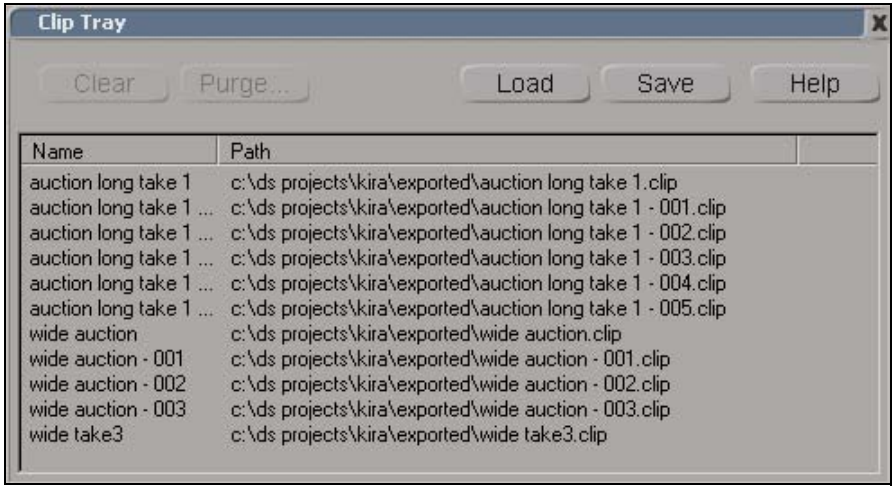
   The Clip Search dialog box is displayed.



2. Select the **Master Clips** and/or **Sequences** option(s) to search for one, the other, or both.
3. To search by:

- **Source**: Select a tape source name or file from the Referencing the Following Source list and click **Go**.
- **File name**: Type the file name in the With Name Containing text box and click **Go**.
- **File property**: Select an attribute from the list, either Contains or Equals, type the text you are searching for in the text box, and click **Go**.

The clips and/or sequences found in your search are displayed in the clip tray.



You can only perform a clip or sequence search using one filter option at a time.

For detailed information on the Clip Search dialog box, click **Help**.

Deleting Sequences

If you no longer require a sequence, you can create an archive of the project in which it resides (see "Archiving Projects" on page 1093) or delete the sequence from the project. Be careful when you delete a sequence, because deleting a sequence can also delete media, depending on the option that you choose.

To delete a sequence:

- In an Avid Explorer bin, right-click a sequence that is not currently open and select one of the following:
  - **Delete Clip & Unused Media**: Deletes the selected sequence and its associated media if the media is not used by a master clip or another sequence. This option deletes cache media that is used only by the sequence.
  - **Delete Clip & All Media**: Deletes the selected sequence and its associated media even if the media is used elsewhere. Although this is a quick way to create more disk space on your drive, it can be risky. You should only do this when you're absolutely sure that you no longer need the sequence's cache media and master clips.

    A dialog box asks you to confirm the deletion. Click **Yes**.

Selecting the Delete option under the Windows section of the menu or pressing the Delete key deletes the selected sequence but does not delete the associated media.

Chapter 3
Building a Rough Cut

This chapter describes how to perform basic editing tasks, such as preparing source clips, arranging clips on the timeline, and synchronizing clips to create a rough cut.

- Workflow: Editing Audio and Video
- Creating Sequences
- Marking In and Out-points on the Timeline
- Displaying Timecodes
- Viewing a Sequence as a Hieracharical Tree Structure
- Playing Sequences
- Manipulating Clips
- Using Locators
- Finding Frames, Clips, and Bins
- Extracting Parts of a Sequence
- Grabbing Frames
- Rippling Clips
- Synchronizing Clips
- Referencing Sequences

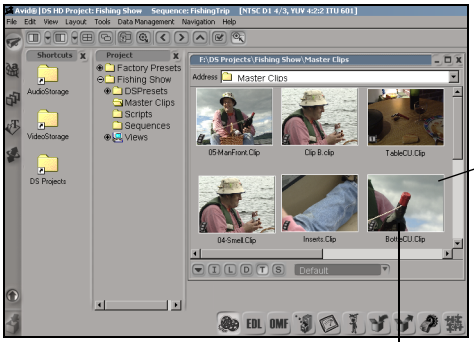
Workflow: Editing Audio and Video

Editing is the process of assembling audio and video clips on the timeline, creating transitions between these clips, and synchronizing the sound with the images. Because the timeline is an integral part of the editing process, it is found in many of the layouts. The tasks in this chapter focus on the timeline and how to use it with other tools to edit your media.

All editing tasks are based on what you select. Each time you make a selection on the timeline, the Record viewer, timecode boxes, and tool panels are updated to give you information on the selected object.

The following illustration shows how you can build and edit a sequence in Avid DS Nitris.

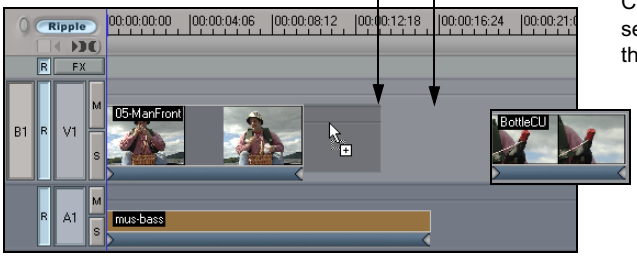
1 Locate and prepare media for editing.



2 Preview and trim your source media in the Source viewer.

3 Place clips on the timeline.

Create a rough cut of your sequence by dragging clips to the timeline.

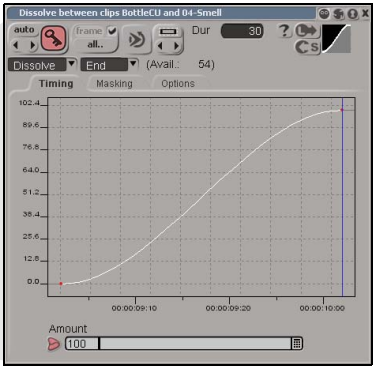


4 Manipulate clips.

Move, trim, slip, slide, and nest clips on the timeline.

5 Apply transitions.

Create cuts, wipes, dissolves, crossfades, and DVE-type transitions.



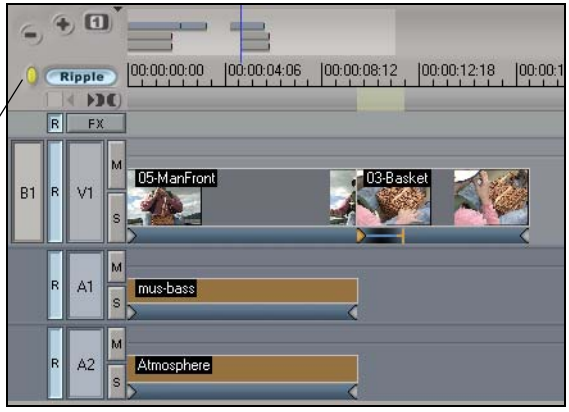
6. Synchronize audio with video.

   Synchronize video or audio events by using locators.

7. Process the sequence.

   Process all transitions and container clips in the sequence to play the results in real time.

Click Process button.



Creating Sequences

A sequence is an arrangement of clips on the timeline. It contains information about edit decisions, applied graphics and effects, animation settings, and working preferences.

Before constructing your sequence, it's important to realize that the edits you make to clips are non-destructive. That is, you're not actually editing the source media. The clips that you see in the bin and on the timeline are simply references to the media on the storage device.

Setting up your sequence involves previewing and editing source clips, and then placing them on the timeline. The quickest way to create your rough cut is to place clips directly on the timeline. You can, however, preview your source clips to set new in and out-points before placing them on the timeline.

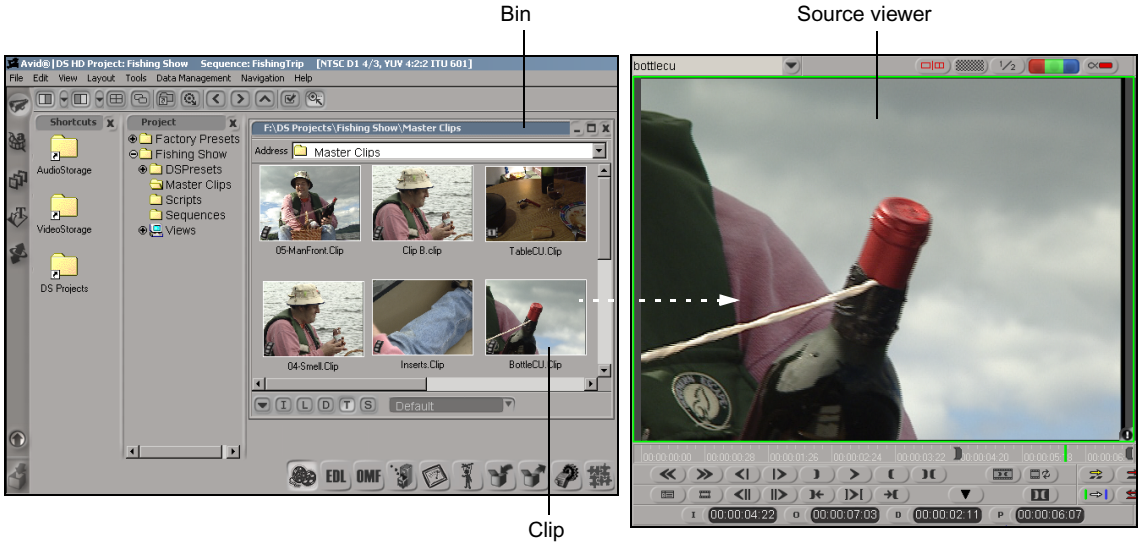
You may also want to bring in a project from an offline environment into Avid DS Nitris. You can import an AFE, AAF, Open Media Framework® (OMF®), or Edit Decision List (EDL) file into the Avid Explorer as logged clips, or onto the timeline as a sequence. For more information, see "Conforming AFE Files" and "Conforming OMF, EDL, and ALE Files" in the Help, or "Conforming with EDL Files".

Preparing Source Clips for Editing

Before you place a clip on the timeline, you can prepare it in the Source viewer. If a single viewer is displayed, and you drag a clip to the viewer, it changes into a dual viewer that displays the Source and Record viewers. The Source viewer lets you view and edit source clips.

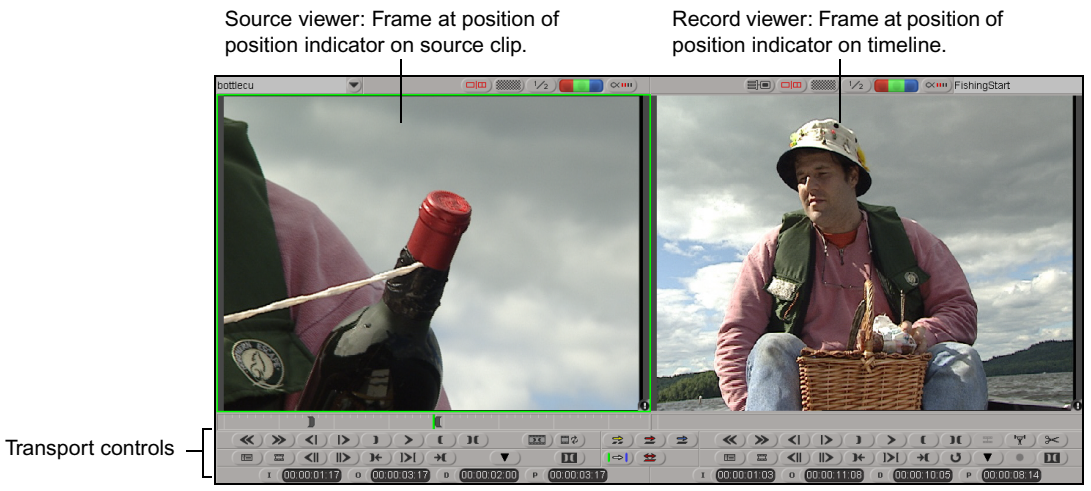
To move a clip to the Source viewer:

- Drag a clip from a bin to the Source viewer.



The source clip is displayed in the Source viewer. The Record viewer displays the frame (if any) at the current location of the position indicator on the timeline. This lets you compare a source clip with the clip on the timeline where it will be inserted.

For more information, see “Source and Record Viewers” in the Help.



Each viewer has its own set of controls for manipulating the source clips, timeline clips, or material on an external device. The controls under the Source viewer help you prepare source clips before inserting them on the timeline. You can continuously cue and mark your source material without affecting the sequence.

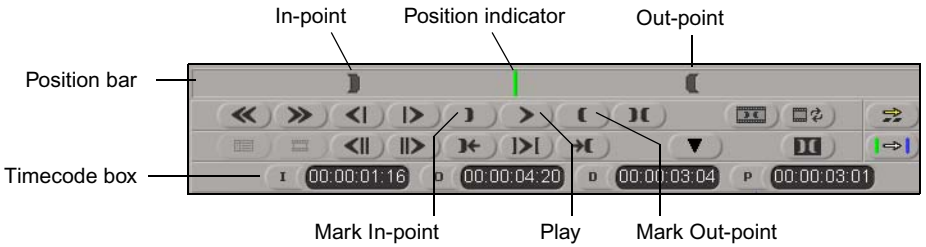
For an overview of all the controls in the Source viewer, see “Transport Controls” in the Help.

After marking the appropriate in and out-points on the source clip, use the Record viewer to locate the frame (in your sequence) on which the new clip is to be inserted. You can also decide whether or not to use all the channels of the source clip, and on which track you want to place the clip. For more information, see “Patching Tracks” on page 718.

After the clip has been placed on the timeline, you can continue working in dual viewer mode or use a single viewer to display only the clips on the timeline.

Editing Source Clips

You can place master clips, container clips, or sequences in the Source viewer for previewing. This lets you cue or mark new in and out-points on the source clip, and then insert, overwrite, replace, or fit-to-fill clips on the timeline with it.



To edit a clip for use in your sequence:

1. Click **Play** below the Source viewer to play the source clip.
2. Click one of the following:

- **Mark In** button when the position indicator reaches the desired in-point.

- **Mark Out** button at the desired out-point.
- Type a timecode in the I (in) or O (out) timecode box and click the **I** or **O** button.

An in-point or out-point is displayed in the position bar. If you need to adjust these points, drag them to a new location.

3. Click **Play** again to stop playing the clip.
4. You can now place the clip directly on the timeline—see "Placing Pre-edited Clips on the Timeline" on page 715.

Creating Subclips

Instead of placing the marked clip on the timeline, you can first create a subclip from it. This leaves the original clip untouched while a copy of the original clip with new in and out-points is saved in a bin. The Capture Target option of the Capture Settings dialog box specifies the location for the new subclip, see "Media Capture Settings" in the Help.

Unlike master clips, subclips do not directly reference the original media. Subclips remain linked to the master clips from which they were created, and the master clips in turn reference the digitized media files located on your storage drives. As a result, none of the original footage is lost.

To create a subclip:

1. Verify the target location for the subclip, by doing the following:

   a. In the Avid Explorer toolbar, click the **Capture Settings** button.

      The Capture Settings dialog box is displayed.

   b. In the Media Capture panel, verify the **Capture Target** settings and modify if needed.
2. Load a clip in the Source viewer.
3. On the position bar below the Source viewer, reposition the in and/or out-points of a clip.
4. Place the position indicator on the frame you want to display in the bin.

5. Click the **Create Subclip** button.
6. In the Create Subclip dialog box, type a name for the subclip.

You can use the default name, which is the parent clip name appended with a number, such as RealClip - 001.

7. Click **OK**.

   The new clip is created and saved in the target bin.

The source clip maintains its original in and out-points.

To change the frame of the subclip displayed in the bin:

1. Open the subclip in the Source viewer.
2. Go to the frame you want to display.
3. Click the **Update Thumbnail** button to change the thumbnail frame of the subclip.

Switching Between the Source and Record Timeline

The Source timeline lets you see the timeline of the clip or sequence that is in the Source viewer. While viewing the Source timeline, you can place in and out-points, and zoom, pan and navigate the timeline. You cannot, however, do any editing on the Source timeline.

To view the Source timeline:

- With a clip or sequence in the Source viewer, click the **Toggle Source/Record Timeline** button on the timeline navigation bar.

  The Source timeline is displayed and the Toggle Source/Record Timeline button turns green, as well as the position indicator.

To return to the Record timeline:

- Click the **Toggle Source/Record Timeline** button again.

To automatically switch between the Source and Record timeline:

- Right-click the Toggle Source/Record Timeline button and select **Auto**.

  Selecting the Source viewer displays the Source timeline. Selecting the Record viewer displays the Record timeline.

Placing Clips on the Timeline

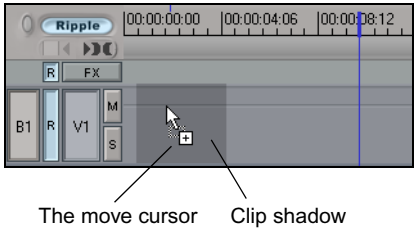
The timeline is where you place and edit clips to build a sequence. You can create any number of audio and video tracks on the timeline, and place clips anywhere on these tracks. While working with multiple tracks, you can use the Track selector to select, manipulate, delete, ripple, patch, and monitor your tracks. You can use multiple tracks to layer audio effects and sound, or to add video titles and other effects.

Before editing your clips, you can customize the timeline to suit your work by changing the settings to show, hide, or minimize some display areas. You can also change the ruler's time scale to display other time formats, including drop frame, non-drop frame, and frame numbers. For more information, see "Timeline" in the Help.

Dragging and dropping clips onto the timeline overwrites frames of existing clips. A clip cannot be placed on a track if the clip completely covers, or is completely covered by, another clip. However, if you activate the Ripple mode on the timeline, then clips are inserted at the timecode at which they are dropped. Existing clips are moved down the timeline to accommodate the inserted clip.

You can only place clips on selected tracks.

When you drag a clip from a bin to the timeline, the move cursor is displayed. As you drag over the timeline, a shadow is displayed to indicate the section where the clip will be placed.



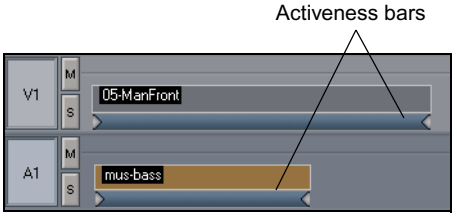
Clips assume *activeness* when you place them on the timeline. Activeness refers to the sections of a clip that can be used in the final sequence. These active frames are indicated by an activeness bar below a clip. Not all active

clips in a sequence are included when you play the final sequence. Whether an active clip plays in a sequence or not depends on the position of the clip on the timeline and the track selector settings.

The behavior of clip activeness varies between audio, video, and background tracks.

- **Background tracks**: Only one video clip can be active at any given time.
- **Video tracks**: Multiple video clips can be active at the same time. The clips on the top tracks play on top of clips on the lower tracks. The effects and video clips with full-screen alpha clips placed on top tracks are composited over the active clips on the lower tracks.
- **Audio tracks**: All active audio clips play back. This lets you play multiple audio streams at the same time.

For more information, see “Changing the Activeness of Clips” on page 769.



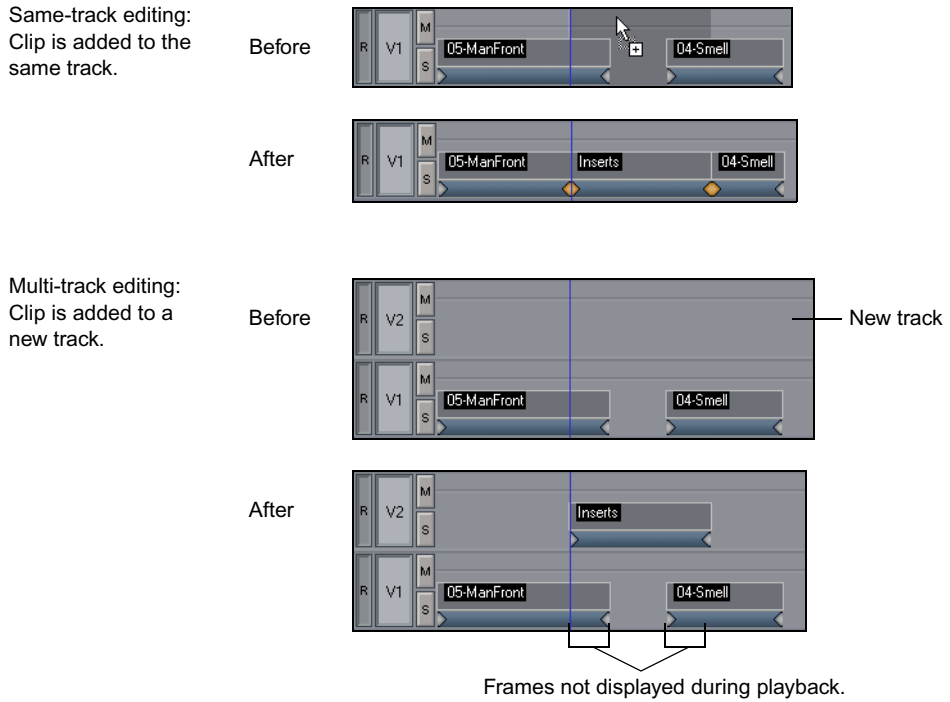
Video clips can be placed only on video tracks and background tracks, and audio clips only on audio tracks. When a clip with synchronized video and audio components is placed on the timeline, the video and audio are placed as separate clips on the audio and video or background tracks.

Same Track versus Multi-track Editing

Although you can easily place all your video clips on a single video track, working on multiple video tracks gives you more flexibility when editing. You can use video tracks to layer effects. When clips are active, the clips on the top video tracks play over the clips on the lower tracks. Any effects and video clips with full-screen alpha clips placed on the top video tracks are composited over the active clips on the lower tracks.

The active frames and position on the timeline determine the sequence of events. For example, you can place shots taken with different cameras on separate tracks. You can then easily switch the view from one camera to another by activating and deactivating clips. For more information, see "Cutting to a Clip" on page 908.

The following example shows how the same sequence is produced on one video track and on multiple video tracks. The activeness bars in both scenarios indicate which frames are used in the sequence. However, when working with multiple tracks, the activeness of clips on the top tracks indicate the frames used. In both scenarios, the same frames on the clips are used.



When you place clips on multiple tracks, you can reveal extra frames while editing. This is especially useful when you want to see how many frames are available for slipping or sliding. For more information, see "Revealing Unused Material on Clips" on page 768.

When working with audio, placing your audio clips on different tracks lets you play multiple audio streams simultaneously.

Placing Multiple Clips on the Timeline

You can select multiple clips from a bin and drag them to the timeline or timeline ribbon for editing. This is a quick way to edit several clips together. For example, if you previously classified material by scene number, you can quickly sort clips by scene number and then drag them all to the timeline. Clips are placed on the timeline in the order in which you selected them. When you select all the clips in a bin, they appear in the order in which they were sorted.

To place multiple clips on the timeline:

1. In a bin, do one of the following:
   - To select clips randomly, hold down the Ctrl key and click any clips that you want to select.
   - To select clips sequentially, click the first clip and hold down the Shift key and click the last clip that you want to select.
   - To select multiple clips, drag over a region in the bin.
2. Drag the selected clips to the timeline.

Placing Pre-edited Clips on the Timeline

If you've previewed and edited your source clip in the Source viewer, there are different ways to place the clip on the timeline. You can manually drag it to the timeline, or use the Overwrite, Insert, or Replace buttons.

The following instructions apply only when the Ripple button is deactivated on the tracks. For more information, see "Rippling Clips" on page 793.

To drag a clip to the timeline:

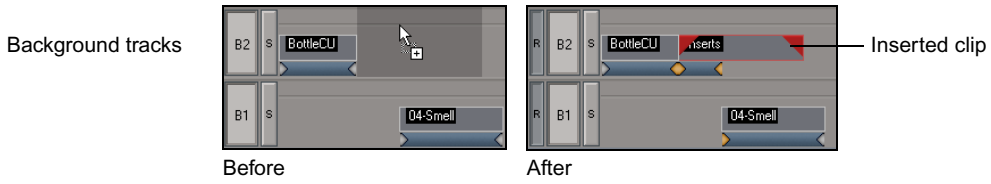
1. Mark an in and/or out-point on the timeline—see "Marking In and Out-points on the Timeline" on page 732.
2. Click the Source viewer and drag the clip to a track on the timeline, moving it close to the in-point.
   - To insert the clip, hold down the V key.
   - To overwrite the existing clips, hold down the B key.

     The magnetism of the in-point automatically draws the clip to the marked timecode.

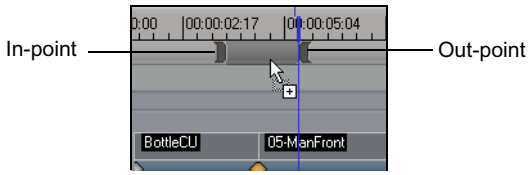
- To align the clip's source timecode with the source timecode of a clip on the timeline, hold down the U key.

The Autoswitch command on the Trim Mode menu must be deselected before you can drag a clip from the Source viewer to the timeline.

When you drag a clip to a video or audio track, the clip becomes active. When you drag a clip to a background track, the clip becomes active only in areas where there are no other active clips. The following illustration shows a clip being dragged to a background track.

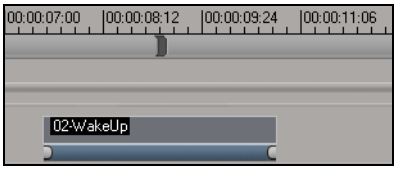


If you want to perform three-point editing, set both an in-point and out-point on the timeline. As a general rule, the in-point and out-point on the timeline determine the amount of space inserted into the sequence. For example, if the clip is longer than the marked region on the timeline, the out-point of the clip is trimmed to fit the specified duration. If the clip is shorter than the marked region on the timeline, a gap is added in areas not covered by the inserted clip. The following illustration shows a clip being placed between marked points on the timeline.



To insert or overwrite a clip on the timeline:

1. Mark an in-point at the timecode where you want to place your clip.



2. If you want to edit source audio or video onto a track other than the parallel track displayed in the Track selector, see “Patching Tracks” on page 718.
3. Click one of the following buttons:

- **Overwrite Clip** to place the clip at the in-point and overwrite any existing clips over the section that it covers.

- **Insert Clip** to place the clip at the in-point and ripple all subsequent clips on the timeline.

  The clip that is inserted on the timeline becomes active regardless of other active clips on the timeline.

- **Fit to Fill** to size the clip to fit perfectly between the marked in and out-points on the timeline. To use this option, you must also have specific in and out-points marked on the clip.

If the clip is longer or shorter than the marked region on the timeline, the clip is placed in a timewarp container clip and stretched or shortened accordingly. This speeds up or slows down the action in the clip.

To replace a clip on the timeline:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Select a clip on the timeline.
3. If you want to edit source audio or video onto a track other than the parallel track displayed in the Track selector, see "Patching Tracks" on page 718.

4. Click the **Replace Clip** button to overwrite the selected clip with the one that is currently in the Source viewer.

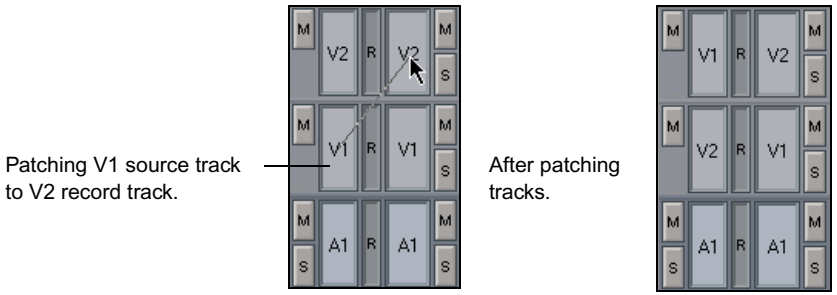
Patching Tracks

When working with multiple tracks, you can encounter a circumstance where you must edit source audio or video onto a track other than the parallel track displayed in the Track selector. To edit the source material onto another record track above or below it, you must patch the source track to the targeted record track.

You can perform only one patch per edit, but there is no limit on the number of times you can patch from the same source track. Audio can patch only to audio tracks, and video only to video or background tracks.

To perform a patch:

- In the Track selector, drag from a source track (audio or video) to the targeted record track (a black line is displayed during the patch).



The selected source track moves beside the record track to which it is patched. The patched track remains selected in preparation for your edit.

Placing Video Clips on the Timeline

A video clip can consist of live action, graphics, animation, or imported images. You can place video clips on video tracks or background tracks. Placing clips on the video tracks lets you composite over other clips on the tracks below it. Active clips on video tracks are composited in the order in which the video tracks appear on the timeline. For more information, see "Placing Clips on the Timeline" on page 712.

As you drag video clips to background tracks, the clips detect areas that are occupied, so that you don't overwrite clips that have already been positioned in time.

To place a video clip on the timeline:

1. Mark an in and/or out-point on the timeline—see "Marking In and Out-points on the Timeline" on page 732.
2. Drag a clip from a bin or Source viewer to the timeline ribbon, video track, or background track on the timeline, and align it close to the in-point.

   A shadow is displayed on the timeline to indicate the area where your clip will be placed. The *magnetism* of the clip is attracted to other objects in close proximity. This helps you align clips with other clips, in-point, or out-points.

To temporarily deactivate magnetism, hold down the Shift key as you drag an object.

3. If you're satisfied with the location, release the clip.

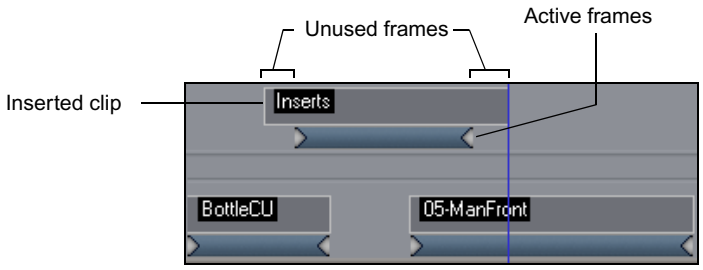
   The clip is automatically placed on the timeline and becomes active. If the video clip is placed on a background track, then the video clip is only active on areas where there are no other active clips on background tracks.

You can also insert or overwrite clips on your tracks and specify the track on which to place a clip. To do this, right-click a clip and drag it from the bin to any video track. This opens the Track Router dialog box from which you can select a video or background track.

When you place a clip on the timeline, the in-point moves to the end of the clip. The out-point (if any) is deleted.

You can display the unused frames of the clip by right-clicking on the overview area and selecting Display > Display Unused Material before placing the clip on the timeline.

The following illustration shows the timeline after a video clip is added to a video track. The inserted clip shows unused material.



Placing Audio Clips on the Timeline

Audio clips are the sound portion of your sequence. They contain material like sound effects, music, and dialogue.

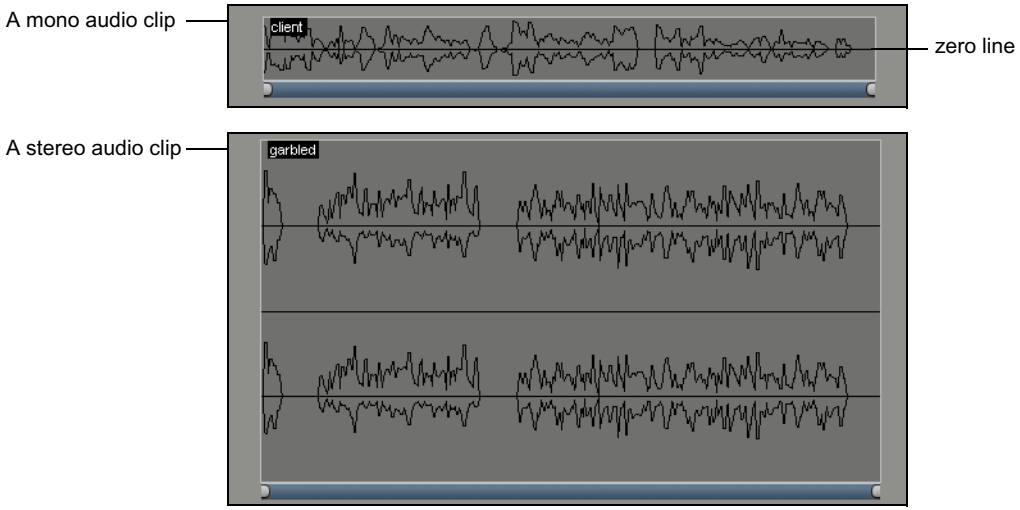
When you place an audio clip on an empty timeline, an activeness bar is automatically displayed under the audio clip. Multiple audio clips can be active at the same time span, as long as they're on different tracks.

Audio clips that do not have the sample rate specified in the user preferences can still be placed on the timeline. However, you will not be able to hear the clips until you recapture the audio material at the proper sampling rate. For more information, see "Converting the Audio Sample Rate" on page 1051.

The following table lists the audio clip types and the channels contained with each type of audio clip, depending on how many audio channels the audio clip has.

This type of audio clip...	Contains these audio channels
Mono	A single audio channel
Stereo	Two audio channels: Left and right
Quadraphonic	Four audio channels: Left, right, left rear, and right rear
LCRS	Four audio channels: Left, right, center, and surround
4 streams	Four generic audio channels: Output 1, output 2, output 3, and output 4
5.1	Six audio channels: Left, right, center, LFE, left surround, and right surround
6.1	Seven audio channels: Left, right, center, LFE, surround center, side left, and side right
7.1	Eight audio channels: Left, right, center, LFE, left surround, right surround, left center, and right center
8 streams	Eight generic audio channels: Output 1 to 8

When you place an audio clip on the timeline, it generates a waveform to display the audio channels. Each channel has a distinct waveform. For example, a mono clip has a single waveform, a stereo clip has two waveforms, and an 8-stream clip has eight. Each waveform has a zero line running through the middle.



Like audio clips, audio tracks can also be mono, stereo, quadraphonic, LCRS, 4 streams, 5.1, 6.1, 7.1, or 8 streams. You can place any kind of audio clip on any kind of audio track. For information, see “Track Property Editor” in the Help.

If the clip and the track are not the same type:

- The clip is yellow to indicate that the clip and track formats do not match.
- The clip’s audio channels are assigned to the track’s audio channels, as much as possible.

For example, if you place a stereo clip on an 8-stream track, the stereo clip’s two audio channels will be assigned to the first two audio channels in the 8-stream track. Conversely, if you place an 8-stream clip on a stereo track, the 8-stream clip’s first two audio channels will be assigned to the stereo track’s two channels, while the other six channels in the 8-stream clip are ignored. You can adjust the way that a clip’s audio channels occupy a track’s audio channels in the mixer. For more information, see “Adjusting the Mixer Outputs” on page 1045.

You can also mix different audio signals by creating an audio container clip. Audio container clips let you group several audio clips, mix them together, and treat them as a single clip on the top or parent timeline. For more information, see “Creating an Audio Container Clip” on page 920.

To place an audio clip on the timeline:

1. *Optional*. Mark an in and/or out-point on the timeline—see "Marking In and Out-points on the Timeline" on page 732.
2. Drag a clip from a bin or Source viewer to the timeline ribbon or audio track on the timeline, and align it close to the in-point.

If you want to select a specific track on which to place the clip, right-click the clip and drag it from a bin to any of the audio tracks on the timeline. This opens the Track Router dialog box from which you can select an audio track.

A shadow is displayed on the timeline to indicate the area where your clip will be placed. The *magnetism* of the clip is attracted to other objects in close proximity. This helps you align clips with other clips, in-points, or out-points.

To temporarily deactivate magnetism, press Shift as you drag an object.

3. If you're satisfied with the location, release the clip.

   The clip is automatically placed on an audio track on the timeline and becomes active even where there are existing audio clips because you can play multiple audio tracks simultaneously.

When you place a clip on the timeline, the in-point moves to the end of the clip. The out-point (if any) is deleted. Audio clips can be active simultaneously.

Placing Clips of Different Frame Rates on the Timeline

You can drop a clip on the timeline even if it has a different frame rate than that of the current sequence. When you place the clip on the timeline, a red highlight appears in the timeline ribbon indicating that the clip must be processed. When you process the clip, new media is created at the frame rate of the current sequence.

You cannot recapture clips that were originally captured at one frame rate and then converted to a different frame rate.

To place a video clip of a different frame rate on the timeline:

- Drag the clip from a bin to the timeline ribbon, video track, or background track on the timeline.

- If you press the F key while dragging the clip, it will force a frame to frame mapping to the current sequence frame rate. This does not convert the frame rate but it will result in a change of the clip's duration. You can add a timewarp effect to regain the original duration.

If you drop a clip of a different frame rate on the timeline, it might not have the same field dominance as the current sequence. Therefore, if you apply a time effect on this clip, you might need to invert the fields to compensate for the difference in field dominance. This can be done by clicking the Invert Fields button in the corresponding effect's property editor.

Placing Clips on the Timeline Using Sync Point Editing

Sync point editing lets you overwrite or insert material onto your sequence in such a way that a particular point in the source material is in sync with a particular point in the sequence. For example, you can sync an action in the source video with an audio event such as a musical beat in the sequence, and then edit it so that the action occurs on the beat.

Sync point editing uses the relative location of the position indicator in both the source and record material as the sync point. Sync point editing determines the duration of the new edit according to marks that you set. You can apply these marks across multiple tracks when marking a sequence. This lets you add overlap cuts.

Sync point editing requires two pieces of information:

- **Sync points**: These are the points where the synchronized relationship between the source and record material is established.
- **Duration of the relationship**: This is determined by the positions of the head and tail frames (and sometimes by the position indicator). Both marks can be in one monitor, or one mark can be in one monitor and the other mark in the other monitor. The duration of the material being edited into the sequence must be sufficient for the size of the edit.

To perform a sync point edit:

1. Load a clip or sequence into the Source viewer.
2. Load a sequence into the Record viewer.
3. Mark the material, do one of the following:

- Mark in and out points in either the Source or Record viewer, leaving the opposite monitor clear of marks.
- Mark an in or out-point in the Source viewer, or an in or out-point in the Record viewer. For example, if you marked an in-point in the Source viewer, mark the out-point in the Record viewer.

4. Move the source position indicator to the sync frame in the clip. This establishes the source sync point.
5. Move the record position indicator to the sync frame in the sequence.
6. Click the **Sync Point Editing** button to active sync point editing.

7. Select the source and record tracks for this edit.
8. Do one of the following:

- Click the **Overwrite Clip** button to overwrite any existing marked material on the timeline.

- Click the **Insert Clip** button to place the clip in the sequence an ripple all subsequent clips on the timeline.

- Click the **Replace Clip** button to overwrite the selected clip on the timeline.

The sync point edit is complete.

To turn off sync point editing:

- Click the **Sync Point Editing** button.

Working on the Tracks

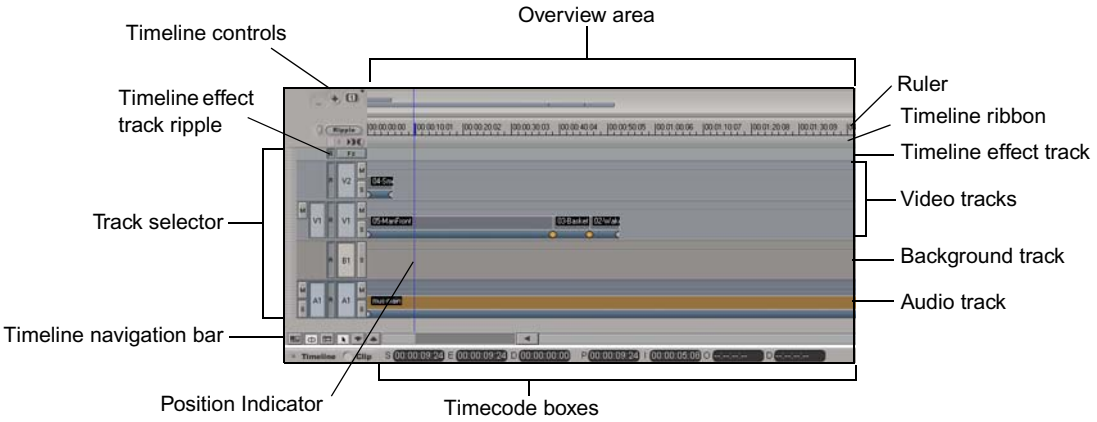
There are three types of tracks on the timeline:

- **Audio tracks** contain the audio clips and audio container clips of a sequence.
- **Video tracks** contain the video clips and container clips that are composited over clips on the video and background tracks.
- **Background tracks** contain the video clips and background/composite container clips of a sequence.

While working with multiple tracks, you can use the Track selector to select, manipulate, delete, ripple, patch, and monitor the tracks. You can use multiple tracks to layer audio effects and sound, or to add video titles and other effects.

You can change track properties, such as the track name or the level of detail at which clips are displayed on a track. By default, tracks are numbered sequentially (V1, V2, A1, A2, and so on) as they are created on the timeline.

You can also scroll and adjust the heights of tracks.



For more information, see “Track Selector” in the Help.

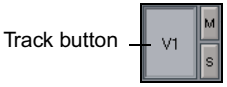
To show or hide the Track selector:

- Right-click the overview area and select **Display** > **Display Control Area**.

Selecting Tracks

You can select one or more tracks at the same time. When you select a track, you can perform editing operations on the entire track. For example, you can select two tracks and apply a track-based effect by clicking Video Effect from the toolbar and choosing an effect from the pop-up menu. This effect will be applied over all the clips on the selected tracks.

To select a track:



- From the Track selector, click the **Track** button.

  The Track button for the selected track is highlighted.

To deselect a track:

- From the Track selector, click the **Track** button of a selected track.

You can also activate and deactivate tracks by right-clicking a track and selecting Live Track.

To select a region on multiple tracks:

1. Drag over a section of the track to select a region.
2. Hold down the Ctrl key and click another track.

   The region is highlighted on all selected tracks.

Adding and Deleting Tracks

You can add any number of audio, video, or background tracks to the timeline. Video tracks are added to the top of the timeline, and audio tracks are added to the bottom of the timeline. Background tracks are inserted between the audio and video tracks.

You can also delete tracks that are no longer required in the sequence.

To insert a track on the timeline:

- Right-click the overview area and select **Create Audio Track**, **Create Video Track**, or **Create Background Track**.

  An empty track is added to the timeline.

***Tip**: You can automatically insert a track when dragging a clip from a bin to the timeline. Simply drag the clip to the timeline ribbon.*

To remove a track from the timeline:

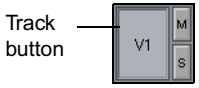
- Right-click an empty area of the track and select **Delete Track**.

  The selected track and all the clips on it are deleted from the timeline.

Reordering Tracks

You can change the order of the video, audio, and background tracks. You cannot, however, place a video track below a background track.

To reorder tracks:



- Drag the **Track** button to a new location.

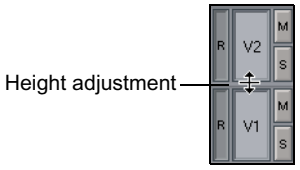
Setting the Track Height

You can enlarge or reduce the height of the tracks to improve visibility and display more information within the tracks. You can reduce the track height if you need more space on the timeline to view other tracks.

Reducing the track height may hide any effects you have applied on the timeline.

To enlarge or reduce the height of tracks:

- Press Ctrl and drag the line between the **Track** buttons to change the height of the track above the line.

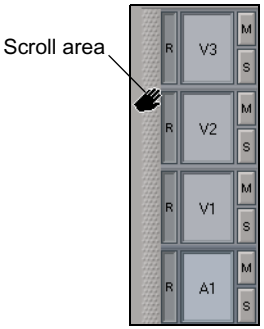


Scrolling Tracks

As you add more tracks, the tracks at the bottom of the timeline scroll off the desktop. Similarly as you add more clips to a track, they scroll to the right or left of the desktop.

To scroll tracks vertically:

1. Place the pointer at the far left of the Track selector.



2. When the hand icon is displayed, drag up or down to view additional tracks.

If you hide the Track selector, you can still scroll the tracks vertically by holding down the X key and dragging the timeline up and down.

To scroll tracks horizontally, do one of the following:

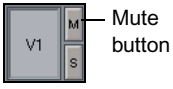
- Hold down the X key and drag left or right on the timeline.
- Click the scroll bar on the timeline navigation bar and drag left or right.

  The timeline scrolls left or right.

Muting Audio and Video Tracks

If there are several tracks on the timeline and you need to exclude clips from the preview, you can turn off the audio signal on selected audio tracks or turn off the video on a selected video track. When the sequence is played, you do not hear clips on audio tracks that are muted and you do not see video clips in the viewer for video tracks that are muted.

Muted tracks do not contribute to the output sequence.



To turn off the sound on an audio track:

- Click the **Mute** button on an audio track.

  The Mute button turns red.

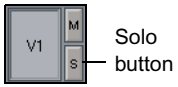
To turn off the video playback on a video track:

- Click the **Mute** button on a video track.

  The Mute button turns red.

Setting Tracks to Solo

When you solo a track, it plays the contents of that track during the preview. Both active and inactive video clips are displayed in the viewer. With video, you can only solo one track at a time. With audio, however, you can solo more than one track. Any tracks that do not have the Solo button activated are not viewed or heard.



To solo a track:

- Click the **Solo** button of the tracks that you want to preview.

  The Solo button turns green.

The status of the Solo button on each audio track is saved with the sequence.

Changing Track Properties

You can view track information, such as the start and end times, track type, and number of clips on the track. You can change the properties of any track, including the track name and level of detail that each clip displays.

To access track properties:

- Right-click an empty area of the track and select **Track Properties**.

  The Track property editor is displayed.

  For information about the Track properties, click the Help button.

To set the level of detail on a track:

1. In the Track property editor, select the **General** tab.
2. From the Level of Detail list, select one of the following:
   - **Low** to display clips or waveforms with the least amount of detail.
   - **Medium** to display the start and end thumbnails of clips.
   - **High** to display the thumbnails of clips at regular intervals and a detailed view of the audio waveform. You must increase the height of the track to see the waveform.

***Tip**: You can also change the level of detail of each clip by right-clicking and selecting Properties.*

3. From the Effect Size list, select one of the following:
   - **Small** to display the effect bar with no detail.
   - **Large** to display the name of the effect.

To rename a track:

1. In the Track property editor, select the **General** tab.
2. In the Name text box, type a name.

Depending on the height of your track, you may not be able to view the full name. If you place the pointer over the track name, however, a tooltip with the full name is displayed.

Marking In and Out-points on the Timeline

When you create a new sequence, an in-point is automatically placed at the beginning of the timeline. If you want to place the clip at a specific timecode, you can mark the in-point on the timeline where you want to place the clip. After you place a clip at this in-point, the in-point moves to the last frame of the clip, ready for you to place the next clip in the sequence.

In-points and out-points let you mark points on the timeline, where you can insert clips, or replace or overwrite existing clips.

After the in-point and out-point are set on the timeline, the I (in) or O (out) timecode boxes display the exact timecodes. You can change the position of the in-point or out-point by typing a new timecode in the corresponding timecode box, or by dragging the marker along the timeline ribbon. For more information, see “Timeline Ribbon” in the Help.

Using the Mark Buttons to Set In and Out-points

The Mark In, Mark Out, and Mark In/Out buttons provide an easy way to set in-points and out-points on the timeline.

To mark an in-point or out-point on the timeline:

1. Place the position indicator at the location where you want to place the in-point or out-point.
2. Click the **Mark In** or **Mark Out** button below the Record viewer.

An in-point or out-point is displayed on the timeline ribbon and in the position bar below the viewer.

To place an in-point and out-point on a selected region:

1. On the timeline navigation bar, make sure the **Selection Mode** button is selected.
2. On the timeline, select a clip, effect, or activeness bar, or drag to define a region where you want to set the in-point and out-point.

3. On the timeline controls, click the **Mark In/Out** button.

An in-point and an out-point are displayed on the timeline ribbon and on the position bar below the viewer.

Using Timecode to Set In and Out-points

You can set an in-point or out-point at an exact timecode by typing the timecode in a corresponding timecode box. For example, if you type 12:00:00:22 in the I (in) timecode box and press Enter, an in-point is marked at that timecode.

You can also use the scratch pad control to set in and out-points to an exact timecode.

To mark an in-point or out-point using the scratch pad control:

1. Click the viewer that is displaying a clip or sequence.
2. Press any number on the keyboard.

   A timecode box is displayed in the selected viewer.

3. Type the timecode of the frame you want to mark by using the keyboard, followed by one of the following:

When typing a timecode value you can skip fields by typing a dot (.). For example, type 12..22 for timecode 12:00:00:22.

- Press the I key to mark the in-point.
- Press the O key to mark the out-point.
- Press the D key to set the duration. Positive timecode changes the out-point and negative timecode changes the in-point.

  If you type in a positive timecode, and the in-point is undefined, it is treated as negative timecode. If you type in a negative timecode, and the out-point is undefined, it is treated as positive timecode.

The in-point, out-point, or duration for the clip or sequence is set.

You can move the in-point, out-point, or position indicator a set number of frames. In the timecode box, type the number of frame followed by a + (plus sign) or - (minus sign). Then press I or O to move the appropriate marker.

To close the timecode box:

- Press the Esc key.

To place an in-point and out-point on a portion of the sequence:

1. Do one of the following:
   - Mark an in-point on the timeline.
   - Mark an out-point on the timeline.
2. In the D timecode box, type the duration of the area you want to mark.

   The other marker (in-point or out-point) is displayed on the timeline to mark the area.

Displaying Timecodes

The timecode boxes on the status bar display timecodes for a selected object on the timeline. You can also use the timecode boxes to enter new values for the start, end, or duration of a selected object.

The Clip and Timeline options refer to the source and sequence timecodes. The source timecodes are the actual times taken from the source tape. These timecodes are displayed when you select a clip that was captured from tape. The sequence timecodes reflect the current position of clips on the timeline. These timecodes are used when outputting media.

When you select an object on the timeline, the Start, End, and Duration boxes display the timecodes of a clip, activeness bar, effect bar, region selection, transition, or edit point. The In, Out, and Duration boxes display the timecodes of in and out-points on the timeline ribbon and the duration between them.

You can also use the Timecode view to display the timecodes for a selected object on the timeline. You can customize the Timecode view to display various timecodes. For more information, see “Displaying Timecodes in the Timecode View” on page 735.

For more information, see “Timecode Boxes (Timeline Status Bar)” in the Help.

Displaying Timecodes in the Timecode View

The Timecode view displays the timecodes for a selected object on the timeline. You can choose which timecodes to display, show the name and comments of the clips, and further customize the view. Enlarging the size of the timecode display allows you to view the timecode from a distance.

The Timecode view is essentially a toolbar that you can customize.

You can choose to display the frame counts of various timecodes with the main timecode being the time base of the timeline. For example, when you are working with a 24 frame project the timecode frame count is:

Timecode[a]	Frames																							
24	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	00
25	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
25P	00	01	02	03	04	05	06	07	08	09	10	11	13	14	15	16	17	18	19	20	21	22	23	24	00
30	00	01	03	04	05	06	08	09	10	11	13	14	15	16	18	19	20	21	23	24	25	26	28	29	00

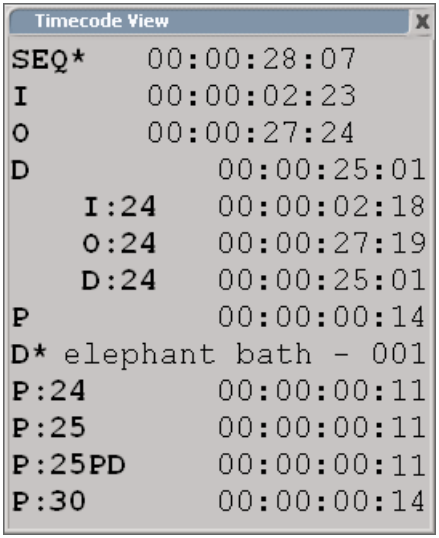
a. The timecodes are listed as 24 for 24 fps, 25 for 25 fps, 25P for 25 (PAL with pulldown), and 30 for 30 fps (the count skips six frames to fit 30 frames into 24 fps).

In the example above for the 30 timecode, drop and non drop frame conventions are observed. The 02, 07, 12, 17, 22, and 27 frames are dropped because it is assumed that 01:00:00:00 is an “A” frame.

When in a 30 timecode project, the main timecode is 30 (drop and non drop frame conventions observed, and the 24 frame timebase has duplicated timecodes to represent pulldown.

To open the Timecode view:

- Select **View** > **Single-Instance Views** > **Timecode View**.



To add a timecode display to the Timecode view:

1. Right-click an empty area of the Timecode view.
2. Select **Add Timecode Display**.

To customize the timecode displays:

1. Right-click any of the timecodes in the Timecode view.
2. Select options from the **Timecode Display** menu—see "Timecode Display Menu" in the Help.

To customize the Timecode view:

- Right-click on the Timecode view and use the Toolbar commands—see "Toolbars" in the Help.

Displaying the Source Timecodes of a Clip

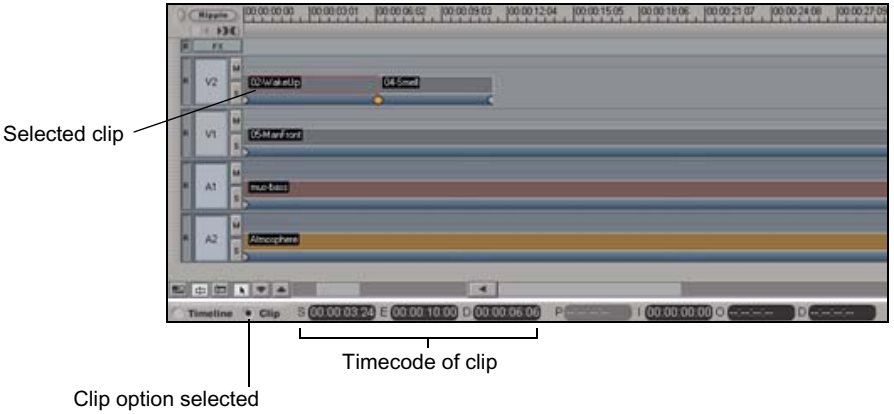
You can display the source timecodes of a selected clip. You can also display the source timecode of a selected frame.

If you want to display the source timecode of a frame between the start and end of the clip, you must place a reference locator at that frame.

To display a clip's start and end source timecodes:

1. On the timeline, select a clip.
2. On the status bar, select the **Clip** option.

   The clip's start and end source timecodes are displayed on the status bar.

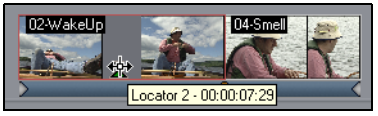


To display the source timecode at a specific frame:

1. Place the position indicator on the frame where you want to display the source timecode.
2. On the timeline, select the corresponding clip and press M.

   A reference locator is placed on the clip at the position indicator.
3. Place the pointer over this locator.

   A tooltip displays the source timecode at that frame.



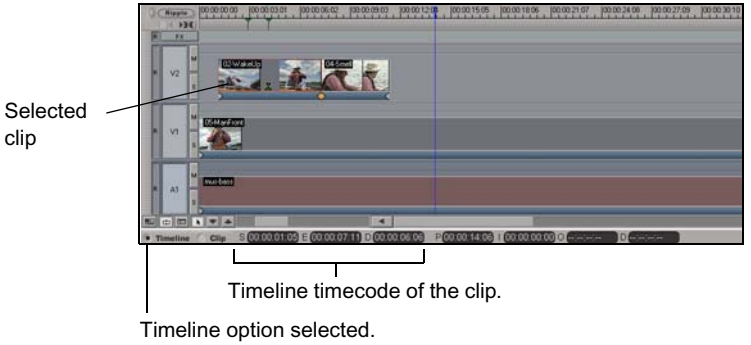
Displaying the Sequence Timecodes of a Clip

The sequence timecodes display the current position of an object on the timeline. You can display the start, end, and duration of a clip, activeness bar, effect bar, region selection, transition, or edit point.

To display a clip's timecode in relation to the timeline:

1. On the timeline, select a clip.
2. From the status bar, select the **Timeline** option.

   The clip's start, end, and duration on the timeline are displayed in the timecode boxes. If you move the clip on the timeline, the timecode boxes automatically reflects its new position.



Moving or Trimming Objects Using the Timecode Boxes

Instead of dragging a clip on the timeline or trimming its end times, you can type values in the timecode boxes to change the start, end, or duration of a clip.

In addition, you can use relative input methods to change the timecode values. This lets you offset the current timecode by a given amount.

The following table summarizes the various means of typing values in timecode boxes, assuming that the current timecode is 01:12:34:00.

You type	NTSC Result	PAL Result	Description
Absolute Input Method			
5223	00:00:52:23	00:00:52:23	Replaces the current timecode
/5223	01:12:52:23	01:12:52:23	Replaces the rightmost portion of current timecode
.40	00:00:01:10	00:00:01:15	Replaces the current timecode with this many frames (direct frame entry)
10:00.40	00:10:01:10	00:10:01:15	Combines timecode value with direct frame entry
3:::1	03:00:00:01	03:00:00:01	Skip fields by typing colons
Relative Input Method			
110+ 110-	01:12:35:10 01:12:32:20	01:12:35:10 01:12:32:15	Increases or decreases the current timecode by the value typed
.110+ .110-	01:12:37:20 01:12:30:10	01:12:38:10 01:12:29:15	Increases or decreases the current timecode by the number of frames typed
1.10+ 1.10-	1:12:35:10 1:12:33:20	1:12:35:10 1:12:32:15	

You type	NTSC Result	PAL Result	Description
] or [	01:12:34:01 01:12:33:29	01:12:34:01 01:12:33:24	Nudges the current timecode up or down by 1 frame
Ctrl-] or Ctrl-[	01:12:34:01 01:12:33:20	01:12:34:10 01:12:33:15	Nudges the current timecode up or down by 10 frames

For example, to move a clip 10 frames forward, type 10+ in the Start timecode box to move the clip forward by 10 frames. If the Ripple button was activated when you typed the new start timecode, then the edit will ripple across the timeline. Similarly, to move a clip backwards by 10 frames, type 10- in the Start timecode box.

Adjusting the Timeline

Framing the media on the timeline lets you make better use of the overview area. This is particularly useful when media starts at a timecode other than 00:00:00:00. The Avid DS Nitris system considers the start time of the media and frames it according to the earliest timecode on which material is present, as opposed to 00:00:00:00.

To trim the timeline to the media:

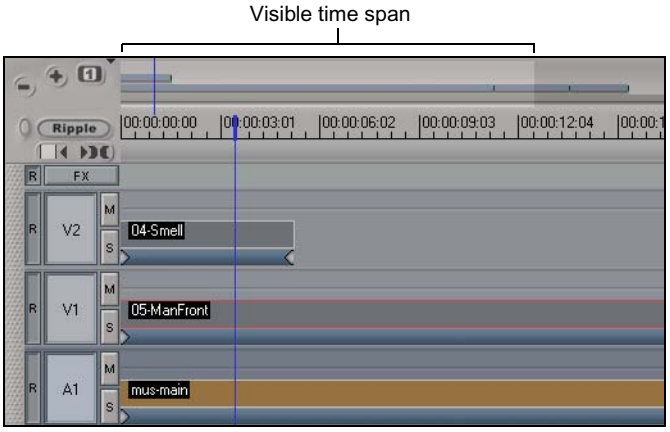
- Right-click the overview area of the timeline and select **Trim Timeline to Media**.

  The overview area adjusts to show the full length of your sequence.

Changing the Visible Time Span

The visible time span represents the section of the sequence that is currently visible on the timeline. The visible time span is adjustable, so you can display individual frames in the sequence, another section of the sequence, or the entire sequence in the timeline.

Any clip bars that are within the visible time span are displayed on the tracks in the timeline. You can stretch out the visible time span interactively to zoom in or out on the timeline. You can also use the timeline controls to adjust the length of the visible time span.

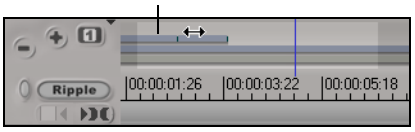


To move the visible time span:

1. Place the pointer over the visible time span.

   A double-headed arrow is displayed.

   Pointer in visible time span.



2. Drag the visible time span to the section of the timeline that you want to view.

   The timeline displays the clips within the visible time span.

Framing the Timeline to View Selected Objects

You can zoom the view of the timeline to show more detail of selected objects.

To display selected objects on the timeline:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Click the objects you want to frame, such as clips or effect bars.
3. Click the **Frame Selection** button.

   The timeline zooms in to display the selected objects.

The Frame Selection button is available from the Customize Toolbars window. For information about adding buttons to toolbars, see "Customizing Toolbars" in the Help.

Panning and Zooming the Timeline

To display a specific region on the timeline:

1. Drag over a section of the timeline to select a region.
2. From the timeline controls, click the **Zoom In** or **Zoom to Frame** button.

   The timeline zooms in to display the selected region, while the visible time span in the overview area scales to highlight the selection.

Zoom In button

Zoom to Frame button

Using the Zoom Controls

You can change the magnification of the timeline using the zoom controls. These controls let you zoom in or out to view more or less clip detail.

The displayed region is always centered on the position indicator. As you move the position indicator, notice how the visible region adjusts to indicate the section of the sequence that is currently in view.

To zoom the timeline interactively, do one of the following:

- Hold down the Z key and drag left or right over the tracks.
- In the timeline navigation bar, drag the scale bar left or right.

To zoom in on a specific clip on the timeline:

- In the overview area, press Ctrl+F and click a clip bar.

  The track of the selected clip immediately comes into view and the entire clip is displayed.

To zoom in to display less frames:

- From the timeline controls, click the **Zoom In** button.

  The timeline displays fewer frames, but in greater detail.

To zoom out to display more frames:

- From the timeline controls, click the **Zoom Out** button.

  The timeline displays more frames, but at less detail.

To zoom in to one-frame intervals:

- From the timeline controls, click the **Zoom to Frame** button.

  The timeline displays one-frame intervals between clip thumbnails. The position indicator splits to indicate a single frame, a solid blue line is displayed at the left of the frame, and a dotted blue line is displayed at the right of the frame. To return to the previous display, click the button again.

Panning the Timeline

If your sequence has several clips, they may not all be visible on the timeline. You can pan the timeline to focus on different sections of your sequence.

To pan the timeline, do one of the following:

- Hold down the X key and drag left or right over the tracks.
- In the timeline navigation bar, drag the timeline scroll bar left or right.

To zoom in or out using the visible time span:

1. Place the pointer over the left or right edge of the visible time span.

   An arrow pointing to the right or left is displayed.

2. Drag the edge of the visible time span left or right to zoom the timeline.

   The time span lengthens or shortens to display more or less clip detail in the timeline.

To display all clips on the timeline:

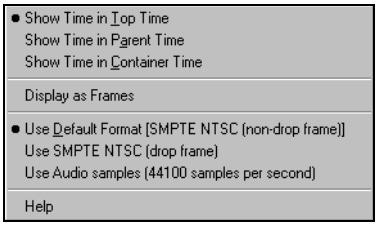
1. In the overview area, place the pointer over the visible time span.
2. Double-click the visible time span.

   The visible time span stretches out over all clips on the timeline, so that you can see all clips in the sequence.

3. Double-click the visible time span to return to the previous zoom area.

Changing the Ruler Display

The ruler in the timeline displays the time scale for your sequence. When working with video, you can change the time scale to display in frames, timecode drop frames, timecode non-drop frames, or audio samples. These options differ between PAL and NTSC formats.



To change the ruler's time scale:

- Right-click the ruler and select the appropriate time scale.

The exact timecode at the position of the position indicator is displayed in the P timecode box on the status bar. Depending on the ruler time scale you select, the timecode is displayed in hours, minutes, seconds, and frames/audio samples.

Ruler time scale	Timecode display format
SMPTE NTSC drop frame	23:59:59;29
SMPTE NTSC non-drop frame	23:59:59:29
25 fps (PAL only)	23:59:59:23
Audio samples	23:59:59.47999
Display as Frames	1234567

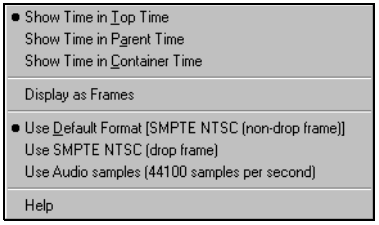
Displaying Different Rulers

While working in a container clip, you can set the ruler to display the time scale of the current container clip, its parent container, or the top timeline. This is useful when you want to verify the location of a clip or effect in relation to the top timeline.

By default, a container clip's timeline always starts at 00:00:00. This makes it easier to determine the duration of the container clip.

To display a different ruler:

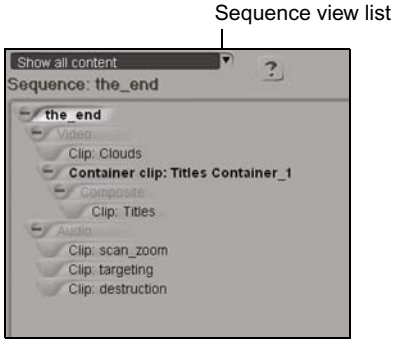
- Right-click the ruler and select a ruler.



Viewing a Sequence as a Hieracharical Tree Structure

The Sequence view displays the timeline as a hierarcharical tree structure. The root of the hierarchy is your sequence, which you can expand to show individual video and audio clips, and container clips. Container clips can be further expanded to show their contents. Items that you select in the Sequence view are also selected on the timeline.

There are two viewing modes in the Sequence view: Show All Content and Show Content at Time. You can select a viewing mode from the drop-down menu at the top.



To access the Sequence view, do one of the following:

- Select **View** > **Single-Instance Views** > **Sequence View**.
- From the view switcher, click the **Sequence view** button.

To view all the clips in your timeline:

- From the Sequence view list, select **Show all content**.

  The Sequence view displays all the clips in your sequence, from the top timeline on down through all your container clips.

To view all the clips at the current playback position:

- From the Sequence view list, select **Show content at time**.

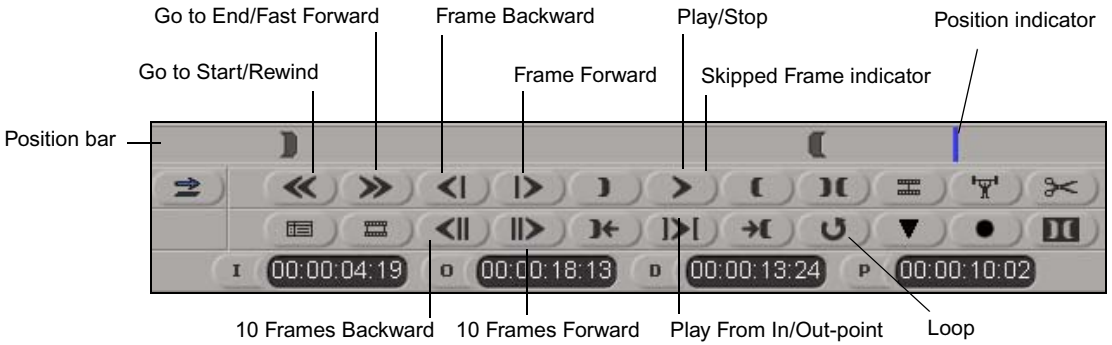
The Sequence view displays all the clips in your sequence at the current playback position, from the top timeline on down through all your container clips.

Playing Sequences

You can use various Record viewer buttons, the position indicator, and keyboard keys to play and shuttle your sequence.

Using the buttons below the Record viewer, you can play back your sequence in the Record viewer and on the external monitor. When you play the sequence, only its active frames are displayed in the Record viewer (or heard on the speakers), allowing you to view the sequence as it will appear in the final sequence. While previewing, however, you can play selected tracks of your sequence to isolate some sounds or images. For information, see "Working on the Tracks" on page 725.

You can use variable-speed play controls (J-K-L keys on the keyboard) to shuttle, step, or pause during playback. For more information, see "Varying the Playback Speed" on page 750.



For more information, see "Transport Controls" in the Help.

While playing a sequence, you might see one of the following messages display in the viewer:

Message	Description
Processing Needed	Some clips, on which you've placed effects, need to be processed before you can see the results.

Message	Description
Media not Available	There is no media for this clip at the quality (resolution and compression) that you have specified in your sequence preferences—see "Understanding Video Quality Matching" on page 686.
Media not Found	Avid DS Nitris could not find the media for this clip. The media may have been deleted or moved to another location, or the connection to your storage may be faulty. If the media has been deleted, you will need to recapture it at the quality specified in your sequence preferences.

To play a sequence:

1. Deselect the **Mute** button on the Track selector for all tracks.

Muted tracks do not play back.

2. Click the **Go to Start** button below the Record viewer.

   The position indicator moves to the start of the sequence.

3. Click the **Play** button below the Record viewer.

   If you're playing a video sequence, the Record viewer updates accordingly.

When playing your sequence, the Play button may turn amber if any frames are skipped during playback. Frame skipping may occur when it reaches a point where a frame cannot be computed before display time. For more information, see "Playing Real-Time Effects" on page 900.

To stop playing a sequence during playback, do one of the following:

- Click the **Play** button below the Record viewer.
- Click the Record viewer.
- Click the timeline ruler.
- Press the space bar.

The position indicator moves to the position you clicked and playback stops.

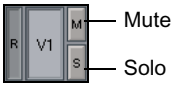
To skip to a new position on the timeline and keep playing:

- Press Shift and click the new position on the timeline ruler.

To scrub clips on the timeline:

- On the timeline ruler, drag right or left to play or rewind the clips at your own speed, or
- Drag the position indicator in the position bar below the Record viewer.

To isolate specific tracks when playing the sequence:



1. In the Track selector, do one of the following:
   - Click the **Solo** button on the video or audio tracks that you want to play.
   - Click the **Mute** button on the audio tracks that you do *not* want to play.
2. Click the **Play** button below the Record viewer.

   Only the images or sounds from the selected tracks are played.

Varying the Playback Speed

The J-K-L keys on the keyboard let you play back, step, and shuttle through footage at varying speeds. This feature, also referred to as *three-button* or *variable-speed* play, lets you use three fingers to manipulate the speed of playback for greater control. You can also use the J-K-L keys to perform smooth audio scrubbing of selected tracks.

To shuttle through the footage using the J-K-L keys on the keyboard:

1. Deselect all objects in the timeline before shuttling through the footage.
2. Use the following keys to shuttle at varying speeds:
   - Press the L key to move forward through the footage at normal speed. You can increase the speed by pressing the L key a number of times.

Press the L key	To play footage at	NTSC rate	PAL rate	24p rate
2 times	2x normal speed	60 fps	50 fps	48 fps
3 times	3x normal speed	90 fps	75 fps	72 fps
4 times	5x normal speed	150 fps	125 fps	120 fps
5 times	8x normal speed	240 fps	200 fps	192 fps

- Press the J key to move backward at the same shuttle speed increments.
- Press the K and L keys together for slow forward (8 fps for NTSC, 6 fps for PAL, and 6 fps for 24p projects).
- Press the K and J keys together for slow backward.
- Hold down the K key and press the L or J key to step through footage one frame at a time.

3. Press the K key to pause the shuttling.
4. Press the spacebar to stop the shuttling.

To shuttle clips using the position indicator do one of the following:

- Drag the position indicator in the position bar right or left to fast forward or rewind the clips on the timeline.
- On the timeline ruler, drag the position indicator left or right. The farther you drag, the faster the playback speed.

Moving to Points on the Timeline

There are several ways to move around on the timeline. You can move the position indicator manually to any frame in your sequence, use the buttons below the Record viewer, or type a timecode in a timecode box to quickly move to marked points on the timeline.

To move the position indicator, do one of the following:

- Click any point in the Timeline Ruler.
- Click any point in the position bar below the Record viewer.
-
  Deselect the **Selection Mode** button in the timeline navigation bar, and then click any point on the timeline.

  The position indicator moves to this position and the Record viewer displays the frame at this timecode.
-
  Click the **Go to In** or **Go to Out** button if there is an in-point or out-point in the timeline ribbon.

  The position indicator moves to the specified point.

To move the position indicator to a specific timecode do one of the following:

- Drag the position indicator left or right while reading the timecode displayed in the **P** (position indicator) timecode box.

  The exact position of the position indicator is displayed.
- Type a value in the **P** (position indicator) timecode box.
- Without selecting any timecode boxes, type a timecode value and press Enter.

When typing a timecode value you can skip fields by typing a dot (.). For example, type 12..22 for timecode 12:00:00:22.

- Select a reference locator from the Locator view.

Moving to Edit Points on the Timeline

You can move the position indicator to the next or previous edit point in the sequence.

To move the position indicator to an edit point:

1. Right-click **Trim Mode** button and deselect **Autoswitch**.
2. Do one of the following:
   - Press the , (comma) key to move the position indicator to the previous edit point.
   - Press the . (period) key to move the position indicator to the next edit point.

   The position indicator moves to the specified point.

Looping Clips

You can play back a section of the timeline continuously by marking it with in and out loop markers. This is useful if you want to view a small section of the sequence while editing.

To loop a clip:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Do one of the following:

- Select a clip.
- Select a region by dragging over a section of the timeline.

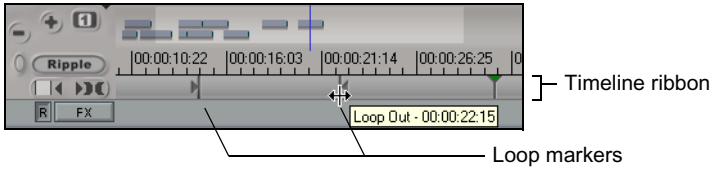
The selected area or clip becomes highlighted.

3. Click the **Loop** button below the Record viewer.

   Loop markers are displayed on the timeline ribbon at the beginning and end of the selected region or clip including pre-roll and post-roll.

You can also select an effect bar, transition area, or activeness bar for looping. If no objects are selected on the timeline, then the loop markers surround the position indicator.

4. Adjust the loop markers by dragging them to the appropriate timecodes.



5. Click **Play** to play the clips within the specified region.

   The marked section continues to play until you click Play again.

6. Click the **Loop** button again to deactivate loop mode.

Viewing Unprocessed Frames

While playing a sequence, the message “Processing Needed” is displayed in the Record viewer if clip effects in your sequence have not been processed. To view a clip before processing its effects, you can either play it frame by frame or preview it. Previewing an effect reduces the quality of the picture during playback in order to process each frame at an acceptable speed.

To play a clip frame by frame:

1. Press Ctrl and click **Play** to play your video clip frame by frame.

   The playback is slow since each frame needs to be processed. Each processed frame is stored temporarily as an interactive cache, so the next time you visit that frame, the results appear instantly in the viewer.

In this mode, the video plays but the audio is muted.

2. Click **Play** again to stop playing the clips.

To preview a clip with an effect:

1. From the effect's property editor, click the **Preview** button.

   The preview will loop until you stop it. The playback is choppy since Avid DS Nitris drops frames in order to display the effect.

In this mode, the video plays but the audio is muted.

2. Click the **Preview** button again to stop playing the clip.

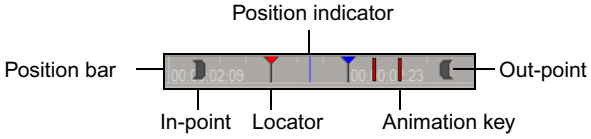
Using the Position Bar

The position bar, below the Source and Record viewers, lets you view the location of the position indicator, locators, animation keys, and timecode as well as set an in-point and an out-point.

You can rescale the position bar below the Record viewer to zoom the object selected in the timeline.

The locators on the position bar correspond to the locators on the timeline ribbon. However, locators in the position bar cannot be moved, deleted, or edited. To do so, you'll have to access them from the timeline ribbon.

The animation keys in the position bar correspond to the animation keys in the animation editor. You can only view and reposition animation keys in the position bar. For any other type of editing of the animation keys, you will have to use the animation editor.



To move the position indicator and in/out-points:

- In the position bar, drag the position indicator or in/out-points and move it to a new location.

To delete in and out-points or animation keys:

- In the position bar, select the in or out-point or an animation key, and press Delete.

To show or hide locators, tick marks, animation keys, and timecode:

- Right-click the position bar and select an option.

To display the animation keys of a clip:

- Select the clip from the timeline.

To snap the position indicator to an animation key:

- Press Ctrl and select the animation key in the position bar.

To change the range of the position bar to the selected object:

1. Select an object on the timeline.
2. Right-click the position bar below the Record viewer and select **Zoom to Selection**.

For more information, see “Position Bar Menu” in the Help.

Switching Viewers

At times, it is useful to enlarge either the Source or Record viewer, or both, for a better view of your clips.

To switch between single and dual viewers:

1. Select the Source or Record viewer.
2.
In the viewer tools, click the **Single/Dual** button above the selected viewer.

   The selected viewer and its transport controls are displayed.

To enlarge or reduce both viewers:

- Press F12 to enlarge or reduce the size of the viewers.

  The viewers are displayed full-screen.

Setting True Video Display

Since the ITU-R 601 standard specifies a higher horizontal than vertical resolution (or a 0.9 ratio), images appear stretched horizontally when displayed on your computer monitor. To get a more accurate view of your sequence as it will appear on a video monitor, you can set the viewer to display non-square pixels.

To display non-square pixels:

- Right-click the viewer and deselect **Square Pixels**.

  The viewer displays your image in non-square pixels.

Zooming or Panning the Viewers

You can zoom or pan the viewer by using the Viewer menu or the keyboard shortcuts, which allow you to work interactively with the viewer.

The Viewer property editor provides settings for various zoom and pan controls. For example, you can set the options to automatically zoom and pan when you are using the interactive tools, such as graphics and paint tools, Shape tool in the Matte and Keyer effects, DVE tool, and Tracker tool. For more information, see “Viewer Property Editor” in the Help.

The keyboard shortcuts for zooming or panning the viewer also work on the timeline and animation editor.

To zoom in the viewer, do one of the following:

- Hold down the Z key and drag on the viewer using left mouse button to select a region to zoom or using right mouse button to zoom interactively.
- Right-click the viewer and select **Zoom** > ***zoom level***.
- Position the pointer on the area of the viewer you want to zoom in on and press Alt+Q.
- Press Alt+Z to zoom by steps set in the Viewer Properties property editor.

To zoom out the viewer, do one of the following:

- Right-click the viewer and select **Zoom** > ***zoom level***.
- Interactive zoom (X or Y axis): Hold down the Z key and right-drag on the viewer.
- Press Alt+Q again to return to the previous zoom level.
- Press Alt+X to zoom by steps set in the Viewer Properties property editor.

To incrementally zoom the viewer:

1. Right-click the viewer and select **Viewer Properties**.
2. On the Display property page, set the following:
   - In the Steps text box, set the level to zoom quickly or slowly with Alt+Z (zoom in) and Alt+X (zoom out).
   - In the Quick Zoom Level text box, type your preferred zoom level.
3. Position the pointer on the area of the viewer you want to zoom in and press Alt+Z repeatedly until you reach the desired zoom level.

To pan the viewer:

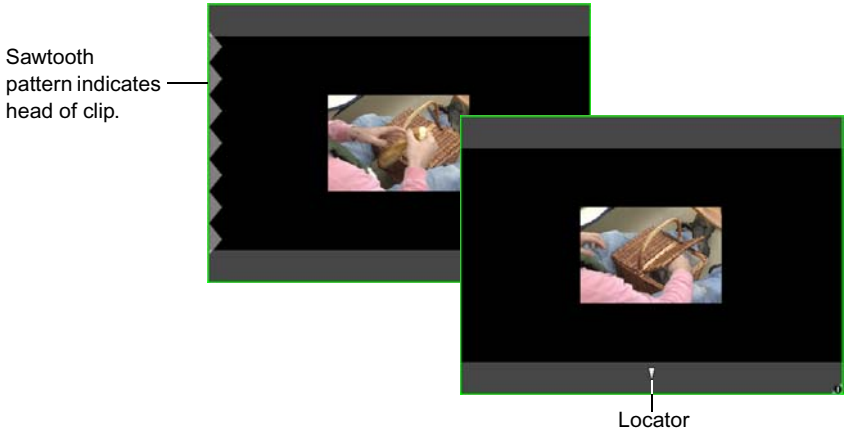
- Hold down the X key and drag on the viewer.

To reset zoom or pan, do one of the following:

- Hold down the Z key and click the viewer to reset zoom.
- Hold down the X key and click the viewer, or right-click the viewer and select Reset Pan & Zoom to reset pan.
- Hold down the Z+X key and click a viewer to reset zoom and pan.

Displaying Overlays

While working with the viewers, visual indicators for the head, tail, in and out-points, and locators make editing quicker. A sawtooth pattern indicates the head and tail of a clip.



To display the viewer overlays:

1. Select **File** > **User Preferences**.
2. On the Editing property page, select **Show Overlays in Viewer**.

   The visual indicators for the head, tail, in/out-points, and locators are displayed in the Source and Record viewers.

Manipulating Clips

After placing all your clips on the timeline, you can begin arranging them to create a rough cut of your sequence. You can then adjust the edit points between clips, as well as move, copy, or delete them.

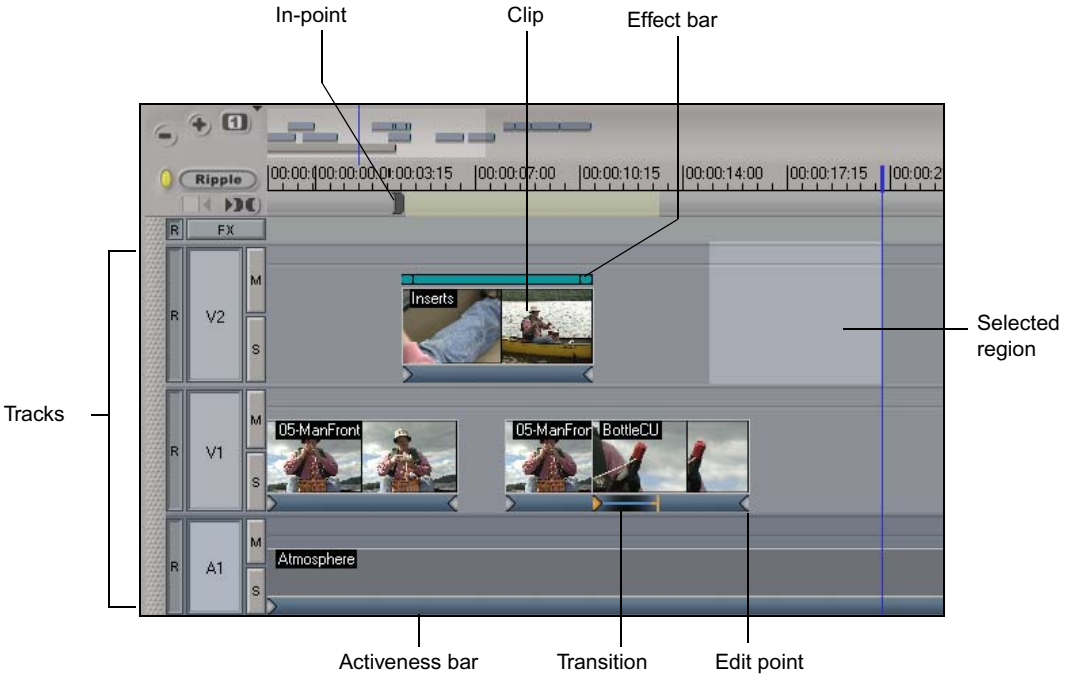
As you rearrange your clips, the impact on other clips and their activeness depends on what you select and whether or not the Ripple mode is activated. When the ripple mode is on, any change to the length of a clip propagates across the timeline to subsequent clips. For more information, see *"Rippling Clips" on page 793.*

Selecting Clips

All editing tasks are based on what you select on the timeline. The clips are associated with tracks, activeness bars, edit points, transition bars, effect bars, and regions. Selecting and manipulating any of these objects affects the position and appearance of the clip in the final output. When editing clips, you typically work on one clip at a time.

Before you can select objects on the timeline you must click the **Selection Mode** button on the timeline navigation bar to enter Selection mode.

The following illustration shows the selectable objects on the timeline.



To select clips on the timeline:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Do one of the following:
   - To select a single clip, click a clip.
   - To select multiple clips, click the first clip, press Ctrl, and click any other clips you want to select.
   - To select multiple clips within the track area, hold down the Shift key and drag right to left over the clips you want to select.

   The selected clip(s) are surrounded by a red border. When a single clip is selected the timecode boxes on the status bar reflect its start and end positions. The D (duration) timecode box specifies the length of time between the two points. You can adjust the in, out, and duration timecodes by typing values directly in the timecode boxes. This is useful when you know the exact timecode where you want to move a clip.

Moving Clips

You can drag clips along the same track to move them to a different point in time. You can also drag clips from one track to another.

Synchronized video and audio clips always move together. If you need to move them independently, you must unlock them first. For more information, see “Synchronizing Clips” on page 798.

Moving Objects on the Timeline

You can use the J-K-L keys on the keyboard to move objects on the timeline to the timecode of the position indicator.

To move objects using the JKL keys:

1. Select **File** > **User Preferences**.
2. On the Editing property page, select the **Selectable Objects (J-K-L keys)** options for the objects you want to move.
3. Select one or more objects on the timeline. These could be either locators, markers, clips, activeness bars, effect bars, or edit points.
4. Press the J key or the L key to start playing.
5. Press K when you are at the desired frame. The selected object(s) are automatically moved to this timecode.

Moving Clips on the Same Track

You can drag a clip anywhere along a track. If there are other clips in its path, it passes directly over these clips if the Ripple mode is activated. If it is not, then you must move it around these clips.

To drag a clip horizontally:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Click a clip to select it.

   A red border surrounds the clip and the pointer changes to a move cursor.
3. Drag the clip right or left.

To drag multiple clips horizontally:

1. On the timeline, select multiple clips.
2. Drag one of the clips in the selection right or left.

To move a clip with its activeness:

1. Press Shift and click the clip to select it.

   A blue border surrounds the clip and the pointer changes to the Move with Activeness cursor.
2. Drag the clip right or left.

   The clip retains its activeness and changes the activeness of any clips with which it collides.

To move multiple clips with their activeness on background tracks:

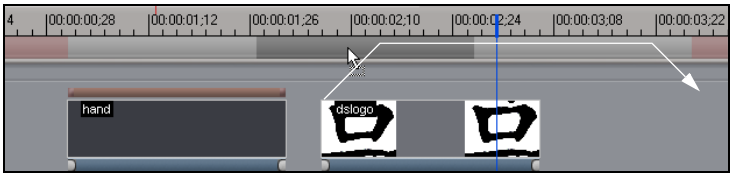
1. On the timeline, select multiple clips.
2. Press Shift and drag the clips in the selection right or left.

   The clips in the selection retain their activeness and change the activeness of any clips with which they collide.

To move one clip past another on the same track:

1. Drag a clip to the timeline ribbon.

   A shadow is displayed on the timeline as you drag the clip.
2. Without releasing the mouse button, drag the clip back to the original track and drop it at the new location.



Moving Single Clips between Tracks

When you move clips to a different track, clip shadows appear on the timeline where the clips will be placed.

To move a clip to a different track:

- Using the ruler as a guide, drag a clip to a different track.

To move a clip to a different background track with its activeness:

1. Press Shift and click a clip to select it.
2. Using the ruler as a guide, drag the clip to the appropriate track.

To move a clip to a different track and constrain it to the same timeline location:

1. Select the clip.
2. Press U and drag the clip to another track.

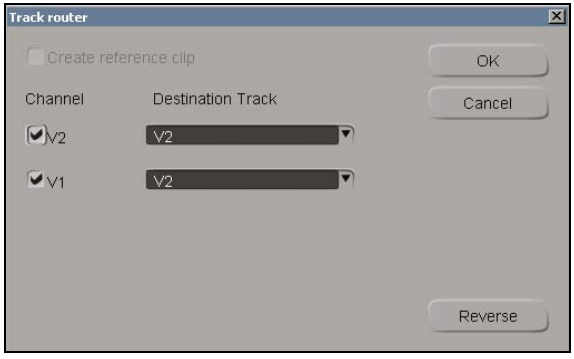
Moving Multiple Clips between Tracks

You can move multiple clips of different types between tracks simultaneously. The clips that you select do not have to be on the same track.

To move multiple clips to different tracks:

1. On the timeline, select multiple clips.
2. Using the ruler as a guide, drag a clip to a different track.

   The Track Router dialog box is displayed.



3. Specify the destination track for the material in each selected track, and click **OK**.

   The selected clips are moved to the specified destination tracks.

To move multiple clips to different tracks with their activeness:

1. On the timeline, select multiple clips.
2. Drag the clips to a different track.

   The Track Router dialog box is displayed.
3. Specify the destination track for the material in each selected track, and click **OK**.

   The selected clips are moved to the specified destination tracks.

To move multiple clips to different tracks and constrain them to the same timeline locations:

1. On the timeline, select multiple clips.
2. Press the U key, and drag a clip to a different track.

   The Track Router dialog box is displayed.
3. Specify the destination track for the material in each selected track, and click **OK**.

   The selected clips are moved to the same timeline locations on the specified destination tracks.

Renaming and Adding Comments to Clips

You can rename clips in a bin or on the timeline. Since clips on the timeline are copies of the clips in the bin, renaming a clip on the timeline has no effect on the name of the source clip in the bin. In the Clip property editor, you can also add comments to clips as notes or reminders for yourself.

To rename a clip on the timeline:

1. Right-click a clip in the timeline and select **Properties**.
2. In the Name text box, edit the name of the clip and press Enter.

   The new name is displayed on the clip in the timeline.

To add comments to clips:

1. Right-click a clip in the timeline and select **Properties**.
2. In the Comments text box, type your notes and press Enter.

   When you reopen the clip properties dialog box, the comments are displayed in the Comments box.

Cutting Clips

Cutting a clip in two lets you manipulate the pieces independently of each other.

To cut a clip:

1. Place the position indicator at the point where you want to apply the cut.
2. From the toolbar, click **Editing** > **Add Edit**.

   Although the clips appear to have been cut into two, you can still stretch them both out to their original size by revealing the extra frames. For more information, see "Revealing Unused Material on Clips" on page 768.

The Add Edit command duplicates the clip or container clip on the timeline. Although the duplicated clip or container clip doesn't appear on the timeline, it does double the size of the information on the timeline and every element in the container clip.

Copying Clips

You can easily copy clips on the timeline. When you copy a clip, you do not duplicate the media stored on disk. Both clips still refer to the original media.

When you make a copy of a clip on the timeline, the new clip's name is prefixed by "Copy of...". For example, if the original name of a clip is *Car*, and you copy the clip to a new track, the copied clip is now called *Copy of Car*. If you copy the same clip again to another track, the name of the new clip is *Copy 2 of Car*. This numbering scheme continues for each copy you create of the clip.

To copy a clip:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Select one or more clips to copy.

3. Select **Edit** > **Copy**.
4. Place the position indicator at the precise timecode that you want to place a copy of the clip, and click the **Track** button.
5. Select **Edit** > **Paste**.

   A copy of the clip is displayed at the location of the position indicator. You can stretch this new clip out to reveal the necessary frames. The name of the copy is prefixed by “Copy of...”.

Deleting Clips from the Timeline

You can delete any clip on the timeline. This removes the clip from the timeline. The master clip in the bin and its media are not affected.

To delete a clip, do one of the following:

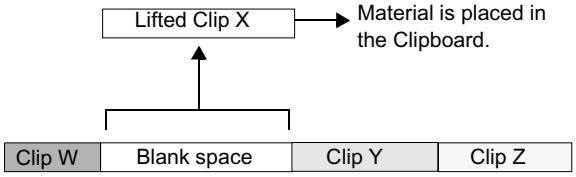
- Select a clip or group of clips, and press Delete.
- Right-click a clip or a multiple clip selection, and select **Delete Clip**.

  The clip or selection is removed from the timeline.

If you created clips on the timeline from an AFE file, an AAF file, an EDL, or an OMF file without creating master clips in a bin, the clips on the timeline are the only instances of these clips. If you remove them from the sequence, they will no longer exist anywhere in your project. If there was media associated with these clips it will remain on your storage device, but you will not have access to it because it is no longer associated with any clip. The media will remain on your storage device until it is deleted when you purge unreferenced media.

Lifting Material

Lifting lets you remove selected material from a track in the sequence and leaves a gap. You can later move or fill this gap with other footage. When you lift material, the overall duration of the track (or sequence) remains the same.



To lift material:

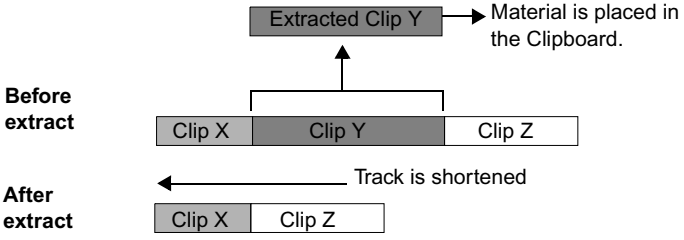
1. Mark in and out-points at the start and end of the material in the sequence that you want to lift.
2. Select the tracks that contain the material.

   Material is lifted from the selected tracks only.

3. Click the **Lift** button to complete the edit.

Extracting Material

Extracting lets you remove selected material from a track in the sequence and closes the gap left by its removal. When you extract material, the duration of the track or sequence is shrunk.



To extract material:

1. Mark in and out-points at the start and end of the material in the sequence that you want to extract.
2. Select the tracks that contain the material.

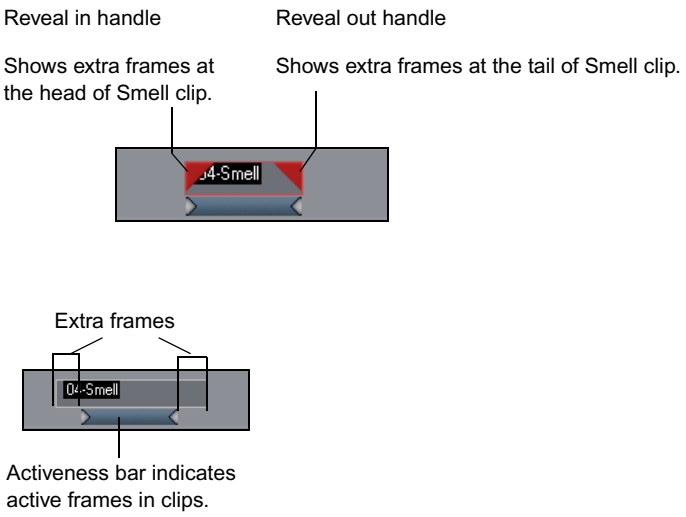
   Material is extracted from the selected tracks only.
3. Click the **Extract** button to complete the edit.

If the clip is sync-locked with another audio or video clip, the other clip remains on the timeline. You must delete it independently.

If Ripple mode is on, however, all the sync-locked elements are deleted.

Revealing Unused Material on Clips

When editing, you often need to see how much material is available at the head or tail of a clip. When you display unused material, the selected clip displays red handles on its top corners. These are the reveal handles; when stretched out, they show any extra frames in a clip.



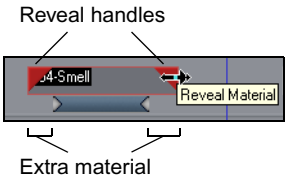
To display unused material:

- Right-click the overview area and select **Display** > **Display Unused Material**.

To reveal or hide frames of unused material on a clip:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Select a clip.
3. Place the pointer over the reveal handle of a clip.

   An arrowhead pointing left or right is displayed.



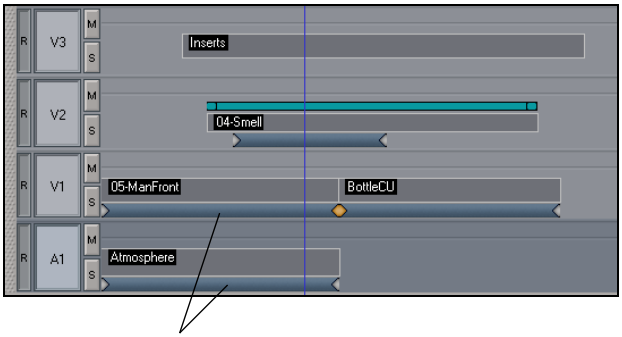
You can view extra material only when there is empty space on the track. Editing on multiple tracks gives you this flexibility.

4. Drag the reveal handles left or right to show or hide unused material.
   - To reveal more frames on the clip, drag the handle outwards. You can only reveal as far as the last frame on the source clip.
   - To hide frames on the clip, drag the handle inwards. You can only hide frames up to the active area of the clip.

Changing the Activeness of Clips

Activeness refers to the sections of a clip that are available for the final sequence. The timeline uses a bottom-up hierarchy for video tracks when playing sequences. When active clips on the top tracks overlap active clips on lower tracks, the clips on top track are viewed on top of the clips on the lower tracks during playback.

These active frames are indicated by the activeness bar below a clip. When you play a sequence, you can view and hear the active frames of a clip depending on the clip's location on the timeline and the track selector settings. Inactive frames still appear in the timeline, but are not seen or heard when the sequence is played.



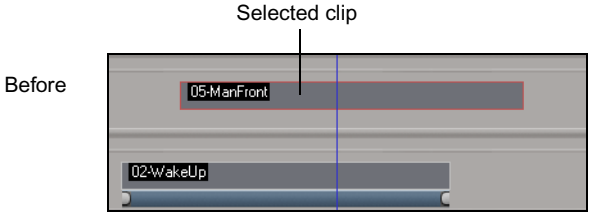
You can adjust the activeness bar to add or remove active frames at the head or tail of the clip. You can also activate or deactivate the entire length of the clip using the tools on the NLE Tools toolbar.

Activating and Deactivating Clips

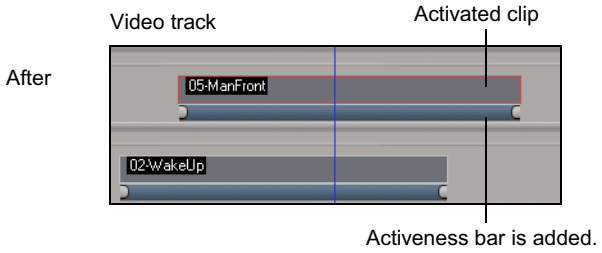
In addition to adjusting the activeness bar to trim the heads or tails of clips, you can also activate or deactivate all the frames in a clip. This is useful when you have multiple layers of video effects and need to isolate clips on lower tracks for viewing. Activating a clip on a video track does not change the activeness of any other clips that overlap it. However, when you activate a clip on a background track, the overlapping areas of other clips become inactive.

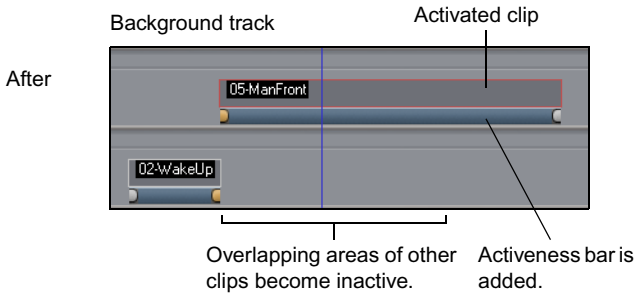
To activate or deactivate the full length of a clip:

1. Place the position indicator at the point where you want to apply the cut.



2. From the toolbar, click **Editing** and select one of the following:
   - **Activate** to make all the currently displayed frames in the selected clip active.





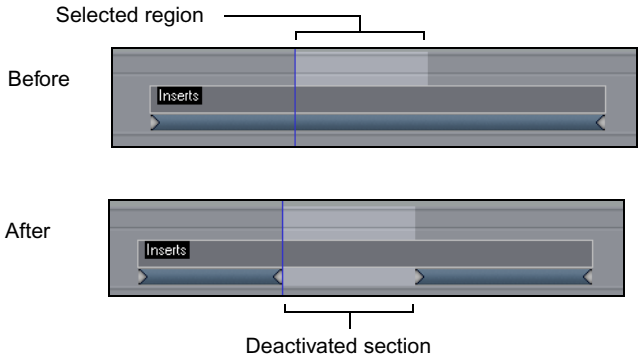
   - **Deactivate** to make all frames on the selected clip inactive. Deactivating a clip does not change the activeness of any other clips that overlap it.

To activate or deactivate a region of a clip:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Drag over a section of a clip.

   The selected region is highlighted.
3. From the toolbar, click **Editing** and select one of the following:
   - **Activate** to make all the frames in the selected region active.
   - **Deactivate** to deactivate the selected region.

   The activeness bar is removed from the selected region.



*You can also right-click an activeness bar and select **Delete Activeness**. This removes its activeness bar.*

Activeness of clips on background tracks is not always recalculated when you deactivate clips or move them on the timeline. You can activate any section of a selected clip on a background track where it does not overlap other active clips on background tracks, by using the Fill Activeness command.

To fill in the activeness of a clip:

- Right-click the clip that needs to be activated and select **Fill Activeness**.

  The clip becomes active wherever there are no other active clips on background tracks.

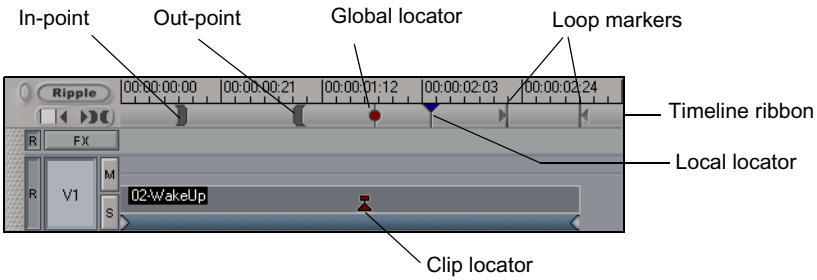
Using Locators

The timeline ribbon displays locators, in-points, out-points, loop markers, and indicates the portions of your timeline that may require processing.

Locators let you set reference points on the timeline, so that you can easily move to areas of interest. The locators can also be used to help synchronize clips. Locators display on the timeline ribbon and in the position bars.

You can add locators to clips in the Source viewer to mark a specific timecode.

***Tip**: All locators on the timeline ribbon can also be accessed from the Locators view in the Avid Explorer. For information, see "Displaying Locator Information" on page 774.*



Locators and markers have *magnetism,* which pulls a clip in when it is moved within close proximity to a locator or marker.

***Tip**: At times, it may be difficult to position a clip because there are too many locators nearby. You can override magnetism by holding down the Shift key while dragging the clip.*

There are two main types of locators:

- **Clip** locators are for marking a reference point on a clip.
- **Reference** locators are for marking a reference point on the timeline.

You can use locators to synchronize clips on the timeline. Once you set a locator, you can drag it to a new location, rename it, or add comments to the locator.

You can place locators on the timeline ribbon or directly on a clip. A locator placed on the timeline ribbon remains fixed on the timeline. A locator placed on a clip is fixed to that point on the clip. When the clip moves, its locator moves with it.

Displaying Locator Information

The Locators view displays information on all the locators on the timeline, including the timecode and author comments. Locators are a type of electronic bookmark, which allow you to find and identify specific frames during editing.

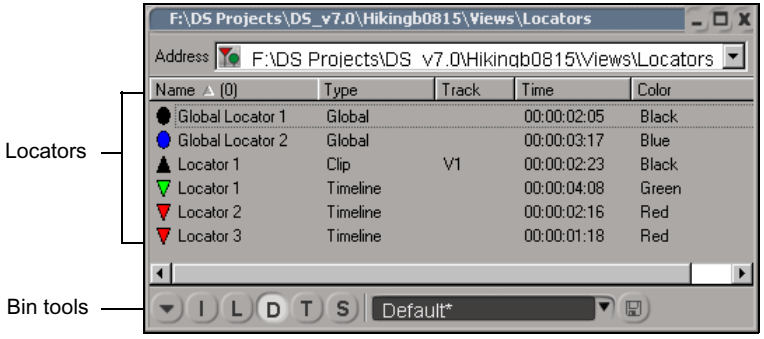
Using the Locators view as an outline for a show lets you easily jump to any position within a longer timeline without having to scroll through the timeline or zoom out and in.

You can also sort on various criteria in the Locators view headings, such as position, comment, type (clip/timeline/global), video/audio tracks, review and approval, created by, time, and version.

To access the Locators view:

- In the My System panel of the Avid Explorer, double-click **Views** > **Locators**.

  The Locators view is displayed in a bin.



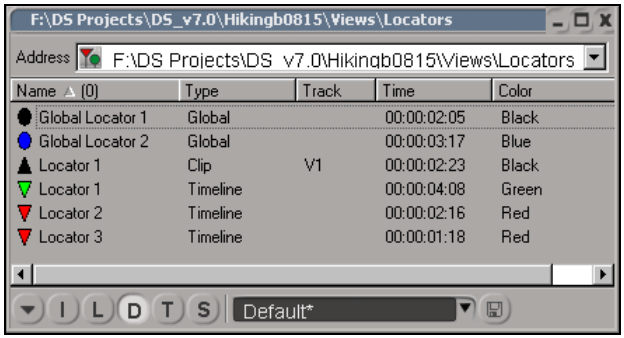
Sorting Information in the Locators View

Depending on how you like to view information, you can sort or reverse sort the locators.

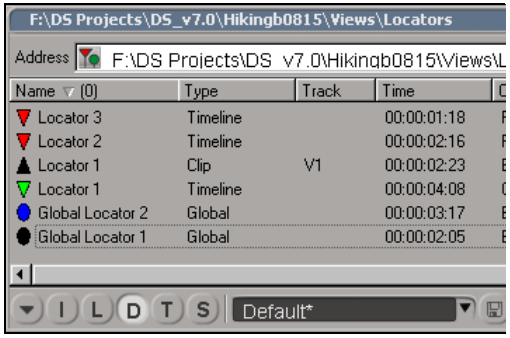
To sort the locators:

- Click the column heading of the column that you want to sort.

  If the information in the column was in ascending order, then the information is changed to descending order, and vice versa.



Name column in ascending order.



Name column in descending order.

Setting Reference Locators

You can place reference locators on the timeline ribbon to mark a specific timecode at which you want to sync a clip or mark events for reference.

Reference locators can be either global or local. Global locators are visible on the current timeline and within any container clips. Local locators are visible only on the current timeline.

To place a local locator on the timeline, do one of the following:

- Double-click the timeline ribbon where you want to set the locator.
- Right-click the overview area and select **Add Locator at Playback Position** > ***color***.

  A numbered locator is set on the timeline ribbon at the specified timecode.

To place a global locator on the timeline:

- Right-click the overview area and select **Add Global Locator at Playback Position** > ***color***.

  A numbered locator is set on the timeline ribbon at the specified timecode.

To place a locator on a clip in the Source viewer:

1. Move the position indicator located below the Source viewer, to the point at which you want the locator to be placed.
2. Click the **Locator** button on the toolbar.

***Tip**: To change the name or color of the locator, and add comments, open the locator's property editor by right-clicking the locator and selecting **Locator Properties**.*

Placing Locators on Clips

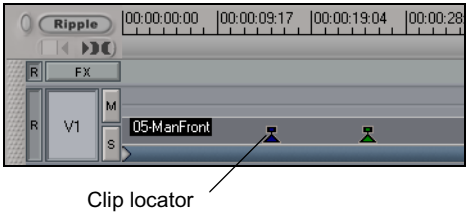
Locators are useful for synchronizing clips with other clips or specific points on the timeline. You can set locators at any point on a clip.

Clip locators do not move with the edit points. If you change activeness on a clip, you will have to re-mark the edit points.

To place a locator on a clip:

1. Move the position indicator to the point at which you want the locator to be placed.
2. Right-click the clip, and select **Add Locator** > **At Playback Position** > ***color***.

   A colored locator with a numbered label is set on the selected clip at the position indicator. Each time you add a locator to the clip, the number on the locator name increments. The numbering starts at 1 on each clip on which you place locators.



To set a locator at the start or end of a clip:

1. Right-click a clip, and select **Add Locator** and one of the following:
   - **At Clip Start** to add a locator at the in-point.

- **At Clip End** to add a locator at the out-point.

2. Select a color for the locator.

To set locators at the edit points:

- Right-click a clip and select **Add Locator** > **At Edit Points** > ***color***.

Moving Locators

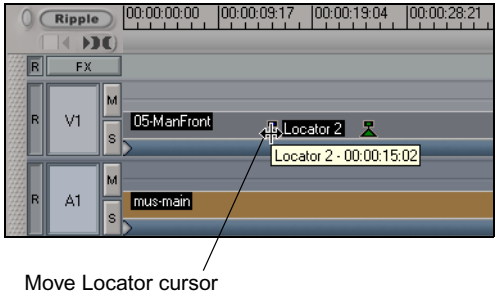
After you have set locators, you can move them to different positions. You can even move a locator from a clip to the timeline ribbon or vice versa.

Clip locators have magnetism, which forces clips to snap to other timeline objects when they are in close proximity to each other.

If the Locator option is selected in the User Preferences dialog box (Editing property page), you can use the J-K-L keys to move locators in the timeline.

To move a locator on a clip:

1. On the clip, place the pointer over the triangular portion of a locator.
2. When the double-headed arrow is displayed, drag the locator to a new location.



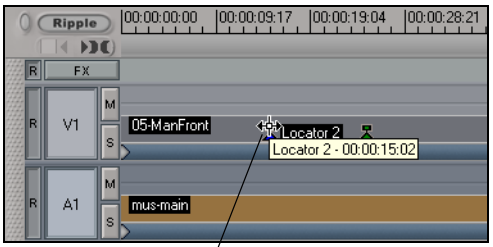
To move a locator on the timeline ribbon:

1. On the timeline ribbon, place the pointer over a locator.
2. When the double-headed arrow is displayed, drag the locator to a new location.

To move a clip with a locator:

1. On the clip, place the pointer over the square portion of a locator.
2. When the crosshair cursor is displayed, drag the locator left or right.

   The clip moves with the locator as you drag it to a new location. The locator keeps its position on the clip.



Move Clip Locator cursor.

To move a clip locator to the timeline ribbon:

1. On the clip, place the pointer over the triangular portion of a locator.
2. When the double-headed arrow is displayed, drag the locator up to a position on the timeline ribbon.

   The clip locator turns into a reference locator on the timeline ribbon.

To move a clip locator to the timeline ribbon and constrain it to the same timeline location:

- Hold down the U key and drag the locator up to a position on the timeline ribbon.

  The clip locator turns into a reference locator on the timeline ribbon in the same timeline location.

To move a local locator to a clip:

1. On the timeline ribbon, place the pointer over a local locator.
2. Drag the locator to a position on a clip.

   The local locator turns into a clip locator.

To move a local locator to a clip and constrain it to the same timeline location:

- Hold down the U key and drag the locator to a position on the clip.

The local locator turns into a clip locator at the same timeline location.

Deleting Locators

When locators are no longer needed, you can delete them through the Locators view or on the timeline.

To delete locators using the Locators view:

1. In the Locators view, select one or more locators.
2. Do one of the following:
   - Press Delete.
   - Right-click one of the locators and select **Delete Locator**.

   The selected locators are removed.

To delete a locator on the timeline:

- On the timeline ribbon, right-click a locator and select **Delete Locator**.

To delete multiple locators on the timeline:

1. On the timeline ribbon, press Ctrl and click the locators that you want to delete.

   The locator(s) are selected.

You can only select multiple locators of the same type. That is, clip locators must be selected separately from other types of locators on the timeline ribbon.

2. Press the Delete key.

To delete all locators:

- Right-click the timeline and select **Delete All Locators**.

Moving to Locators

Once you've placed locators on clips or the timeline, you can easily jump to these reference points. When you jump to a locator and there is an *active* frame at that point, it is displayed in the viewer.

To jump to a locator, do one of the following:

- In the Locators view, double-click a locator.
- In the Locators view, right-click a locator and select **Go To Locator**.

- On the timeline ribbon, select a locator.
- On the timeline ribbon, right-click a locator and select **Go to This Locator**.

  The position indicator immediately moves to the selected timecode.
- On the NLE Tools toolbar, click **Navigation** > **Go to Next Locator** or **Go to Previous Locator**.

To move to an in or out-point:

- If there are any in-points or out-points on the timeline ribbon, click the **Go to In** or **Go to Out** button on the transport controls to place the position indicator at the respective points.

  The position indicator immediately moves to the selected timecode.

In-points and out-points of clips on deactivated tracks are skipped when you move between edit points on the timeline. For more information, "Selecting Tracks" on page 726.

Annotating Locators

You can rename or add descriptions to your locators for future reference. Adding comments to locators is a convenient way of noting any specific frames that need color correcting, scratch removal, trimming, or review and approval by the client.

To annotate a locator:

1. On the timeline ribbon, right-click a locator and select **Locator Properties**.
2. In the Name text box, type a name for the locator.

   This name is displayed next to the locator when you click it.
3. In the Comments text box, type a more detailed description for the locator.

Changing the Color of Locators

Identifying specific locators is easier with the use of color. With eight colors to choose from, you can, for example, use red to mark frames that contain scratches and blue for frames that need some color correction. Once you choose a color for a locator, it is used in the Locators view, timeline ribbon, and position bar.

To change the color of a locator:

1. In the Locators view, right-click a locator and select **Color**.
2. Select a color from the menu.

   The color of the locator is changed in the Locators view, timeline ribbon, and position bar.

Finding Frames, Clips, and Bins

You can retrieve additional material from a master clip, a subclip, or subclip's master clip, as well as locate the bin in which you saved your clip.

When you perform a match frame, the master clip or subclip that corresponds to the currently selected frame is located, and the source master clip or subclip is loaded in the Source viewer.

Performing a match bin is the same as performing a match frame, but it also selects the original clip and displays its location in a bin.

Matching a Frame in a Master Clip or Subclip

You can locate the source clip (a master clip or subclip) for the frame currently displayed in either the Record viewer or Source viewer. This feature is useful when you want to relocate and reedit source material, such as subclips and master clips.

Match framing loads the source clip into the Source viewer for the frame currently displayed in the active viewer (Source viewer or Record viewer). It cues to the matching frame in the source clip and marks an in-point. Any original in-point or out-points are removed from the source clip.

You can also use the Match Frame feature to locate clips quickly, based on media relatives, when you have forgotten their location. For example, you can matchframe a cut in the sequence to its original subclip, matchframe the subclip to the original master clip, and then locate the bin in which the master clip is saved. Match framing stops when you reach the master clip.

You can also locate frames in a sequence that match a selected source frame—see "Performing a Reverse Match Frame" on page 785.

Match framing does not create a permanent sync relationship between clips but provides a convenient way of locating, marking, and editing matching material.

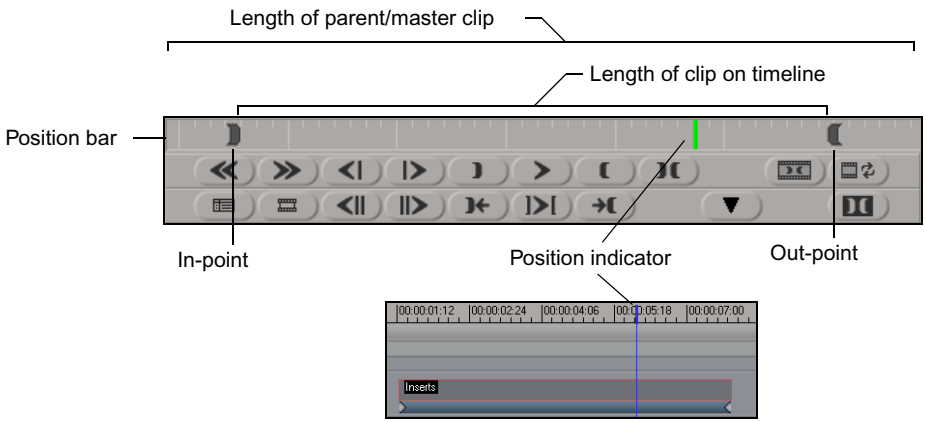
You cannot perform a match frame directly on a container clip, unless it is a timewarp container. You must first open the container clip and select the desired clip. For sync-locked master clips, select either the audio or video clip, and Avid DS Nitris will locate the corresponding video and audio components of the source media.

To locate the source clip of a selected frame:

1. Load a sequence on the timeline or a subclip into the Source viewer.
2. Move the position indicator to the frame you want to match.
3. Do one of the following:
   - If matchframing from a sequence, click the clip to select it.
   - In the Track selector, select the track for the frame that you want to match—see “Track Selector” in the Help.

4. Click the **Match Frame** button below the viewer displaying the desired frame to match.

   The clip’s corresponding master or subclip is located and loaded into the Source viewer, and markers are added to indicate the source in and out-points of the clip. The position indicator below the Source viewer is placed at the precise timecode to match the frame you selected for match framing.



5. (Option) Click the **Match Frame** button below the Source viewer to locate the next corresponding parent clip.
6. If necessary, you can replace frames at this point—see “Placing Pre-edited Clips on the Timeline” on page 715.

Performing a Reverse Match Frame

You can locate the frames in a sequence that match the frame selected in the Source viewer. If the frame exists in more than one place, the sequence cues to the first location of the match frame and continues through the sequence to subsequent locations each time you click the Reverse Match Frame button.

You can perform reverse match frames on sequences that contain timewarp container and container clips. However, you might receive false-positives for position/speed timewarp container clips. For example, the timewarp is highlighted as containing the frame, but the frame is not present in the timewarp container clip.

To perform a reverse match frame:

1. Load a sequence on the timeline.
2. Load the source clip in the Source viewer.
3. In the Track selector, select the tracks you want to search for the matching frame—see “Track Selector” in the Help.
4. Move the position indicator to the frame that you want to match.
5. Click the **Reverse Match Frame** button.

   The sequence is cued to the first matching frame.
6. Click the **Reverse Match Frame** button again to continue locating matching frames in the sequence.

Finding the Bin for a Clip or Subclip

You can locate the bin for any clip selected on the timeline or displayed in the Source viewer. You cannot do this directly on a container clip. You must first open the container clip and select the desired clip. For sync-locked clips, you can select either the audio or video clip to find the bin containing the selected clip’s master clip or subclip.

To find the bin containing a clip or subclip:

1. Move the position indicator to the desired frame.
2. Click the **Match Bin** button below the active viewer.

   The bin containing the clip’s corresponding master or subclip is displayed with the master or subclip selected. The master or subclip is loaded into the Source viewer and markers are added to indicate the source in and out-

points of the clip on the timeline. The position indicator below the Source viewer is placed at the precise timecode to match the currently displayed frame on the timeline.

Extracting Parts of a Sequence

You can extract portions of your sequence to create new master clips. You can create master clips from selected regions on the timeline, or from selected objects.

This is useful when you're satisfied with the effects that you've applied to a clip, and you want to create a new master clip that includes the effects, or when you want to create a single master clip from the contents of a container clip. Combining effects or container contents in a single clip can help to reduce processing time.

You can convert individual clips, multiple clips, or regions of the timeline to new master clips. If you've selected regions of the timeline or multiple timeline objects, you can create a single new master clip that combines all of the selected timeline material, or multiple new master clips; one for each selected object. You can automatically replace the existing timeline material with the new master clips.

If you create a single master clip from both audio and video material, the result is a combined audio and video clip.

You can also specify what types of tracks to convert from the timeline, and configure processing options.

Converted clips will include timeline material in different ways, depending on how you select material.

If you select...	The new master clip will include...
One clip	The clip and all of its effects.
Multiple clips on one track	All selected clips, all clip effects, and track effects. Frames in the new master clip are black for the duration of unselected material between clips.
Multiple clips on multiple tracks	All selected clips, all clip effects, all track effects, and timeline effects. Frames in the new master clip are black for the duration of unselected material between clips.

If you select...	The new master clip will include...
Time span on one track	All material in the selected time span, including clips, clip effects, and track effects. Frames in the new master clip are black for the duration of unselected material between clips.
Time span on multiple tracks	All material in the selected time span, including clips, clip effects, track effects and timeline effects. Frames in the new master clip are black for the duration of unselected material between clips.
Time span on the timeline effect track	All material in the selected time span.

Converting a Timeline Region or Object

You can convert a portion of your timeline or an object on the timeline to a master clip.

To convert a region of your timeline or a timeline object to a clip:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Do one of the following:
   - On the timeline effect track, drag to select a region.
   - Select one or more objects on the timeline.
3. From the toolbar, click **Generate** > **Timeline to Clip**.
4. In the Timeline to Clip Options dialog box, select the appropriate options.
5. Click **OK**.

   The new clip is processed and saved to the bin you specified.

   For detailed information on the Timeline to Clip properties, click the **Help** button.

Creating Multiple Clips

You can convert a timeline region or multiple selected clips into multiple master clips.

To create multiple clips from objects on the timeline:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Do one of the following:
   - On the timeline effect track, drag to select a region.
   - Select one or more objects on the timeline.
3. From the toolbar, click **Generate** > **Timeline to Clip**.
4. In the Timeline to Clip Options dialog box, select the appropriate options, making sure to deselect **Create one clip** and click **OK**.

   For detailed information on the Timeline to Clip properties, click the **Help** button.

   The new clips are processed and saved to the bin you specified.

You cannot create multiple clips from a selected timeline region. To create multiple clips, you must multi-select objects on the timeline.

Replacing Timeline Material

Replacing the timeline material overwrites the Timeline to Clip source material with the new master clip.

To replace material on the timeline with new master clips:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Do one of the following:
   - On the timeline effect track, drag to select a region.
   - Select one or more objects on the timeline.
3. From the toolbar, click **Generate** > **Timeline to Clip**.
4. In the Timeline to Clip Options dialog box, select the appropriate options, making sure to select **Replace Selection**.

   For detailed information on the Timeline to Clip properties, click **Help**.
5. Click **OK**.

The new clip is processed and saved to the bin you specified. The Timeline to Clip Options dialog box is closed, and you are returned to the timeline. The new clips appear on the timeline in place of the selection.

You cannot replace a region of the timeline with multiple clips, even if the region spans multiple clips. Instead, clips, or parts of clips in the selected region, will be replaced with a single clip.

Grabbing Frames

You can create master clips or image files from the frame currently displayed in the Record viewer.

Creating a Master Clip from a Snapshot

You can create a master clip from the image on which the position indicator is currently positioned. The master clip is automatically captured (logged and digitized) under the name and location you specify. The resulting master clip is identical to other master clips and lets you to recapture it at a different resolution or compression ratio. You can specify the length of a master clip.

To create a master clip:

1. On the timeline, move the position indicator to the desired frame.
2. From the toolbar, click **Generate** > **Snapshot to Clip**.
3. In the Save Snapshot dialog box, specify the bin and file name, and click **OK**.

The Snapshot to Clip command works best with images that are set to uncompressed and full D1 resolution.

A master clip is created in the bin you specified.

Creating an Image File from a Snapshot

You can export an image of the frame on which the position indicator is currently positioned. The image is exported as a bitmap image file in one of several formats and saved in a bin you specify.

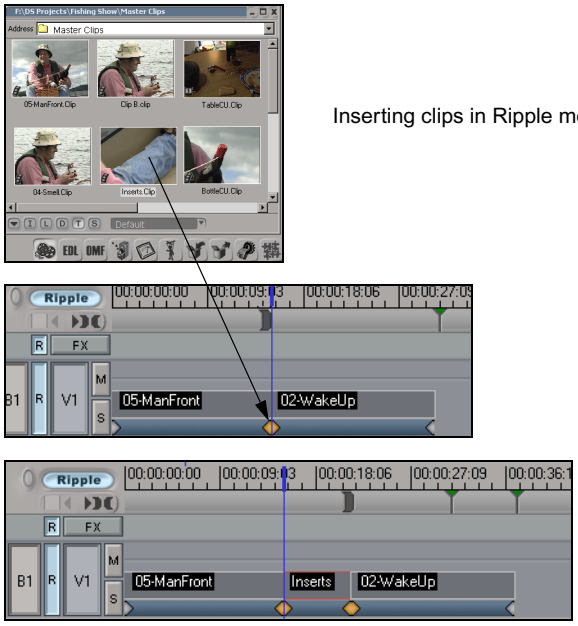
To create an image file:

1. On the timeline, move the position indicator to the desired frame.
2. From the toolbar, click **Generate** > **Snapshot to File**.
3. In the Export to File dialog box, specify the bin, file name, and file type and click **OK**.
4. Depending on the file type you select, a dialog box might display that lets you to set options, such as video levels, bit depth, and compression.

The image file is saved in the bin you specified. You can import the file into Avid DS Nitris or use it in other applications.

Rippling Clips

The Ripple mode lets you preserve the integrity of previous edits as you continue to perform other edits on the timeline. As you move, trim, insert, or delete clips on the timeline, you can decide if the clips that follow the edit point should move to accommodate the change.



Inserting clips in Ripple mode.

You can ripple all tracks (timeline effect, video, background, and audio) across the timeline or limit the rippling only to the video tracks or other selected tracks. For example, if you've already edited your video clips, and now want to work on the audio alone, simply activate the Ripple mode only for the audio tracks.

When you activate the Ripple mode on any background track, it is also activated on all background tracks. Only the audio and video tracks can be rippled on a per track basis.

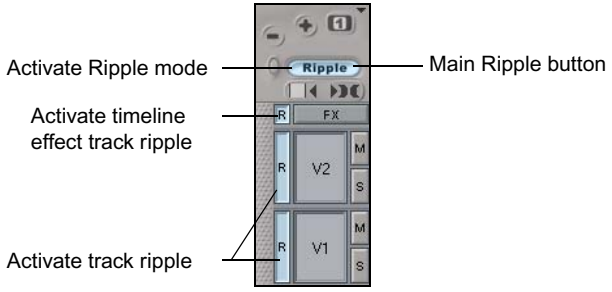
Working in Ripple mode is like working in *insert* mode. When you insert a clip anywhere along the timeline, any successive clips are automatically pushed later in time. Any clips that are sync-locked, such as the audio and video components of a clip, are rippled in sync. The edits of any preceding clips are not affected.

When you're not in Ripple mode, you're in the default *overwrite* mode. Any clip that you place on the timeline occupies the space in which it was placed. It does not change the position or activeness of the other clips.

To activate or deactivate Ripple mode:

1. From the timeline controls, click the main **Ripple** button.

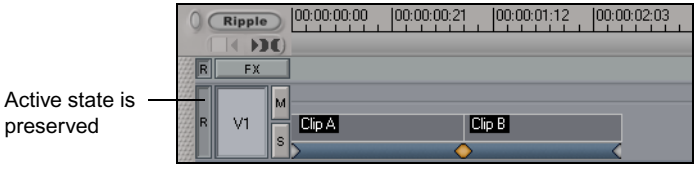
   The Ripple mode is activated. By default, the Ripple buttons on all the tracks are also activated and highlighted in blue. This makes all clips in a sequence ripple across the timeline as you perform your edits.



2. Deactivate the **Ripple** button on tracks that you do not want to ripple as you insert new clips on the timeline.
3. To deactivate the Ripple mode, click the main **Ripple** button.

   The Ripple mode is deactivated for all tracks on the timeline.

   Notice that the setting of the Ripple buttons on the tracks is preserved even after the Ripple mode is deactivated. Although the buttons are not highlighted in blue, they still appear activated.



This indicates that you're *inserting* clips from the Source viewer to the timeline. The Insert button on the Source and Record viewer temporarily activates the Ripple mode, allowing you to ripple clips on tracks where this button is activated. For more information, see "Manipulating Clips" on page 759.

Setting a Ripple End

You can select a timecode beyond which you no longer want to work in Ripple mode. Setting the ripple end at this timecode leaves Ripple mode on for the preceding time span, and turns it off for the succeeding time span.

When you place clips on the timeline before the ripple end, any successive clips will be pushed up to, but not beyond the ripple end timecode. Clips placed after the ripple simply occupy the space where they are placed, without changing the position or activeness of the other clips.

To set the ripple end:

1. Move the position indicator to the timecode where you want to deactivate Ripple mode.
2. From the toolbar, click **Editing** > **Set Ripple End**.

   A light blue bar is displayed on the timeline, indicating the end of the ripple zone.

To reactivate Ripple mode for the complete timeline:

- Move the position indicator to the ripple end timecode and click **Editing** > **Set Ripple End** again.

Inserting Clips in Ripple Mode

You can insert clips at a specified point on the timeline by activating the Ripple mode. When the clip is inserted, all other clips from that point are pushed forward.

To insert a clip on the timeline:

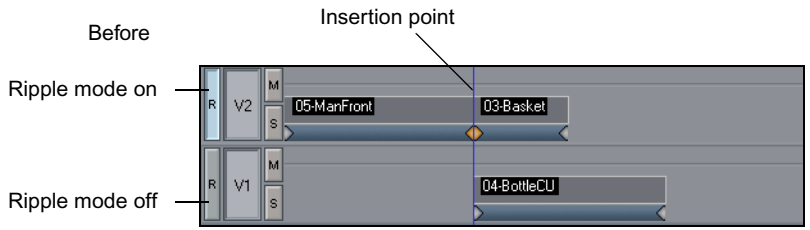
Main Ripple button

1. From the timeline controls, click the **Main Ripple** button.
2. Click the **Ripple** button on the tracks that you want to ripple forward.
3. Drag a clip from a bin or Source viewer to the timeline.

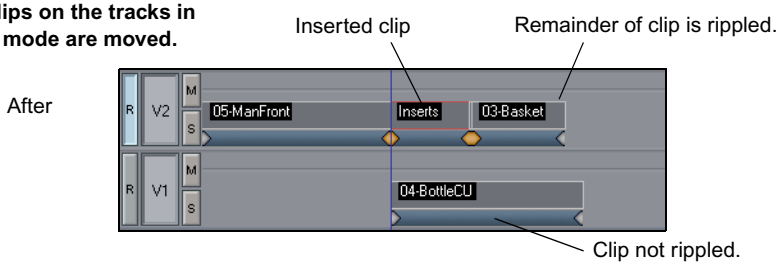
   All other clips from that timecode forward are rippled on the tracks where the Ripple mode was activated. If you inserted the clip in the middle of another clip, that clip is split into two and the new clip is inserted between them.

Press the V (insert) or B (overwrite) keys while dragging clips to the timeline will override the current ripple setting.

Inserting clip in Ripple mode.



Only clips on the tracks in Ripple mode are moved.



Editing Clips in Ripple Mode

When moving, trimming, or deleting clips while in Ripple mode, it's important to preserve the integrity of edit points on other clips. Any edits that you perform to one clip affects all successive clips on the timeline.

Instead of rippling all clips on the timeline, you can select the tracks on which you want clips to ripple. This is useful, for instance, when you do not want the trimming of video clips to affect the audio clips.

To edit a clip in Ripple mode:

Main Ripple button

1. From the timeline controls, click the main **Ripple** button.
2. Click the **Ripple** button on the tracks that you want to ripple.
3. Adjust the clip's edit points as necessary.

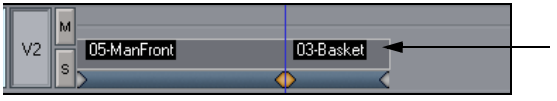
   All clips are moved left or right to accommodate the changes on the selected clip.

   If you delete a clip, all succeeding clips are moved together to close the gap where the clip was active.

Position of clips before deletion.

Clip to be deleted.

Position of clips after deletion (in Ripple mode).



Clips moved by amount of deleted clip's activeness.

Synchronizing Clips

Synchronizing (syncing) clips refers to aligning points on different clips, so that they occur simultaneously. When you synchronize clips in Avid DS Nitris, you can sync-lock them together, so that they do not fall out of alignment. You can break the sync-lock on clips at any time to edit them independently of each other.

A locked group of synchronized clips is called a *sync group*. Each sync group has a master clip and one or more slave clips. The master clip acts as the focal point for the sync group, and the position of slave clips is always relative to the master clip's position.

One of the most common synchronization tasks that you can perform is syncing audio clips with video clips, so that the sound in the audio clip matches the action in the video clip.

Aligning Clips for Synchronization

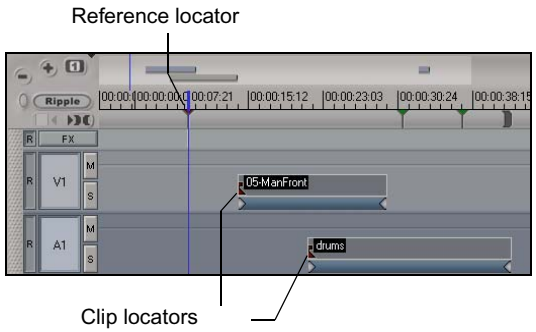
Using locators can help you synchronize video and audio clips. You can place reference locators on the timeline ribbon and then drag the clip locator to align it with the reference locators or with other clip locators.

To align a clip at a specific timecode:

1. Move the position indicator to the timecode at which you want to synchronize the clips.
2. Right-click the timeline ribbon and select **Add Locator at Playback Position** > ***color***.

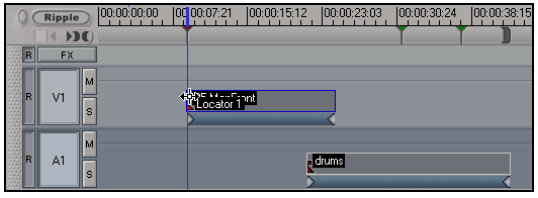
   This places a local locator on the timeline ribbon to define the point at which to align your clips.
3. Right-click the clip and select **Add Locator** > ***location***.

   A clip locator with a triangular head is displayed on the clip.



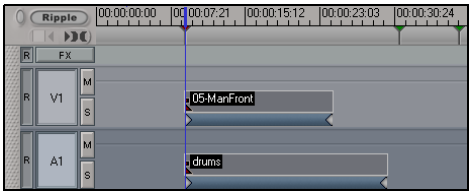
4. Place a locator on each of the other clips that are to be aligned.
5. Drag the head of the clip locator left or right to align it with the reference locator.

   The clip turns blue and moves with the locator as you drag it. When you get close to the reference locator, the magnetism between the locators helps align the clip.



Audio and video clips aligned at position of reference locator.

6. Align the other clips in the same way.



Creating a Sync Group

Once you're satisfied with the way the clips are aligned, you can lock them together in a sync group. When you move one clip, the rest of the group moves with it. This is especially useful when trimming audio and video clips on multiple tracks, because the sound and accompanying images are trimmed in sync.

You can have any number of video or audio clips synchronized together, but you must select at least two clips to apply a sync-lock. The master clip is the center of the sync group. If the position of any clip is offset, the offset will always be displayed as the number of frames from the master clip.

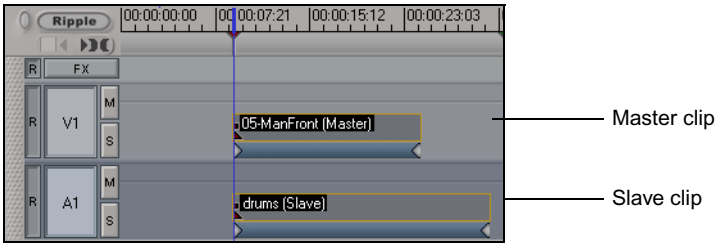
When you create a sync group, the order in which you selected the clips is maintained. If you delete the master clip in the group, the second clip that you originally selected becomes the new master clip.

When a clip containing both audio and video is placed on the timeline, its audio and video components fall on separate tracks as individual clips. These clips remain sync-locked to each other.

To lock clips in sync:

1. Align your clips on the timeline.
2. Do one of the following:
   - Press Ctrl and click at least two clips to lock together.
   - Place the position indicator on the clips you want to lock together.
3. From the toolbar, click **Editing** > **Sync Lock**.

   The name of the first clip that you selected ends with "Master" while the names of the other clips end with "Slave".



*If the selected clips are already synchronized, when you click **Editing** > **Sync Lock** the synchronization is broken. The Sync Lock command can lock clips and unlock clips, depending on the synchronization status of the clips.*

Adding to an Existing Sync Group

As you place clips on the timeline, you can add them to existing sync groups. If, for example, you have a sync group containing a video track and an audio track, you can align a second audio track with the sync group, and add it to the group when you're satisfied with its position.

To add clips to a sync group:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Select a clip from the sync group to which you want to add the clip.
3. Press Ctrl and select the clip that you want to add to the sync group.
4. From the toolbar, click **Editing** > **Sync Lock**.

   The clip is added to the sync group.

Combining Two Sync Groups

You can combine two or more sync groups to form a single group, containing all of the clips in the original groups. The clips in the second group that you select are appended, as slave clips, to the first group that you select.

To combine existing sync groups:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Select a clip from the sync group that you want to combine with another group.
3. Press Ctrl and select a clip from the group that you want to add.
4. From the toolbar, click **Editing** > **Sync Lock**.

The groups are merged into a single sync group. The clips in the added group are all slaves and the master of the first group remains the master.

Unlocking Synchronized Clips

You can remove individual clips from a sync group without removing them from the timeline. When a clip is no longer synchronized, you can edit it independently of the other clips in the group. If you remove the master clip from a sync group, the next clip that you originally selected becomes the new master clip.

Applying the Timewarp, Interlace/Deinterlace, and 3:2 Expand/3:2 Contract effects automatically breaks the lock on synchronized clips.

To break a sync-lock:

1. Do one of the following:

   - Place the position indicator on the synchronized clips.
   - On the timeline navigation bar, click the **Selection Mode** button, and select one or more synchronized clips.

2. From the toolbar, click **Editing** > **Sync Lock**.

   Only the selected clips are removed from the rest of the sync group, and can now be edited independently.

Manipulating Synchronized Clips

You can select and move synchronized clips the same way that you would with non-synchronized clips. There are, however, a few differences.

When you select synchronized clips, they are surrounded by a red border. Other clips in the group are surrounded in yellow to indicate that they're part of the same group, but were not directly selected. If you multi-select clips in a group or select an entire group, the selected clips will share the focus, and be surrounded in brown.

When you move synchronized clips, the entire group moves together. You can, however, move single clips in a sync group independently of the other clips in the group. For more information, see "Manipulating Clips" on page 759.

Selecting All Clips in a Sync Group

You can select all of the clips in a sync group at the same time. This is useful if, for example, you want to delete an entire sync group.

To select all clips in a sync group:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Click one clip from the group that you want to select.
3. From the toolbar, click **Editing** > **Select Sync Peers**.

   All clips in the sync group are selected. Selected clips have red handles and an orange outline.

Moving Synchronized Clips Independently

When Ripple mode is off, you can move one clip in the sync group independently of the other clips in the group. Moving synchronized clips independently creates an offset between the master clip and slave clips. When an offset occurs, the name of each offset slave clip turns red, and includes the number of frames by which it is offset from the master clip.

If you move a group's master clip independently, all of the slave clips in the group will show an offset.

To move a synchronized clip independently:

1. Make sure that the **Main Ripple** button is deselected.
2. On the timeline navigation bar, click the **Selection Mode** button.
3. On the timeline, select the clip that you want to move.
4. Press the W key, drag the clip along the timeline.

   The position of the other clips in the sync group will not change. Any resulting offsets will be displayed next to the names of the slave clips.

Cutting Synchronized Clips

You can cut one or more clips in a sync group in two. When you cut a single clip, the part that you cut off remains synchronized as a new clip. If you cut multiple clips in a group, the two new clips or group of clips become a new sync group with the same master/slave relationships as the original group. For more information, see "Cutting Clips" on page 765.

Editing Synchronized Clips

The same rules that apply to editing clips on the timeline apply to all synchronized clips. That is, you can still move, slide, or trim them.

When you edit synchronized clips, red handles appear on the first selected edit point. You can use the trim handles to adjust the clip as necessary. If you want to trim multiple clips in the group simultaneously, you can select the edit points of all sync group members at the same timecode.

To select all synced edit points at a specific timecode:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Select an edit point of a clip in the sync group.
3. From the toolbar, click **Editing** > **Select Sync Peers**.

   All of the sync group members' edit points, at the same timecode, are selected. The clips can now be edited simultaneously.

When working with synced audio and video clips, it may be necessary to trim an edit point on one clip independently of the others. For example, if you want a synchronized audio clip to continue for a few seconds past the end of its video clip peers, you can perform a split edit. For more information, see "Selecting Trim Sides" on page 818.

Resyncing Clips

Offsets that were created by moving a synchronized clip independently of its peers can be corrected, partially or even completely, by resyncing the clip. Resyncing slips the offset clip until the offset is back to zero, or until the offset clip runs out of unused material. For more information, see "Understanding Slipping or Sliding Clips" on page 836.

To resync an offset clip:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. On the timeline, select the offset clip.
3. From the toolbar, click **Editing** > **Resync**.

   The clip is slipped until the offset is corrected, or no unused material is left.

Deleting Synchronized Clips

When you delete a sync-locked clip, only the highlighted clip is deleted. The other clips that were synchronized with it remain synchronized. If you delete an entire group, none of the clips remain on the timeline.

If you delete a group's master clip, the second clip that you selected when you created the group becomes the new master clip. All subsequently selected clips remain as slave clips.

If the group from which you deleted the clip contained only two clips, the other clip in the group will remain on the timeline as a single clip (neither master nor slave).

To delete a synchronized clip:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. On the timeline, select a clip to delete.

   A red border surrounds the selected clip.
3. Press Delete to delete the clip.

   The selected clip is removed. If the group contained more than two clips, the next selected clip in the group becomes the new master clip.

To delete a sync group:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Select one clip from the group that you want to delete.
3. From the toolbar, click **Editing** > **Select Sync Peers**.
4. Press Delete to delete the clip.

   The selected group is removed.

Referencing Sequences

Referencing other sequences lets you add placeholders to other sequences on the timeline in the current sequence. These placeholders are called *reference clips*.

A reference clip points to another sequence within the current project. Because reference clips only point to a sequence, they consume less memory and load faster than container clips. This improves performance on complex timelines. Using a reference clip also lets you work on that portion of your sequence separately. Once it's updated, the changes are automatically reflected in sequences that contain this reference clip.

Sequences that reference other sequences might not reflect changes if the referenced sequence contains a reference clip to another sequence. For example, if sequence C references sequence B, and sequence B references sequence A; then any changes to sequence A will not appear in sequence C until you open and save sequence B. The reason for opening and saving sequence B is to update its information about sequence A, because sequence C only sees sequence A through sequence B.

Creating Reference Clips

You can create a reference to any sequence that exists within the current project. A reference clip cannot be placed on a track if it completely covers another clip. In this case, you must place the reference clip on a different track.

To create a reference to an existing sequence:

1. Select a sequence from the Avid Explorer.
2. Press the Alt key and drag the sequence to the timeline.

   The sequence is displayed as a clip on the timeline.

Converting a Container Clip to a Reference Clip

You can lighten the load on your timeline and improve performance by converting complex container clips to reference clips. This saves the contents of the container clip to disk as a sequence. In the container clip's place on the timeline a reference clip points to the saved sequence.

To convert a container clip to a reference clip:

1. Right-click the container clip and select **Convert to Reference Clip**.

   You are prompted to save your current sequence.

2. Click **OK** to save the current sequence and continue.

   The current sequence is saved, and the container clip is saved as a sequence with the same name as the container clip.

To open a reference clip:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Select the reference clip.
3. From the toolbar, click **Editing** > **Expand Ref Clip**.

To close a reference clip:

- From the toolbar, click **Editing** > **Collapse Ref Clip**.

  The reference clip is closed and the top timeline is displayed.

Processing Reference Clips

If a reference clip contains any unprocessed material, then the marker ribbon and/or clip is highlighted in red and a message “Referenced sequence needs processing” is displayed in the Record viewer during playback.

Processing a reference clip from a master sequence using the Process Reference command does not let you select processing options. The referenced sequence is processed according to the processing options of that sequence, except that it will change the mode to Minimal.

To process a single reference clip:

1. Place the position indicator on a reference clip you want to process.
2. From the toolbar, click **Processing** > **Process Reference Clip**.

   You are prompted to save the current sequence.

3. Click **OK** to save the current sequence or click **Cancel** to bypass the save.

   Avid DS Nitris closes the current sequence, opens the referenced sequence, processes it, saves it, and then reloads the original sequence.

To process the entire timeline, including any reference clips:

1. From the toolbar, click **Processing** > **Process Timeline and References**.

   You are prompted to save the current sequence.

2. Click **OK** to save the current sequence or click **Cancel** to bypass the save.

   Avid DS Nitris processes the entire timeline, and also opens and processes any reference clips on the top timeline.

Chapter 4
Trimming Clips

This chapter describes how to trim edit points after you create a rough cut sequence.

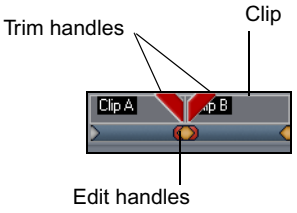
- Workflow: Trimming Clips
- Understanding Trimming
- Methods of Trimming
- Understanding Trim Mode
- Selecting and Breaking Edit Points
- Performing a Basic Trim
- Creating Overlap Edits
- Trimming Container Clips
- Trimming Transition Effects
- Understanding Slipping or Sliding Clips
- Maintaining Sync While Trimming

Workflow: Trimming Clips

Trimming is the process of fine-tuning the transitions between clips to create smooth transitions for the final sequence.

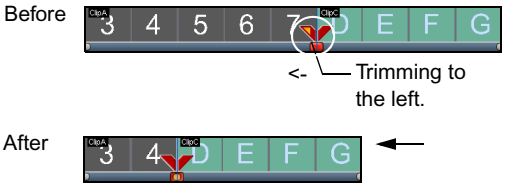
The following illustration shows how you can trim edit points.

1 Select either edit handles, trim handles, or clips.



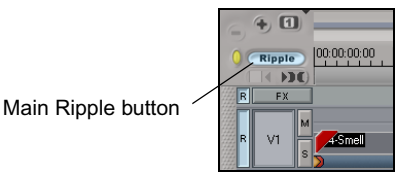
2 Perform a dual-roll trim or a single-roll trim.

Drag the selected trim object right or left to trim the edit point.



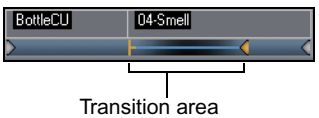
3 Trim with Ripple mode to change recording timecode.

Set Ripple mode to change the recording timecode when trimming with trim handles.



4 Trim transition effects.

Use the tools in Trim mode or drag the transition's edit points to trim transition effects.



5 Trim clips using Trim mode.

Enter Trim mode to display the incoming and outgoing frame for fine-tuning the trim.

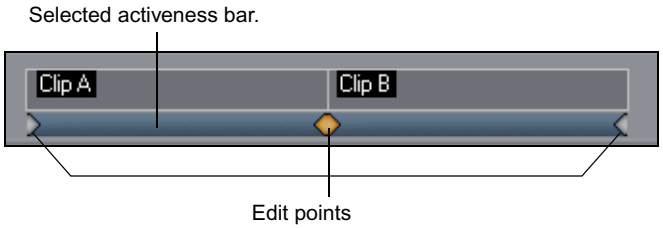
6 Slip or slide a clip using Slip/Slide mode.

Enter Slip/Slide mode to display the head, tail, incoming, and outgoing frames when slipping or sliding a clip.

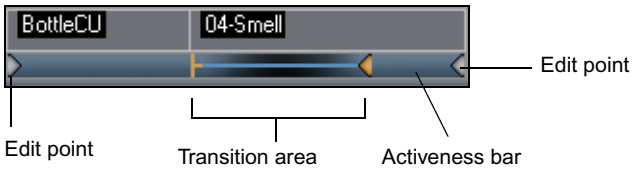
Understanding Trimming

Basic editing in the timeline initially produces a rough cut, which can be loosely defined as a series of straight-cut edits with many rough edges and few effects. After creating a rough cut, you can fine-tune the transitions between each clip or between several clips. You can also trim edits as you build a sequence rather than create a rough cut first.

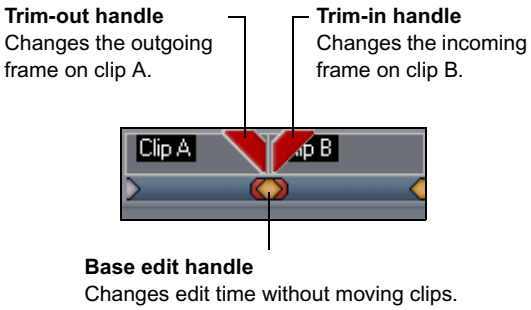
Trimming lets you fine-tune the incoming or outgoing frames at the edit points of a clip. Each clip has elements that you can select and edit: the trim handles and edit points. Edit points are located at the ends of the activeness bar of a clip, or where it transitions to another clip.



The activeness bar also displays any transition effects that were applied to the clip, such as a dissolve, wipe, or crossfade. Transition areas have their own edit points that indicate the beginning and end of the transition. For more information, see “Applying Transitions” on page 908.



When you select an edit point, it displays trim handles and edit handles at that edit point.



The edit point identifies the time at which the indicated frame will start or end recording. You can trim clips by adjusting the edit or trim handles at an edit point.

Trimming the edit handle changes the incoming or outgoing frame and the recording timecode. Adjusting the trim handle changes the incoming or outgoing frame, but keeps the recording timecode (unless in Ripple mode). For more information, see “Rippling Clips” on page 793.

When trimming clips, it’s helpful to know how much material you have available. You can use the Display Unused Material mode to see how many extra frames you have available at the head or tail of a clip. For more information, see “Revealing Unused Material on Clips” on page 768.

Methods of Trimming

There are two methods in which you can trim clips. Both methods have their advantages:

- Interactively on the timeline

  When you trim clips on the timeline, you immediately see how it affects the other clips in the sequence. Also, when you select and drag an edit or trim handle, the frames are updated in the Record viewer, so that you can search for frames as you trim the clip.

- Using the Trim mode

  This mode provides a set of controls for fine-tuning edits, as well as viewing the incoming and outgoing frames at the same time. It also provides more controls for performing trimming tasks.

For more information, see "Understanding Trim Mode" on page 814.

When trimming a clip, you may want to preserve the integrity of edit points on other clips. To do this, you must deactivate the Ripple mode on the timeline. Trimming a clip provides different results depending on whether you're working in Ripple mode or not. For more information, see "Rippling Clips" on page 793.

Understanding Trim Mode

The Trim mode provides a close-up view of a clip, so that you can trim the clip on a frame-by-frame basis. The results are the same as if you were dragging the clip's trim handles or edit points on the timeline, except that you are given more tools to work with in the Trim mode.

The Trim mode lets you precisely trim the incoming and outgoing frames at the selected edit point of clips on the timeline. You can adjust frames at an edit point by entering new in and out times or by using the trim buttons to move the frames incrementally.

The information in the Trim mode is based on what you select on the timeline. You must first select an edit point or transition between two clips to see the incoming or outgoing frames in the Trim mode. Use the Previous Edit and Next Edit buttons in the Trim mode to go to an edit point.

Select the incoming or outgoing frame, and use the trim buttons to change the position of the edit point in the corresponding clip. If you select both panes, by clicking between the incoming and outgoing views or by holding the Shift key and selecting them one at a time, clicking the trim buttons will move the edit point without changing the position of either clip.

For detailed information on the Trim Mode controls, click the **Help** button.

Entering and Exiting Trim Mode

You can enter Trim mode either manually or automatically when you select an edit point on the timeline.

To manually access the Trim mode:

1. From the taskbar, click the **Editing** button.
2. From the timeline navigation bar, click the **Selection Mode** button to switch to Selection mode.
3. Select an edit point in the timeline.
4. From the timeline navigation bar, click the **Trim Mode** button.

   The Source/Record viewers are replaced with the Trim mode and trim controls. If you did not select an edit point before entering Trim mode, the transition nearest the position indicator is selected for trimming.

To automatically access the Trim mode when you select an edit point:

1. Right-click the **Trim Mode** button and select **Switch for Edit**.
2. Right-click the **Trim Mode** button and select **Autoswitch**.

When you select an edit point in the timeline, you access Trim mode. Deselect Switch for Edit to return to manually accessing the Trim mode.

To exit Trim mode, do one of the following:

- From the timeline navigation bar, click the **Trim Mode** button.

- From the timeline navigation bar, click the **Source/Record view** button.
- Click a location in the timeline. The position indicator moves to the location and returns to navigation in Source/Record view if the Autoswitch command is selected.

Trimming Clips in Trim Mode

You can select the clip to be trimmed by clicking the Incoming or Outgoing frame in the Trim mode. A red border around the view indicates that it is active. If you want to trim the edit point between two adjoining clips, select both the Incoming and Outgoing frames by clicking between the incoming and outgoing views or by pressing the Shift key and clicking each frame.

There are several ways of trimming clips:

- Drag the trim-in or trim-out handles left or right to change the incoming or outgoing frames of a clip. This does not change the recording timecode.
- Drag the edit handle left or right to change the start or end time at which a clip is recorded. This also changes the incoming or outgoing frame. When trimming with the edit handles, it does not matter if Ripple mode is on or off.
- Use the Nudge Right 1 Frame (>), Nudge Right 10 Frame (>>), Nudge Left 1 Frame (<), and Nudge Right 10 Frame (<<) buttons to move the clip/edit point forward or backward and trim frames at the selected edit point. As you trim the edit point, the frames of the clip are hidden or revealed to reflect the new incoming or outgoing frame.

  These buttons appear dimmed when there are no more frames available at the head or tail of the clip.

- Enter values in the Frame Offset Counter text box to move the edit point forward or backward. A positive number moves the edit point forward, and a negative number moves it backward.
- Use the J-K-L keys to trim the selected edit point.

  As you trim clips in the Trim mode, the timeline updates to reflect the new edit points.

Reviewing a Trim Edit or Transition in Trim Mode

After you trim an edit point in Trim mode, you can review the trim edit to verify the trim. You can also play a transition in a loop to view the transition.

There are two procedures for reviewing a trim edit or playing a transition while in Trim mode.

To review the most recent trim edit or play the selected transition using the Play Preview button:

- Click the **Play Preview** button.

  The Avid DS Nitris system enters a playback loop. This loop begins at a preroll point before the transition and ends at a postroll point, pausing briefly before beginning playback again.

To review the most recent trim edit or to play the selected transition:

1. Click the **Loop** button.

   The Loop mode is activated and loop markers appear on the timeline ribbon.
2. Click the **Play** button.

   Avid DS Nitris enters a playback loop. This loop begins at a pre-roll point before the transition and ends at a post-roll point, pausing briefly before beginning playback again.

To make adjustments to the playback loop for preroll or postroll, see "Editing Property Page" in the Help.

3. Stop the playback loop by clicking the **Play** button again.
4. Click the **Loop** button again to deactivate the Loop mode and remove the loop markers.

Selecting and Breaking Edit Points

Before you can trim a clip, you need to select an edit point. When you select an edit point on a clip, its trim handles and edit handles are displayed. Depending on the type of trim you want to perform, you can select and deselect the various trim handles and edit handles.

When an edit point is selected, all other edit points at that timecode are also selected. You can break linked edit points to trim the clips independently of each other.

Before you can select edit point and trim handles on the timeline, you must click the Selection Mode button on the timeline navigation bar to enter the Selection mode.

Selecting Trim Sides

You can select and deselect the various trim handles and edit handles of a clips's edit point. When you select an edit point you are selecting the clip's in or out-point.

With video clips, an edit point is shared when one clip intersects with another. If you adjust this edit point, you perform a dual-roller trim in which both clips are trimmed simultaneously.

You can perform a single-roller trim by selecting either an in-point or out-point. You can also select edit points on multiple audio and video clips at the same timecode. This is useful when editing synchronized audio and video clips. When an edit point is selected, you can turn it on or off. This is especially useful if you want to break an edit point, so that you can trim clips independently of each other (or perform a split edit).

To select an edit point, do one of the following:

- On the activeness bar, click an edit point.
- In Trim mode, click the **Go to Previous Edit** or **Go to Next Edit** button.

  By default, Avid DS Nitris selects the nearest transition in either direction of selected tracks for trimming.

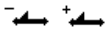
To select edit points on multiple audio and video clips:

- Press Shift and drag left to right on the timeline to surround the transitions you want to trim.

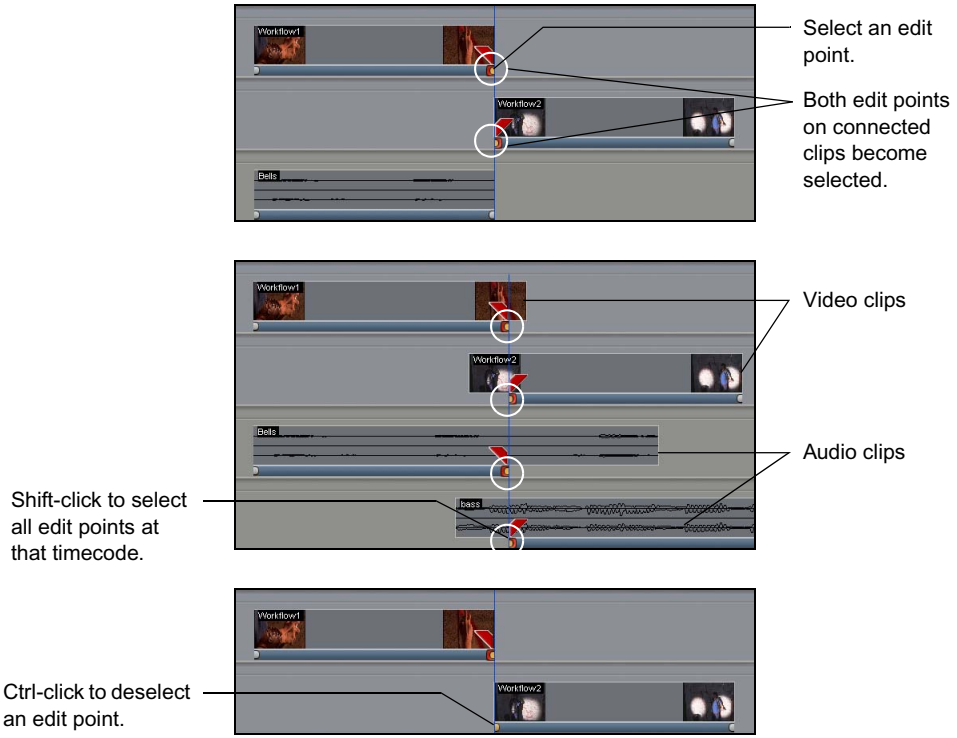
  This method is useful when you need to select multiple transitions staggered across parallel tracks (overlap cuts) for simultaneous trimming.

- Press Shift and click an edit point.

  All other edit points at the same timecode are selected regardless of the clip type.



- Press Ctrl and click an edit point to select or deselect the edit point or trim handles for single-roll trimming.



To deselect all edit points:

- Click another location on the timeline.

To select the sides of a transition to trim, do one of the following:

- In Trim mode, click the Outgoing (A-side) or Incoming (B-side) frame.

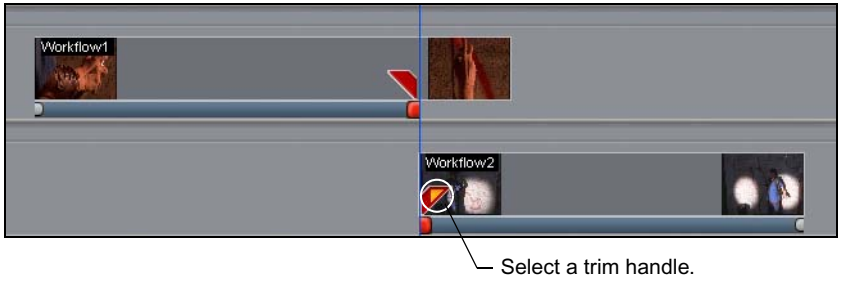
  A red border surrounds the incoming and outgoing frames to indicate which clip will be trimmed.

- In Trim mode, click between the outgoing (A-side) or incoming (B-side) frame to select both sides of a transition.

  A red border surrounds both the incoming and outgoing frames.

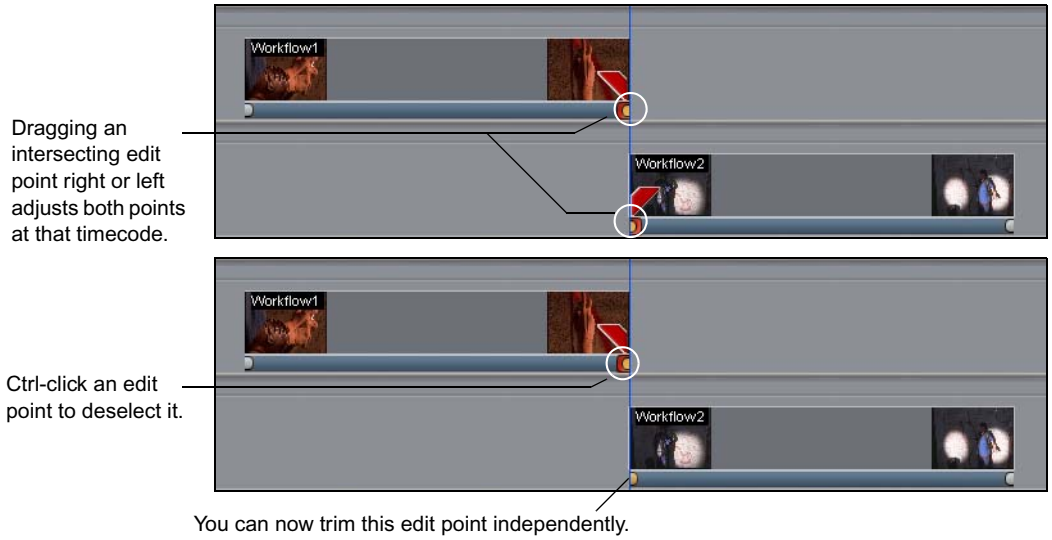
- Click the trim handles to select or deselect side A, side B, or both.

  The selected trim handle turns yellow and a red border surrounds the incoming and outgoing frames to indicate which clip will be trimmed.



Breaking and Relinking Edit Points

When an edit point is selected, all other edit points at that timecode are also selected. You can break edit points to independently trim clips. Since Avid DS Nitris preserves all edit points between clips in a sequence, you cannot break an edit point by dragging edit points apart. To break edit points, you must use the Break Links command on the NLE Tools toolbar. Linked edit points are highlighted in yellow.



To break an edit point:

- Select the edit points of contiguous clips, and do one of the following:
  - Press Ctrl and deselect the edit point that you do not want to adjust. The deselected edit point is no longer highlighted.
  - From the toolbar, click **Editing** > **Break Links**.

  You can now trim the clips independently of each other.

To relink edit points at the same timecode:

1. Select an unlinked edit point.
2. (Optional) Press Ctrl and click another edit point (of the same clip type) at the same timecode.

   Both edit points are highlighted.
3. From the toolbar, click **Editing** > **Link Edits**.

   Linked edit points are highlighted with yellow.

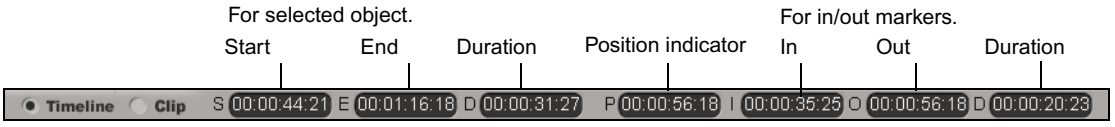
Performing a Basic Trim

With transitions and trim sides selected, you can perform a basic trim by doing any of the following:

- In the Trim mode, use the **Trim** buttons to trim forwards or backwards by one or ten-frame increments—see "Understanding Trim Mode" on page 814.
- Use the J-K-L keys to trim forwards or backwards in the sequence—see "Trimming On-the-Fly" on page 831.
- Use the keyboard or numeric keypad to:
  - Move the transition a specific number of frames, type a plus sign (+) or minus sign (–) after you type the number of frames (from 1 to 99) that you want to move forward or backward. Then, press Enter.
  - If the number of frames is larger than 99, type a period (.) before you type the number of frames. For example, to enter 100 frames, type .100 and press Enter. The transition moves 3 seconds and 10 frames.
  - Move the transition to an exact point in the timecode, type a timecode number larger than 99, including frames. For example, type 102 to enter 1 second and 2 frames (1:02).

When typing a timecode value, you can skip fields by typing a dot (.). For example, type 12..22 for timecode 12:00:00:22.

  - In Trim mode, to move the transition a specific number or frames, type the number of frames in the **Frame Offset Counter** box.
- Select an edit point, a trim-in handle, or a trim-out handle, and adjust the values in the timecode boxes on the status bar. This edits frames at the selected point more accurately.



- Drag the trim-in or trim-out handles left or right to change the incoming or outgoing frames of a clip. This does not change the recording timecode (unless in Ripple mode)—see "Trimming with the Trim Handles" on page 825.
- Drag the edit handle left or right to change the start or end time at which a clip is recorded. This also changes the incoming or outgoing frame. When trimming with the edit handles, it does not matter if Ripple mode is on or off—see "Trimming the Edit Point" on page 823.

If you want to trim synchronized audio and video clips, you must simultaneously select multiple edit points. For more information, see "Selecting Trim Sides" on page 818.

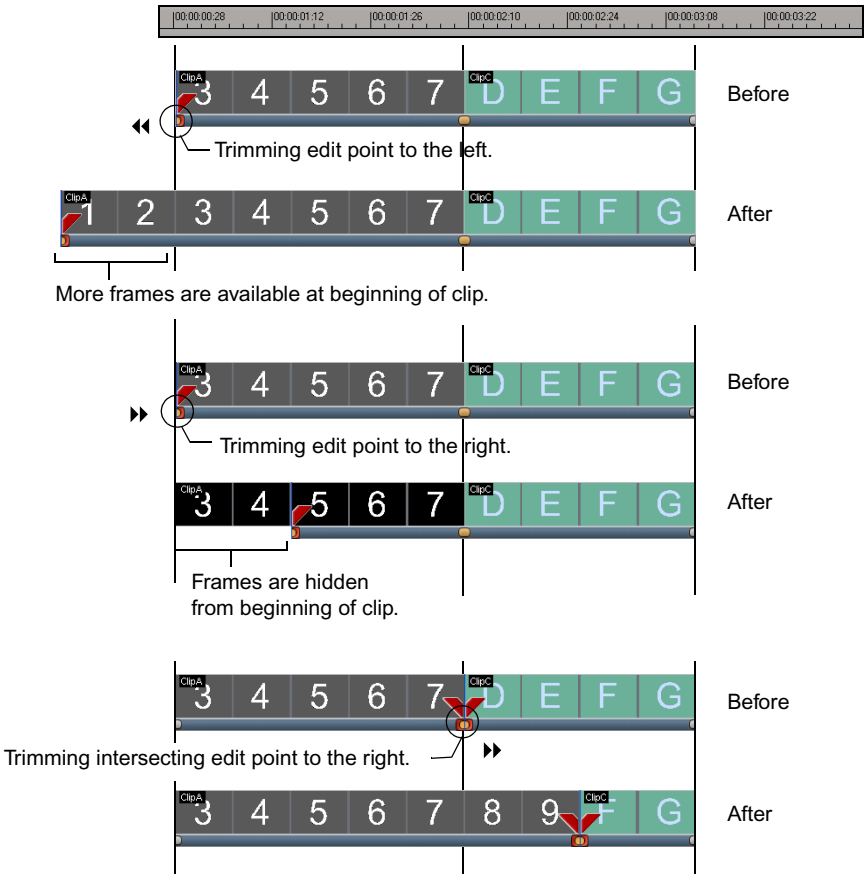
As you trim, all selected transitions in the timeline move in unison. The Frame Offset counters display the frame count backward or forward for one or both trim sides, and the Trim viewer displays the new incoming or outgoing frames.

Trimming the Edit Point

When you move the edit handle at an edit point, you are changing the start or end recording time for the clip. This also changes the incoming or outgoing frame.

When trimming with the edit handles, it does not matter if Ripple mode is on or off.

The following illustration shows the different ways of trimming an edit point:



Edit points can only be dragged as far as there is available material on the clip.

To trim an edit point on a clip:

1. Select an edit point on a clip.

   The clip's edit handles are displayed.

2. Drag the edit point left or right.

   Depending on the direction in which you drag the clip, more frames are made available or hidden.

To trim edit points between clips:

1. Select an edit point between two clips.

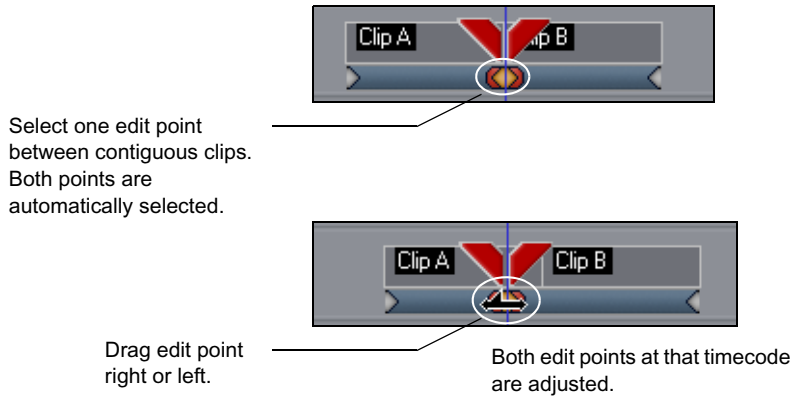
   The edit handles on both clips are displayed.

2. Drag the edit point left or right.

   As you move the edit point, it reveals more frames on one clip and hides frames on the other.

You can also adjust an edit point more precisely by selecting it and entering a value in the S (start) or E (end) timecode boxes on the status bar.

Adjusting the in-point and out-point on clips

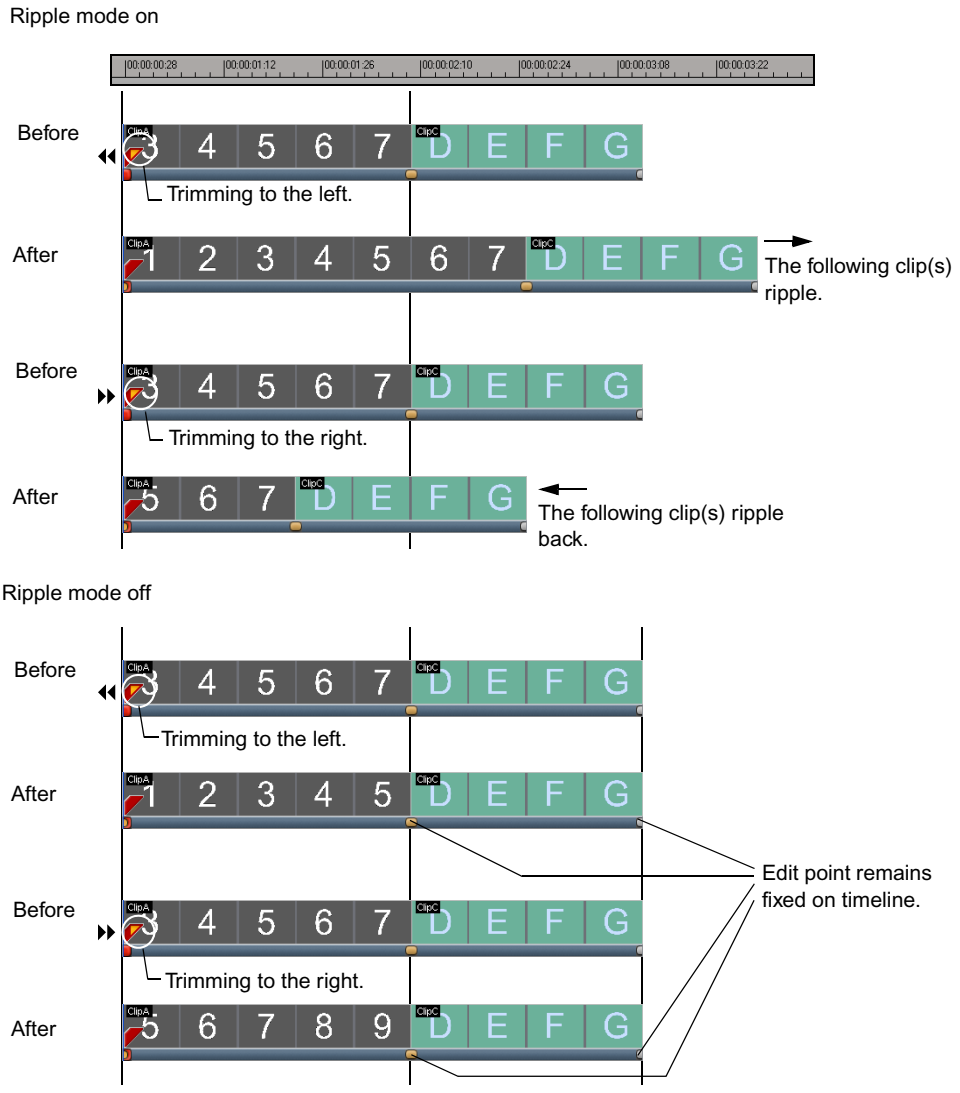


Trimming with the Trim Handles

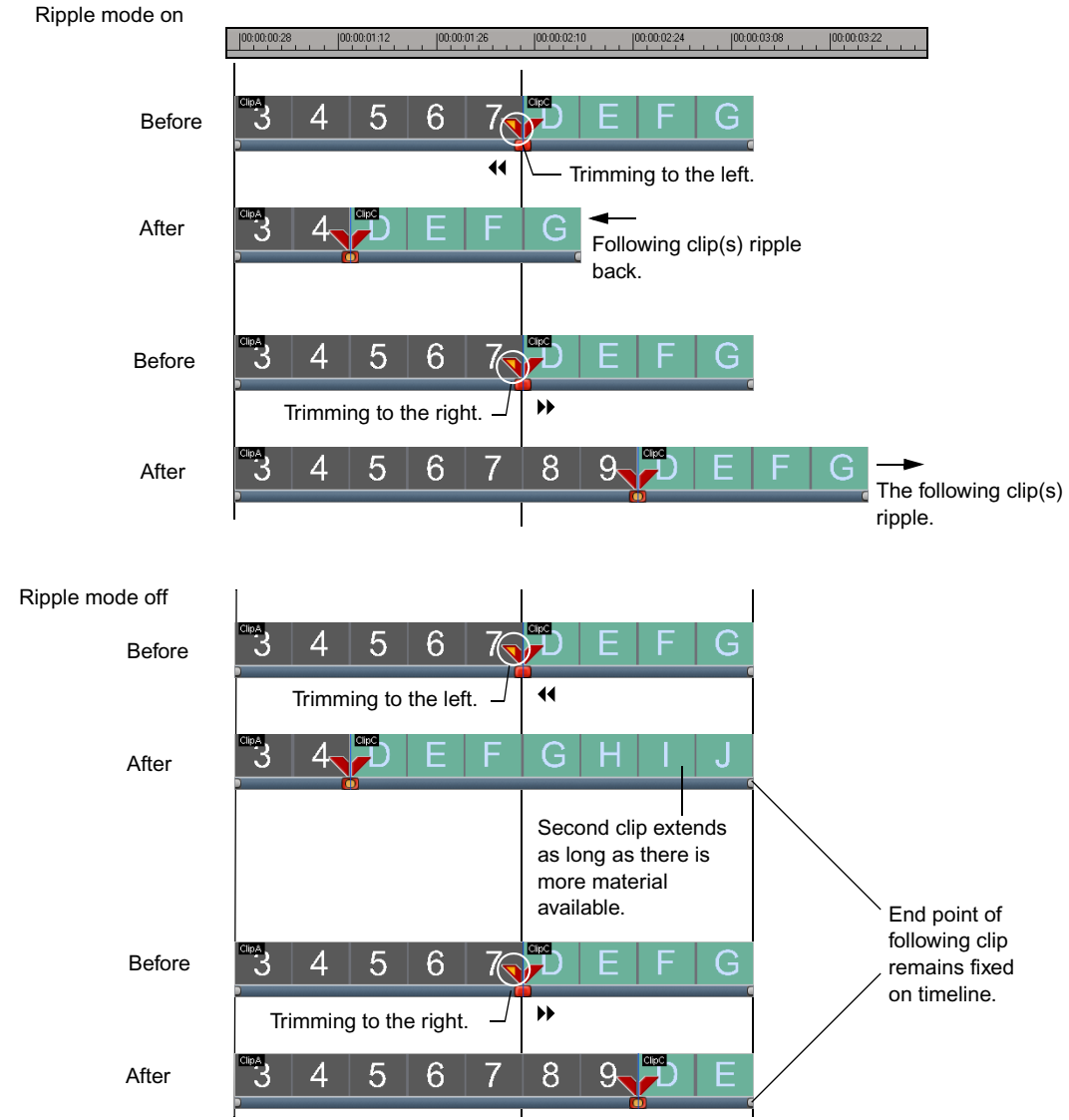
The trim handles on a clip are used to change the incoming or outgoing frames of a clip. This does not change the recording timecode. When you move the trim-in handle of a clip, you change the incoming frame on a clip. Similarly, if you move the trim-out handle of a clip, you are changing its outgoing frame.

When R*ipple* mode is activated, trimming clips gives you different results than when it is deactivated. The following illustrations show how clips are affected when you trim them with and without the Ripple mode. The first scenario illustrates what happens when you trim an in-point.

Trimming an in-point



Trimming an out-point



To adjust the trim handles:

1. (Optional) Click the **Ripple** button in the timeline controls. If necessary, click the **Track Ripple** button for the individual tracks on which you want the clips to ripple.

You can only ripple individual audio and video tracks.

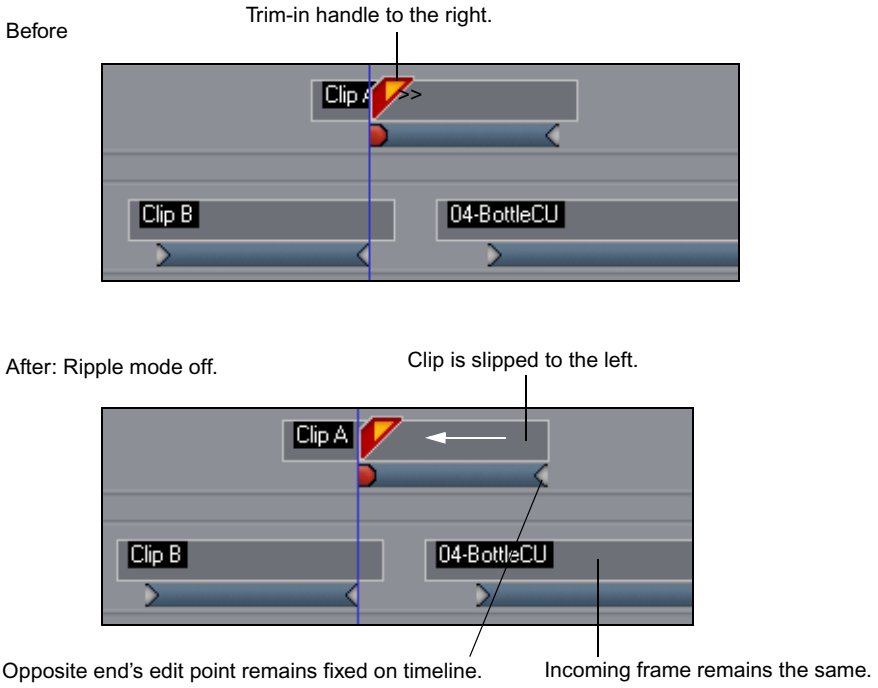
2. Select the edit point on the clip that you want to trim.

   The clip's trim handles are displayed just above the edit point.

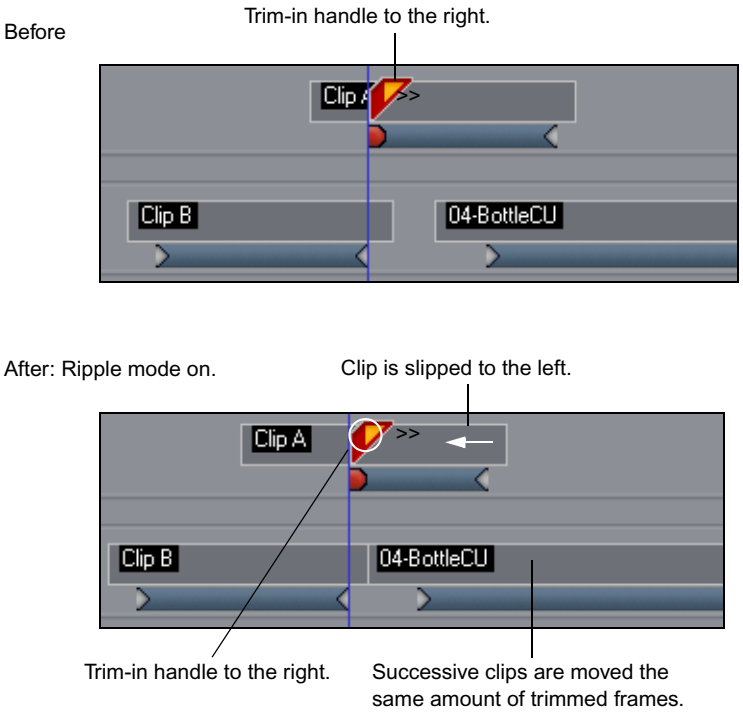
3. Drag the trim handle to the right or left. The trim handle can only be moved as far as there is extra material available on the clip.

The following example shows the results of trimming a clip when you're in Ripple mode and when you're not. The clips are placed on multiple tracks, so that you can see the unused material on the clips.

Trim-in handle when not in Ripple mode.

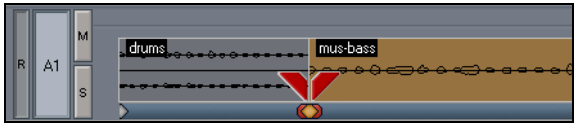


Trim-in handle in Ripple mode



Trimming Audio Clips

Using the trim handles to trim audio clips lets you hear the clips as you scrub over them. For example, in the following illustration, if you move the trim-in handle of the Drums clip, you'll hear that clip being played. If however, you move the trim-out handle of the Bass clip, that's the clip you'll hear.



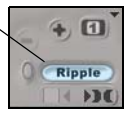
Backtiming

Backtiming is a way of trimming a clip's out-point without changing its activeness or position. Instead of overwriting or being overwritten by the following clip, the selected clip is slipped along its unused material.

When trimming backtime edits, it does not matter if Ripple mode is on or off. Backtime edits are performed as if Ripple mode is off.

To perform a backtime edit on a clip:

Main Ripple button



1. Make sure that the main **Ripple** button is deselected.
2. Select the out-point that you want to edit.
3. Press E and drag the out-point trim handle right or left.

   The clip is slipped along its unused material while maintaining its activeness and position. The previous and next clips in the sequence are not affected.

Snapping Edit Points

If you need to quickly fix a bad edit, instead of selecting the previous or next edit point and dragging it to the position indicator, you can locate the correct frame and then snap the edit point to that frame. Effects applied to the clip are also trimmed.

To snap an edit point to the position indicator:

1. Move the position indicator to the desired position.

   The P timecode box indicates the timecode of the position indicator.
2. From the toolbar, click **Editing** and select one of the following:
   - **Snap In** to move the in-point to the new timecode.
   - **Snap Out** to move the out-point.

   The selected frame becomes the new in or out-point.

You can also use the Snap In and Snap Out commands to trim synced clips (for example clips with audio and video content) as long as the clips are the same length. You should have enough unused material available to perform this operation. For more information see "Revealing Unused Material on Clips" on page 768.

Trimming On-the-Fly

In Trim mode, you can use the J-K-L keys on the keyboard to play outgoing or incoming material and mark trim points. For convenience, this method isolates the trim controls to just three keys.

To trim on-the-fly:

1. Click either the outgoing (A-side) or incoming (B-side) frame to play in real time during the trim.
2. Select one or more transitions for single-roller or dual-roller trimming.
3. Use the J-K-L keys to step (jog), play, or shuttle through the footage at varying speeds:
   - Hold down the K key while pressing the J or L key to step slowly backwards or forwards through the footage. When you find the frame where you want to relocate the transition, release the K key to complete the trim.
   - Press the J or L key once to play at normal speed, or press more than once to shuttle at higher speeds. When you see the frame where you want to relocate the transition, press the K key to complete the trim—see "Varying the Playback Speed" on page 750.

If you press the spacebar while trimming with the J-K-L keys, the position indicator moves to the current location. No trim is performed.

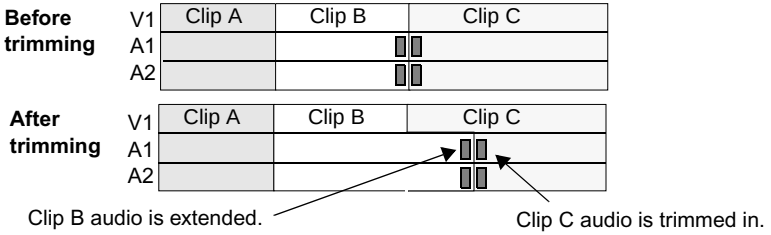
The Trim viewers and the timeline are updated to reflect the trim.

When trimming with the J-K-L keys, you cannot completely trim away a clip. The Avid DS Nitris system always leaves one frame. To remove the remaining frame, see "Performing a Basic Trim" on page 822.

Creating Overlap Edits

You can use an overlap edit to smooth a transition by giving the illusion that the audio or video is shared between two separate but adjacent clips. Perform a dual-roller trim to create overlap edits.

Audio overlap example

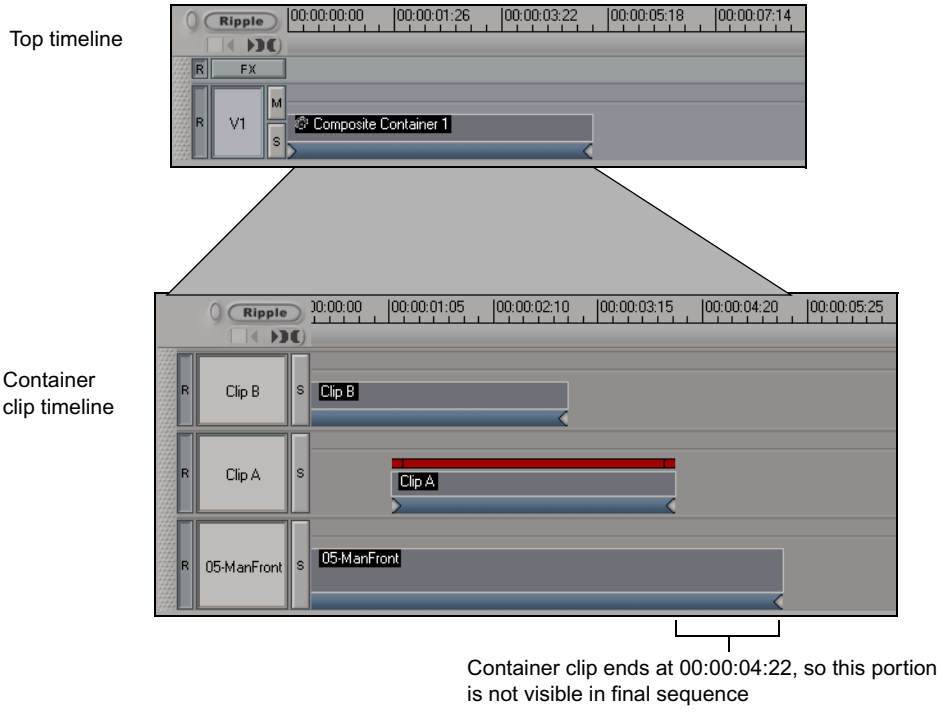


To create an overlap edit:

1. Perform a straight-cut edit between two clips, including audio and video tracks:
   - If the timing of the video edit is crucial, mark edit points according to the video.
   - If the timing of the audio transition is crucial, mark edit points according to the audio.
2. Perform a dual-roller trim (edit point trim) on either the video track or the audio track, but not on both:
   - If the video transition occurs at the correct place, but you want the audio from one clip to linger into the other (or the reverse), trim the audio tracks accordingly.
   - If the audio transition occurs at the correct place, but you want the video to transition either before or after the audio cut, trim the video track accordingly.

Trimming Container Clips

You can trim a container clip just as you would trim any other clip on the timeline. You can drag the in-point out to the start of the material (that is, the in-point of the first clip in the container clip). The out-point of a container clip can be dragged to infinity. When you trim a container clip, it does not affect the length of the clips contained within it. If the clip in the container clip is longer than the container clip itself, the extra material is not visible in the final sequence.

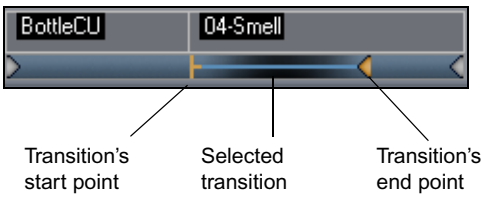


Trimming Transition Effects

Transitions are displayed as part of the activeness bar. When you select a transition, it is highlighted in red. You can adjust the properties of the transition by right-clicking on this area and opening its property editor.

The edit point between two clips indicates a transition from one clip to another. You can trim this edit point to change the timecodes at which the transition takes place.

You can also edit transitions by entering values in the timecode boxes on the status bar.



To change the duration of a transition effect:

1. Select the edit point of the transition effect.
2. Enter the new length for the transition in one of the following places:
   - The Transition Duration timecode box in Trim mode.
   - The D (duration) timecode box on the status bar.

To change the position of the transition effect:

1. In Trim mode, select the transition effect.
2. Right-click the **Transition Alignment** button and select one of the following:

Command	Button	Description
Transition Start		Starts the transition at the edit point.
Transition Center		Centers the transition on the edit point.
Transition End		Ends the transition at the edit point.

In the Source and Record view, you can also change the position of a transition effect by manually moving the edit point.

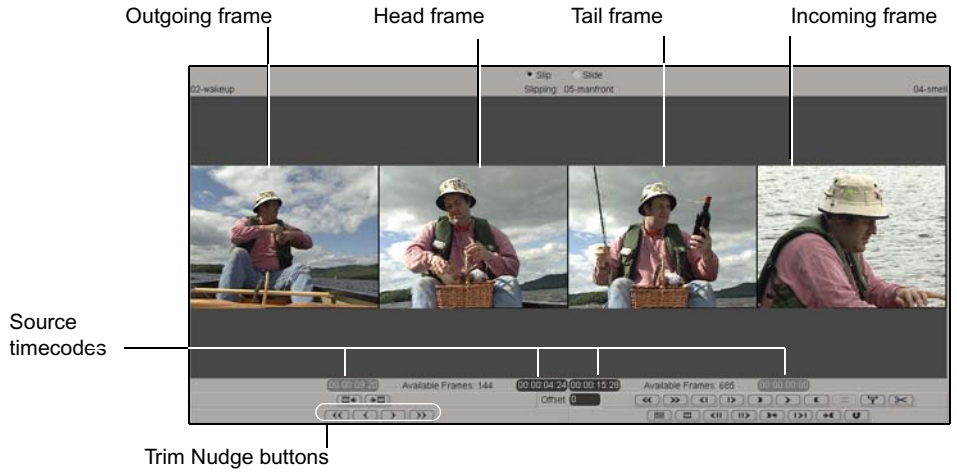
To trim the transition area, see "Selecting and Breaking Edit Points" on page 818.

Understanding Slipping or Sliding Clips

In addition to fine-tuning your edits by trimming clips, you can also slip the contents of a clip, or slide the clip to a different location in the sequence. Slipping and sliding clips do not affect the overall duration of the sequence or the sync relationships between multiple tracks.

The Slip/Slide mode lets you precisely manipulate a clip's incoming and outgoing frames on a frame-by-frame basis. This mode also shows the incoming and/or outgoing frames of the previous and next clip (if any). You can slip or slide a clip by entering new in and out timecodes, or by using the trim nudge buttons to move the frames incrementally. After slipping or sliding a clip in the Slip/Slide mode, you can play the results in the viewer.

Slip/Slide Mode



For detailed information on the Slip/Slide controls, click the **Help** button.

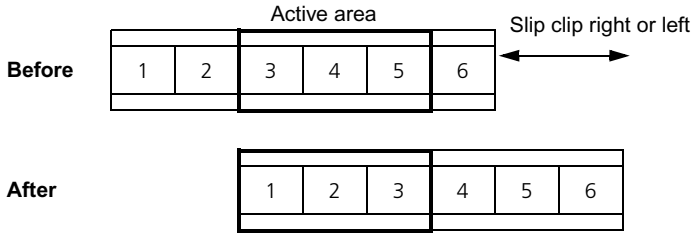
The Slip/Slide mode shows the frames in the selected clip and any clips to which it is connected. The Head frame and Tail frame show the start and end frames of the selected clip. If there are any clips before or after the selected clip, they're displayed in the Incoming frame or Outgoing frame.

In the special case where the Slip/Slide mode is used for manipulating audio clips within an audio container, the Trim Nudge buttons (<, <<, >, and >>) will affect the clip in units of time defined by the ruler's display (milliseconds, samples, drop frame, or non-drop frame).

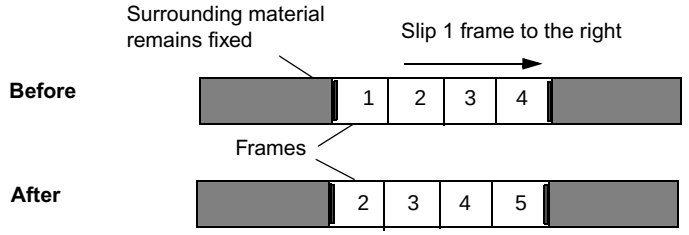
Slipping Clips

Slipping refers to moving the contents of a clip while its edit points remain fixed. Imagine looking through a train window as the landscape slides by. The size of the window always remains the same, but the view keeps changing.

Slipping a clip does not change the position or duration of the active area of a clip. You slip a clip when you are sure about the duration of a clip, but need to change the incoming frame. When you slip a clip, the edit points do not move, so any transitions that have been applied are maintained. However, the transition must be reprocessed.



The frames that precede and follow the clip you are slipping are not effected.



The active area in the illustration shows the active section of a clip. If you slip the clip, new frames appear in the active area. Any clips that precede or follow the slipped clip are not affected.

When slipping clips, the selected clip must have extra material at the head or tail of the clip.

There are two ways of slipping clips in the Slip/Slide mode:

- Use the Nudge Right 1 Frame (>), Nudge Right 10 Frame (>>), Nudge Left 1 Frame (<), and Nudge Right 10 Frame (<<) buttons to move the selected clip's content forward or backward. The activeness of the selected clip does not move, nor are the previous or next clips affected.

  These buttons appear dimmed when there are no more frames available for slipping.

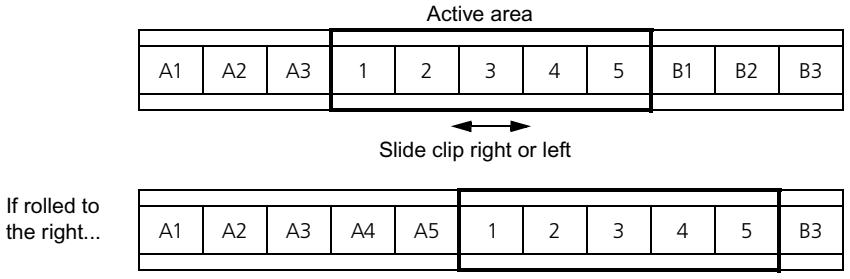
- Enter values in the Offset text box to move the edit point forward or backward. A positive number moves the clip's content forward, and a negative number moves it backward.

As you edit clips in the Slip/Slide mode, the timeline also updates to reflect the new edit points.

Sliding Clips

Slide refers to moving a clip to change its location on the timeline, while retaining its duration and active frames. Sliding a clip moves it along the timeline with its activeness. As you slide a clip, it trims the activeness of the previous and next clip. You can only slide the clip as far as there is available material on the adjoining clips.

For example, you would slide a clip when your shot has the correct action sequence but needs to be synced with its corresponding audio track. To do this, slide the clip along the timeline until it aligns with its audio clip.



There are two ways of sliding clips in the Slip/Slide mode.

- Use the Nudge Right 1 Frame (>), Nudge Right 10 Frame (>>), Nudge Left 1 Frame (<), and Nudge Right 10 Frame (<<) buttons to move the selected clip with its activeness forward or backward, and trim frames off the previous and next clips.

  These buttons appear dimmed when there are no more frames available for sliding.
- Enter values in the Offset text box to move the edit point forward or backward. A positive number moves the edit point forward, and a negative number moves it backward.

Entering Slip/Slide Mode

The Slip/Slide mode is based on clip selection. You must first select a clip on the timeline to see the incoming and outgoing frames in the Slip/Slide mode.

To manually access the Slip/Slide mode:

1. From the taskbar, click the **Editing** button.

2. From the timeline navigation bar, click the **Selection Mode** button to select it.
3. Select a clip from the timeline.

4. From the timeline navigation bar, click the **Trim Mode** button.

   The four-frame Slip/Slide mode replaces the Source/Record viewers.

To automatically access the Slip/Slide mode when you select a clip:

1. From the taskbar, click the **Editing** button.
2. Right-click the **Trim Mode** button and select **Switch for Clip**.
3. Right-click the **Trim Mode** button again and select **Autoswitch**.

   When you select a clip in the timeline, the Slip/Slide mode is displayed. Deselect Switch for Clip to access the Slip/Slide mode manually.

To exit Slip/Slide mode:

- From the timeline navigation bar, click the **Source/Record view** button.

Performing a Slip or Slide Trim

In Slip/Slide mode, you can slip the contents of a clip or slide the clip to a different location in the sequence.

To slip or slide a clip:

1. On the timeline, select the clip that you want to slip or slide.

You can slip audio and video clips together by sync-locking them. For more information, see "Maintaining Sync While Trimming" on page 842.

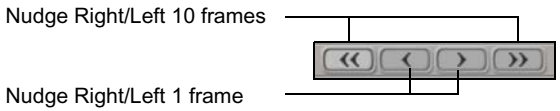
2. Access Slip/Slide mode—see "Entering Slip/Slide Mode" on page 839.

   The four-frame Slip/Slide mode replaces the Source/Record view.

3. Select one of the following options from the Slip/Slide mode:
   - **Slip** to slip the selected clip
   - **Slide** to slide the selected clip

You cannot perform both slipping and sliding functions simultaneously.

4. Click the **Trim Nudge** buttons to slip or slide the clip.



You can also type the number of frames that you want to slip or slide in the Offset text boxes. A positive number moves the clip forward and a negative number moves it backward.

5. Monitor the progress of the trim by using the Slip/Slide modes, the Frame Offset counters, and the timeline.

   When you reach the end of available material while slipping a shot, the trim stops. Similarly, when you reach the next transition while sliding a shot along a track, the trim stops. A red bracket at the transition indicates the limit. After completing the initial slide, you can perform another slide in the same direction. It's useful to see how much extra material you have

by displaying the frames past the activeness bar. To do this, you must be in Display Unused Material mode—see "Revealing Unused Material on Clips" on page 768.

6. When you're finished, exit the Slip mode or Slide mode by doing one of the following:

- Deselect the clip and click the **Trim Mode** button.

- Click the **Source/Record View** button.

Reviewing a Slip or Slide Trim

After you trim an edit point in Slip/Slide mode, you can review the trim edit to verify the trim.

To review the most recent trim edit:

- Click the **Play Preview** button.

  The Avid DS Nitris system enters a playback loop. This loop begins at a pre-roll point before the transition and ends at a post-roll point, pausing briefly before beginning playback again.

Maintaining Sync While Trimming

Syncing clips is especially useful when trimming audio and video clips on multiple tracks, because the sound and accompanying images are trimmed in sync. Because single-roller (A-side or B-side) trims shorten or lengthen the duration of the track being trimmed, any relationships that exist with other tracks downstream of the trim will be thrown out of sync.

Single-roller trims allow you to trim one side of an edit point, whereas, a dual-roller trim will trim both sides of the edit point.

There are three methods that ensure you do not break sync unintentionally between two or more video and audio tracks when performing single-roller trims:

- Creating a gap on the track while trimming.
- Sync-locking clips to maintain their relative positions—see "Synchronizing Clips" on page 798.
- Rippling tracks to maintain a synchronized relationship—see "Rippling Clips" on page 793.

Because dual-roller trims do not cause sync breaks, you can only add gaps while performing single-roller trims.

Creating a Gap When Trimming

You can create a gap on either the A-side or the B-side of a transition while maintaining the overall duration of the track and sync relationships. When trimming a clip, a gap fills the duration of trimmed frames.

After you create a gap on a track, you can replace the gap with footage. For more information, see "Placing Clips on the Timeline" on page 712.

To add a gap while trimming:

1. Select the transition.
2. Hold the Alt key and drag the A-side or B-side trim handle.

   A gap fills the duration of the trim without changing the duration of sequence.

Chapter 5
Applying Image Transition Effects

This chapter describes the image transitions effects and how to apply them.

- Understanding Image Transition Effects
- Applying a Dissolve Effect to a Transition
- Applying a DVE Effect to a Transition
- Understanding the Morph Effect
- Applying a Picture-in-Picture Effect
- Applying Wipe Effects

Understanding Image Transition Effects

The image transition effects let you create transitions between clips on the same track, on different audio and video tracks, but not different background tracks. You can apply image transition effects on the timeline or to an Effects Tree. For more information, see “Applying Effects on the Timeline” on page 907. You can also create transitions between two nodes in an Effects Tree. For more information, see “Applying an Effects Tree as a Transition” in the Help.

Transitions on the timeline can be created only when there is extra material available on one of the clips.

Applying a Dissolve Effect to a Transition

The Dissolve effect lets you apply a transition between video clips in which the image from one clip gradually becomes less distinct as the image from the other clip replaces it. The Dissolve effect ensures that the alpha channel is multiplied into color channels before applying the dissolve.

You can use the Blend transition effect if you do not want the alpha channel to affect the color channels, or if you require channel masking services when dissolving.

You can apply a dissolve at the start, center, or end of the transition. You can also adjust the amount of the dissolve if you want the frames of one clip to be more apparent than the other. You can apply a dissolve as an effect for single-sided transitions at the beginning or end of a clip.

The Dissolve effect can only be applied on clips on the timeline or as a node in an Effects Tree.

Since the Dissolve effect is a real-time effect, you can view the results upon playback without having to first process the effect.

In some cases, real-time effects may require processing to ensure that no frames are skipped. For more information, see "Playing Real-Time Effects" on page 900.

First clip | Dissolve at 25% | Dissolve at 50% | Dissolve at 75% | Second clip

To apply a dissolve on the timeline:

1. On the timeline, overlap the clips that you want to work with.

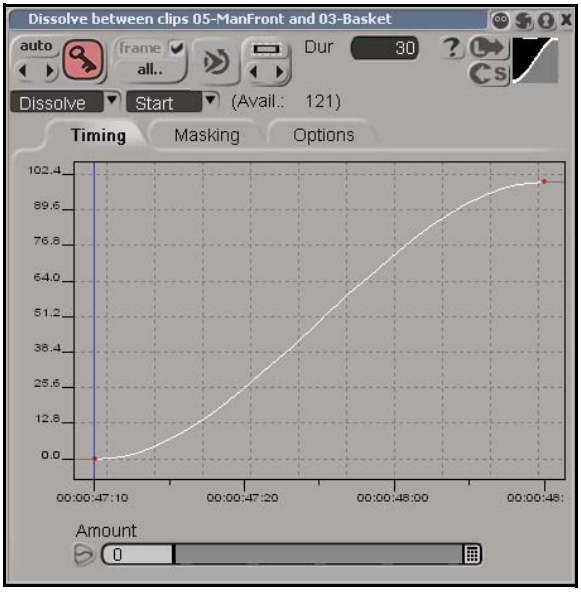
   They can be placed on the same or different tracks. Make sure the clips that receive the dissolve have extra material.

2. Select the intersecting edit point between the two clips on which you want to apply the dissolve.

The selected edit point turns red.

3. From the toolbar, click **Transition Effects** > **Dissolve/Crossfade**.

   On the timeline, the transition area is displayed as a gradient on the activeness bar.



4. On the Dissolve property editor, adjust the amount of the dissolve, and specify the start point and duration of the transition.

The start point and duration options are only available when you apply a dissolve on the timeline.

For more information, click the **Help** button.

To apply a dissolve in an Effects Tree:

1. Right-click an empty area of an Effects Tree and select **Add Effect**.

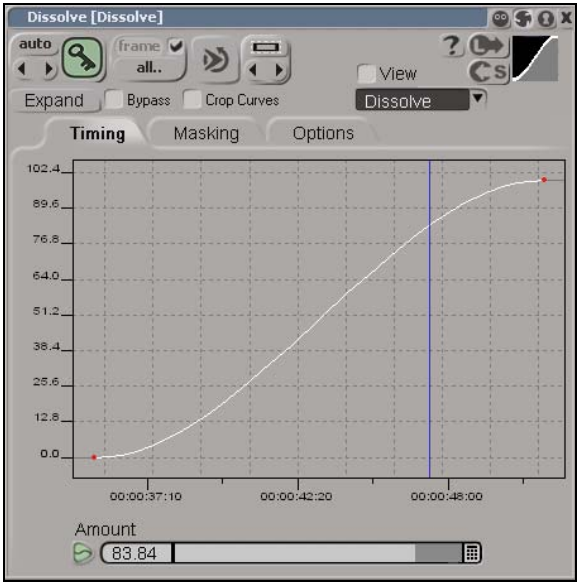
   The Load Preset dialog box is displayed.

2. From the \Image Transitions folder, select **Dissolve** and click **OK**.

   A Dissolve node is added to the Effects Tree.

3. In the Effects Tree, double-click the **Dissolve node**.

   The Dissolve property editor is displayed.



4. On the Timing property page, adjust the amount of the dissolve and the function curve to control the timing and percentage of the mix.

Applying a DVE Effect to a Transition

The DVE effect lets you transform the size, position, and shape of images in three-dimensional space. Using DVEs, you can create effects such as “push-wipes”, “fly-bys”, or picture-in-picture.

You can apply DVEs to clips, tracks, layers in the Layers view, or Effects Trees. On the timeline, you can use DVEs for transitions between two clips or for single-sided transitions at the beginning or end of a clip. For more information, see “Applying Transitions” on page 908.

To apply a DVE to a transition on the timeline:

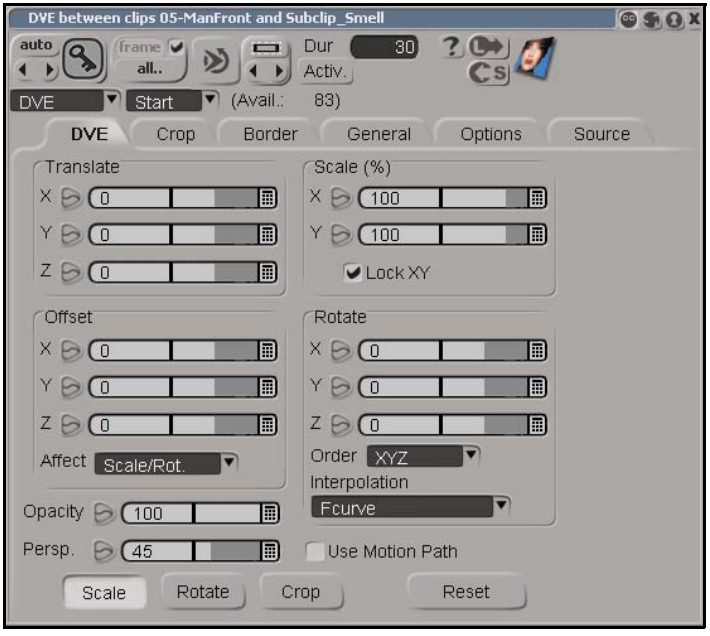
1. On the timeline, overlap the clips that you want to work with.

   They can be placed on the same or different tracks. Make sure that the clips to receive the DVE have extra material.

2. Select the intersecting edit point between the two video clips on which you want to apply the DVE.

3. From the toolbar, click **Transition Effects** > **DVE**.

   The transition area is displayed as a gradient on the activeness bar.



4. In the DVE property editor, modify the properties of the DVE to achieve the effect you want.

For more information, click the **Help** button.

To learn about applying DVEs on layers in a composite, see “Applying a DVE” in the Help.

Understanding the Morph Effect

The Morph effect lets you transform one image or a sequence of images into another over a sequence of frames. You can morph between still or moving images.

You can apply the Morph effect as a transition on the timeline or in an Effects Tree.

When morphing a still image, you can, for example, show a change between two images, such as the progressive aging of a girl into a woman or the transformation of a woman into a man.

Outgoing image with morph applied to face.

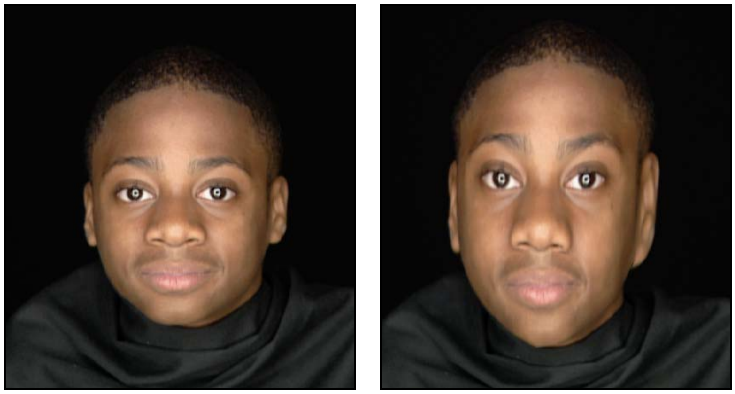
Morph with 50% shape interpolation, 50% transparency.

Incoming image with morph applied to face.

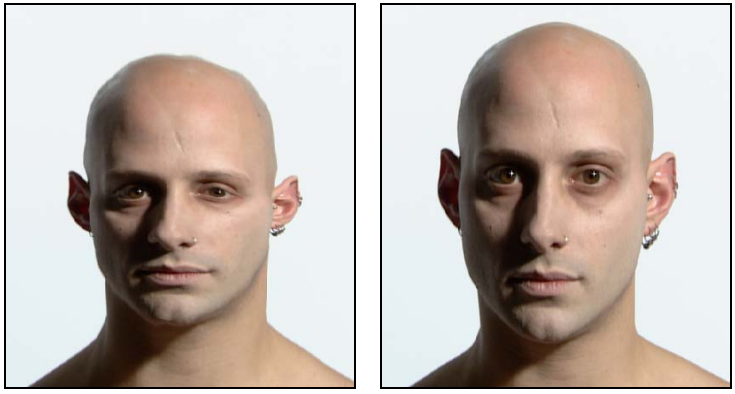
When morphing a moving image, you can show a change between two sequences of images, such as a walking boy turning into a walking man.

The Morph effect is comprised of a warp effect on an incoming image, a warp effect on an outgoing image, and a dissolve between them. For more information, see “Warp Effect” of the Help.

The outgoing image is warped from its original shape to the shape of the incoming image. The incoming image is warped in the opposite direction, going from the shape of the outgoing image to its original shape. Manipulating the transparency value lets you control the dissolve between the two images.



The Source shape morphs from the original image to a distorted image resembling the shape of the target.



The target shape morphs in the opposite direction, from distorted image, resembling the shape of the source to the original target image.

The basic workflow for creating a morph:

1. Select the images to morph together.
2. Create source and target shapes that describe the morph transformation.
3. Join the shapes and adjust the correspondence between them.
4. Track the shapes or adjust the shape positions over time with keyframes, if necessary.
5. Set the rendering options.
6. Process the morph.

Applying a Morph Transition Effect

You apply the Morph transition effect in the same way as a simple dissolve or wipe. In an Effects Tree, you apply it like any other effect between two inputs. For more information, see “Working with the Effects Tree” in the Help.

To create a morph transition between clips:

1. On the timeline, overlap the clips on which you want to apply the Morph effect. They can be placed on the same or different tracks. Make sure the clips that receive the effect have extra material.
2. Select the edit point between the two video clips.

   The selected edit point turns red.
3. From the toolbar, click **Transition Effects** > **Dissolve/Crossfade** or **Wipe**.

   The Dissolve or Wipe property editor is displayed, and the transition area is displayed as a gradient on the activeness bar.

4. In the Wipe or Dissolve property editor, click the **Load Preset** button.

   The Load Preset dialog box is displayed.
5. From the \Image Transitions folder, select the Morph effect.

   The Morph property page is displayed.

For more information, click the **Help** button.

Creating Shapes

Shapes are Bézier curves that outline the parts of your image that you want to morph. The Morph effect uses these shapes as a guide to transition from one to the other. Shapes can be open-ended or closed. They can stand alone or be joined to another shape.

The Morph Effect has four shape creation tools, available from the Shapes property page:

Freehand

Ellipse

Polyline

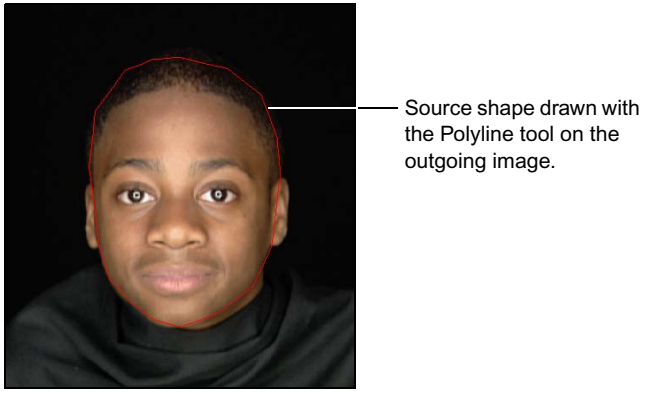
Rectangle

To create a source and destination shape:

1. Double-click the transition area between the two clips to open the Morph property editor.
2. On the Shapes property page, select the **Source** option from the Output box.

   The outgoing image is displayed in the viewer.
3. From the Shape Creation box, select a drawing tool to create the source shape.
4. Create a rough shape around the object that you want to warp.

   The source shape is displayed in red.



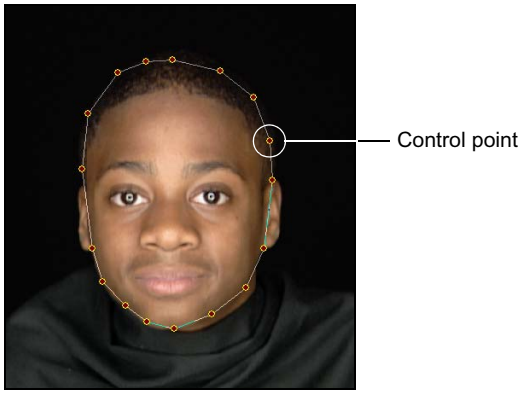
You can zoom and pan in the viewer to frame the portion of the image you want to trace.

5. From the Editing Tools box, click the **Edit Shape** tool.

   Control points along the source shape are displayed.

If you copy open shapes from the Morph effect into a keyer or Matte effect, the shapes will automatically be closed.

6. Drag the control points so that your shape outlines the part of the image you want to morph.



To add an additional control point, hold down the A key and click the line on which you want the control point to appear.

If the source image is moving between frames, you should rotoscope or animate the source shape over the length of the transition. For more information, see "Creating Animation" on page 963.

7. From the Output box, select the **Destination** option.

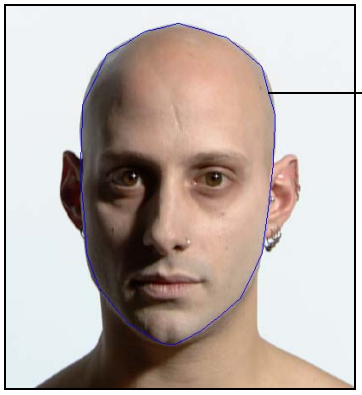
   The incoming image is displayed in the viewer.

8. From the Shape Creation box, select a shape tool to create the target shape.

When you draw the shapes on the destination image, be sure to draw them in the same direction and order in which you created them on the source image. For example, if you started drawing the shape on the source image from the top and to the right, and also draw the shape on the destination image from the top and to the right. This will avoid unwanted deformations in the morphed image. However, if you want to create a deformation, you can create the shape on the destination image differently.

9. Create a shape on the destination image representing the target shape or the final image into which the source image will morph.

   The target shape is displayed in blue.



To close a shape created with the polyline tool, press Ctrl and click.

10. Use the following tools from the Transformations box to manipulate your shape:

Select		Rotate	
Scale		Skew	

11. From the Editing Tools box, click the **Edit Shape** tool.

    Control points along the target shape are displayed.

12. Drag the control points to modify the shape.

If the target image is moving between frames, you can track the target shape over the length of the transition. For more information, see "Tracking Morphed Shapes" on page 861.

13. On the Shapes property page, select the **Apply** option.

    The Morph effect is applied to the clips.

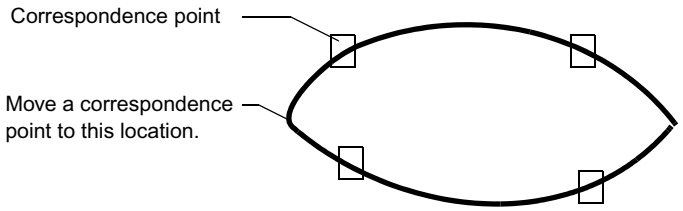
For more information, click the **Help** button.

Joining Shapes

After you have created your shapes, you can join them together to create a relationship between the beginning shape of the source image and the ending shape of the target image. The Morph effect automatically interpolates between the two shapes over the length of the transition.

You can only join open-ended shapes with other open-ended shapes and closed-ended shapes with other closed-ended shapes.

When the two shapes are joined, you can match corresponding features on the two shapes. Each shape has four correspondence points that describe the location of key positions on a shape. You can place these points at key locations on a shape, such as where the Bézier curve changes direction.



Correspondence points have some restrictions:

- There must be at least four correspondence points per shape.
- Shapes intended to be joined must have the same number of correspondence points.
- Correspondence points on the ends of open-ended shapes cannot be moved or deleted.
- Correspondence points cannot cross over each other. There is a limit as to how close they are allowed.

To join the source and target shapes:

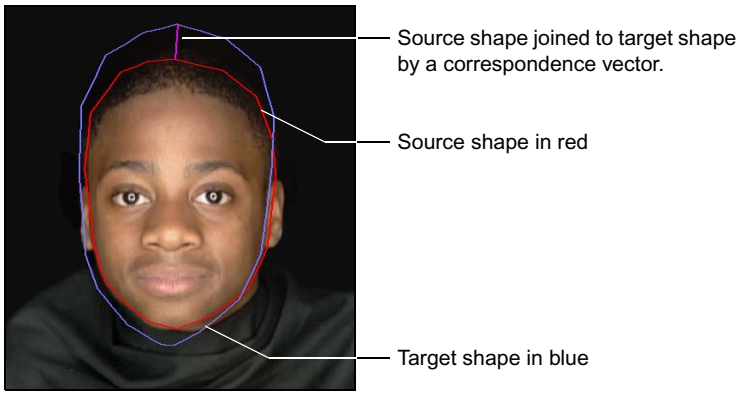
1. From the Output box, select the **Mix** option.

   Both images and shapes appear in the viewer.

2. From the Transformations box, click the **Select** button and select the source shape (red line).

3. From the Editing Tools box, click **Join**, and drag the source shape towards the target shape.

   A blue line is displayed as you drag the pointer from the source shape to the target shape. When the pointer touches the target shape, the two shapes momentarily turn yellow and are joined together by a correspondence vector.



*To break the join between two shapes, click **Join** in the Editing Tools box and click one of the shapes. A dialog box is displayed asking you if you want to break the join, click OK.*

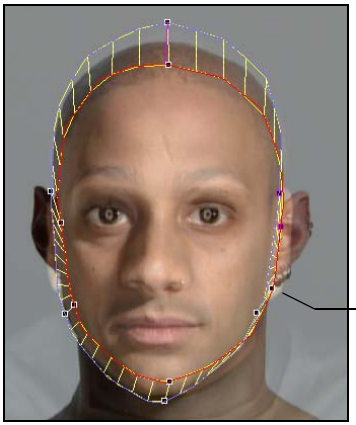
4. From the Editing Tools box, select the **Correspondence** option.

   The source and target shapes are highlighted in yellow. Each shape contains four correspondence points. The correspondence points on each shape are connected with correspondence vectors.

5. Move the correspondence points on the source shape to key locations on the curve, such as where the curve changes directions.

6. Match the correspondence points of the target shape with those of the source shape.

   When you're morphing between similar objects, such as between two faces, you should move the correspondence points to try and match up key features on the source image with those on the target.



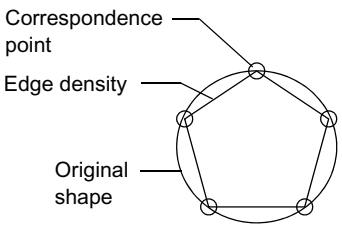
Move the correspondence points so that key features on the source image match those of the target image. In this case, the features of the face (eyes, nose, and mouth).

To add additional correspondence points, press A and click the shape on which you want the point to appear. To delete correspondence points, select a point, and press Delete.

To increase the precision of the shape during processing:

- Increase the Density value.

The number of correspondent vectors (yellow lines) between correspondence points increases as the Density value increases.



Shape with edge density of 5.

During processing, Avid DS Nitris does not use the actual shapes you created, but uses the edge densities of the shapes to create an approximation of the shapes. That is, a shape's edge density defines how closely the form used in the morphing process matches the shape that is drawn.

Shapes are subdivided between correspondence points based on the shape's edge density. The higher the edge density, the more edges, and the more closely the shape is depicted by its edges. Thus, the more precise the transition between shapes.

When you change the edge density, be careful not to use too high a density setting. There is no exact formula for selecting the best density for any given shape. Choose one that approximates the shape enough, but not too much. Setting a shape's density unnecessarily high slows down processing time.

For more information, click the **Help** button.

Creating Barrier Shapes

You may find that the area outside your source or target shapes also gets distorted when your image is morphed. To get rid of this unwanted distortion, you can create a barrier shape for either the source or target shapes, which prevents the distortion from spreading to the rest of the image.

To create a barrier shape:

1. Create a third shape encompassing both the source and target shapes.

   The barrier shape is displayed in red or blue depending on which option you choose.

2. From the Editing Tools box, click the **Copy and Join** button.

   A copy of the shape is created directly on top of its original. By doing so, you are creating a static warp where the source and target shapes are the same. This static warp acts as a barrier, which prevents the original warp from spreading to other areas of the image.

Warping the Morph

After you create the morph between the two images, you can also apply a warp to the output of the morph. For example, you have two faces that morph from one to the other, and you want to change the length of the nose of both images. To do so, you can warp the noses from within the Morph effect.

To warp the output of the morph:

1. On the Shapes property page, select the **Mix** option.

   Both the incoming and outgoing images are displayed in the viewer.

2. Select the **Apply** option.
3. Draw the source and target shapes, and then join them.

   The warp source and target shapes are displayed in green.
4. Draw a barrier shape for the areas you don't want to affect.

   The shape is animated using the same interpolation as the Morph effect. If you want to use a different interpolation than the Morph effect, you can apply individual warp effects to each clip before applying the Morph effect.

For more information, click the **Help** button.

Animating Shapes

You can animate the interpolation between shapes or the shapes themselves when the objects are moving over time. For still images, the Morph effect automatically interpolates between the source and target shapes. You can add keyframes and modify the way the source morphs into the target. For moving images, you can animate the shapes frame-by-frame to match the movement in the clip. For more information, see "Creating Animation" on page 963.

To animate the interpolation between shapes:

1. Double-click the transition area between the clips to open the Morph property editor.
2. Scrub slowly through the transition on the timeline.

   By default, the object moves from the source shape to the target shape in a linear manner, moving from 0% shape interpolation and 0% transparency at the beginning of the transition to 100% shape interpolation and 100% transparency at the end of the transition.
3. Place the position indicator anywhere within the transition area.
4. On the Shapes property page, modify the **Shape Interpolation Amount**.

   The amount of morphing changes as you modify the Shape Interpolation Amount.

5. Click the **Animation Key** button.

   A keyframe is added at that point in time, changing how the object moves from source to target shape.
6. Move the position indicator to another area of the clip, modify the Shape Interpolation Amount, and add another keyframe.

7. Animate the **Transparency** value in the same way as the Shape Interpolation Amount.
8. Select **View** > **Single-Instance Views** > **Animation Editor**.

   The animation editor is displayed.
9. Tweak the shape and transparency animation by modifying, adding, and deleting keyframes to both the Blend Shapes and Opacity function curves.

You can also modify the slope of the function curves from Linear to either Spline or Constant interpolation.

For more information, click the **Help** button.

Tracking Morphed Shapes

If your image moves or scales, you'll need to set up trackers to track the source, destination, and barrier shapes. To correctly track the shapes, you need to increase the trackers' target area and search regions, and ensure that the **Always Update** option is selected.

To track the shapes:

1. On the Shapes property page, select either **Source** or **Destination** in the Output box, depending on the image you want to track.

2. From the Transformations box, click the **Select Shape** button.
3. In the viewer, drag around all the shapes to select them.

   Since all the shapes, including the source, destination, and two barrier shapes move and scale, you need to track all the shapes.
4. On the Tracker property page, click **Show**.

   All four trackers are displayed.
5. Use the period (.) or comma (,) keys on the keyboard to cycle through each tracker and set the following for each tracker:
   - Increase the size of the search and target areas to consider the change in the size of the area on which the shape is drawn.
   - Click the **Always Update** button.

     Since the area of the image defined by the shapes scale and move, the tracker targets must be updated in each frame.

This option makes the trackers compare the pixel pattern of the current frame to that of the previous frame, rather than the first frame at the tracking start point (or the set target). Use this option when the target area changes in appearance as the clip is played. This can cause cumulative tracking errors. When you select this option, the Set Target option becomes deselected and vice versa.

- Set the **Confidence** level.

  If you find that the tracker stops frequently, try lowering the confidence level.

If you are tracking field-based material, you can select the Track in Fields option. A keyframe will be set on each tracked field. The target used is the contents of the target region in field 1 of the target frame. If you track in fields, you do not need to first deinterlace, track, and then reinterlace the clip.

6. Click the **Track Forward** (or **Track Backward**) button.
7. On the Shapes property page, deselect the **Show Shapes** option to see the final result without the drawn shapes and tracker boxes.
8. In the Output box, select **Mix** to see the resulting morph.

For more information, click the **Help** button

Setting the Rendering Options

The final look of your morph depends largely on the render settings you choose. You can go from a quick low resolution test to a high resolution image for final output by simply changing a few of the settings in the Render property page.

The render settings let you choose how the edges of your shapes are defined, how precise the transition is between shapes, how pixels are interpolated, and how soft or jagged the edges are.

To set the rendering options:

1. In the Morph property editor, select the **Render** tab.
2. For the **Edge Mode** setting, select one of the following options:

- **Fixed** to pin the border of the image in place. Be careful when using this option because it can cause distortion and shearing if your warped object moves or grows in size.
- **Sliding** to move the image's borders with the rest of the warped object. This option produces less distortion.

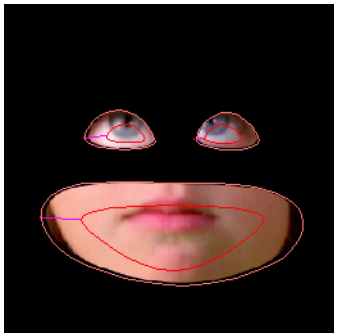
Image before being warped or stretched.

Image stretched upwards and processed with Edge mode set to Fixed. Notice how the borders of the image do not move, resulting in a distorted image.

Image stretched upwards and processed with Edge Mode set to Sliding. Notice how the borders of the image do not stay in place, but compensate for the stretched image, resulting in a less distorted image.

- **Cookie Cutter** to keep everything that falls within your closed shapes and remove everything else. This option is also useful for creating mattes. You cannot use this option with open-ended shapes.

To close a shape, press Ctrl and click the viewer.



With Edge Mode set to Cookie Cutter, the area outlined by the closed shapes is cut out. The rest of the image is ignored and set to black.

A matte is automatically created based on the areas that were cut out.

3. For the Warp Precision setting, which affects transition quality, select one of the following:
   - **Linear** to do a quick test. This option processes the morph at the lowest quality, but is very fast and uses the least amount of memory.
   - **Low or Medium** if you need slightly higher quality than the Linear option. The quality of the images improve with only slightly slower processing times.
   - **High** if you need a high-quality image that is processed in a reasonable amount of time. This option produces professional quality images.
   - **Very High or Super High** if you require an extremely smooth transition between shapes. Both of these options provide extremely high-quality images, but take considerable amounts of time to process.

4. For the Interpolation setting, which effects pixel quality, select one of the following:
   - **None** if you want quick results. This option results in marginal pixel image quality, but the processing time is very quick.
   - **Bilinear** if you need reasonable image quality within a reasonable processing time. This is the default setting.
   - **Bicubic** if you go from a small source shape to a larger target shape. This option results in high pixel-quality, which is required when the morph enlarges parts of the image.
   - **Scaling** if your target shape is scaled down by more than 50%. This option results in the least amount of degradation, but also takes the longest time to process.
5. Select the **Antialiasing** option if you want the edges of the shapes or regions to be smooth. If you deselect this option, the edges are jagged.
6. Select the **Soft Edges** option if you want the pixels around the edges of the shapes to blend gradually with the pixels of the surrounding image.
7. Process the effect and then play it back on the timeline to view the results.

For more information, click the **Help** button.

Applying a Picture-in-Picture Effect

The Picture-in-Picture effect lets you transform the size and position of an image in three-dimensional space. You can apply the Picture-in-Picture effect to clips on the timeline or video tracks, or to an Effects Tree.

On the timeline, you can use the Picture-in-Picture effect for transitions between two clips or for single-sided transitions at the beginning or end of a clip. For more information, see "Creating One-Sided Transitions" on page 909.

Since the Picture-in-Picture effect is a real-time effect, you can view the results upon playback without having to first process the effect. For more information, see "Playing Real-Time Effects" on page 900.

To apply a Picture-in-Picture effect as a transition:

1. On the timeline, overlap the clips that you want to work with.

   They can be placed on the same or different tracks. Make sure that the clips to receive the effect have extra material.

2. Select the intersecting edit point between the two video clips on which you want to apply the Picture-in-Picture effect.

3. From the toolbar, click **Transition Effects** > **Dissolve/Crossfade**.

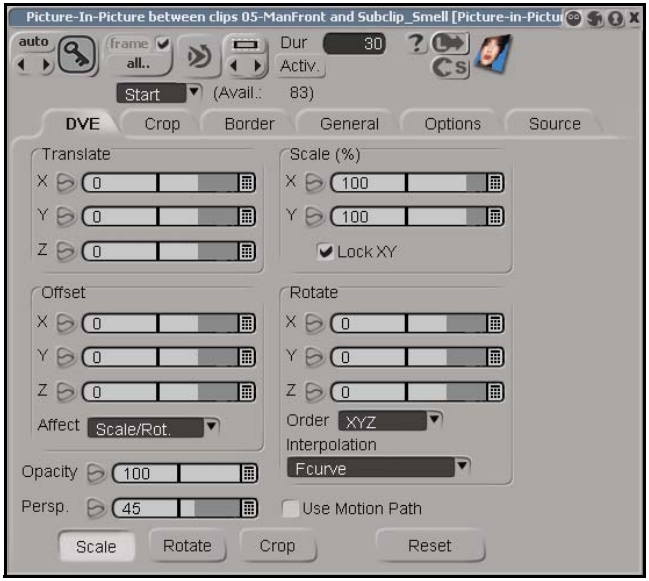
   The Dissolve property editor is displayed, and the transition area is displayed as a gradient on the activeness bar.

4. In the Dissolve property editor, click the **Load Preset** button.

   The Load Preset dialog box is displayed.

5. From the \Image Transitions folder, select the **Picture-in-Picture** effect and click **OK**.

   The transition area is displayed as a gradient on the activeness bar.



6. In the Picture-in-Picture effect property editor, modify the properties to achieve the effect you want.

When you apply the Picture-in-Picture effect as a transition or to an Effects Tree, the Source property page is also displayed, from which you can adjust the direction in which the Picture-in-Picture effect is applied and the source image's opacity level.

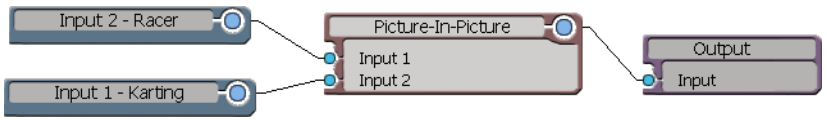
For more information, click the **Help** button.

To apply the Picture-in-Picture effect in an Effects Tree:

1. Drag a clip to the timeline and create a composite container clip from it—see "Creating a Composite Container Clip" on page 918.
2. From the Avid Explorer, drag a second clip into the Effects Tree.

   The clip is added to the timeline, but not to a layer.

3. Add the Picture-in-Picture effect to the tree, and connect the inputs as shown here:



The Input node that is connected to the Input 1 port of the Picture-in-Picture effect, in this case the Racer clip, is used as the picture for the effect.

To apply the Picture-in-Picture effect on the timeline:

1. Drag the clip to be used as the background clip to the timeline.
2. Add a video track to the timeline, above the track with the background clip.
3. Drag the clip on which you want to apply the effect to the new video track.
4. Apply the Picture-in-Picture effect to the clip on the new video track.
5. In the DVE (Picture-in-Picture) effect property editor, modify the properties of to achieve the effect you want.

For more information, click the **Help** button.

Applying Wipe Effects

The Wipe effect lets you create a transition between two overlapping clips, such that the second clip is revealed according to a specified pattern. You can also apply a border between the two clips by specifying the position, color, and edge softness.

You can apply wipes to clips, tracks, or trees. On the timeline, you can also use wipes for transitions between two clips, or for single-sided transitions at the beginning or end of a clip. For more information, see "Creating One-Sided Transitions" on page 909.

You can apply a wipe to an Effects Tree in the same way that you apply a dissolve. For more information, see "Applying a Dissolve Effect to a Transition" on page 845.

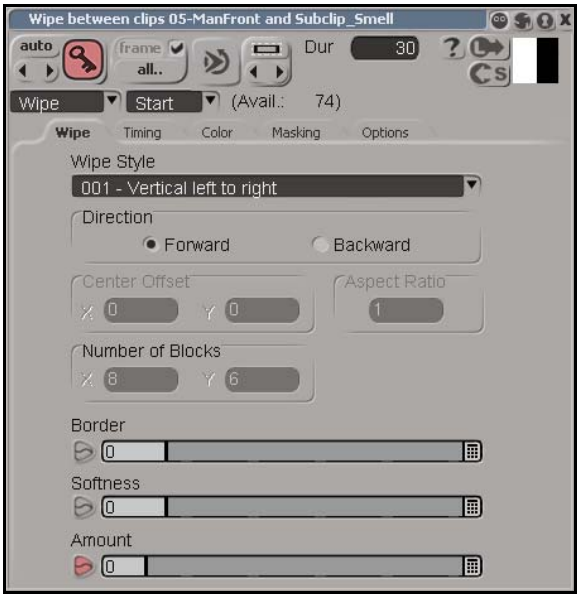
Since the Wipe effects are real-time effects, you can view the results upon playback without having to first process the effect. In some cases, real-time effects may require processing to ensure that no frames are skipped. For more information, see "Playing Real-Time Effects" on page 900.

To apply a wipe between two clips:

1. On the timeline, overlap the clips that you want to work with. They can be placed on the same or different tracks. Make sure that the clips to receive the wipe have extra material.
2. Select the intersecting edit point between the two video clips on which you want to apply the wipe.

   The selected edit point turns red.
3. From the toolbar, click **Transition Effects** > **Wipe**.

   The transition area is displayed as a gradient on the activeness bar.



4. In the Wipe property editor, adjust the amount of the wipe, and specify the start point and duration of the transition.

The start point and duration options are only available when you apply a dissolve or wipe on the timeline.

Chapter 6
Processing Effects

This chapter describes how your effects are processed in Avid DS Nitris, and how to work with projects and media:

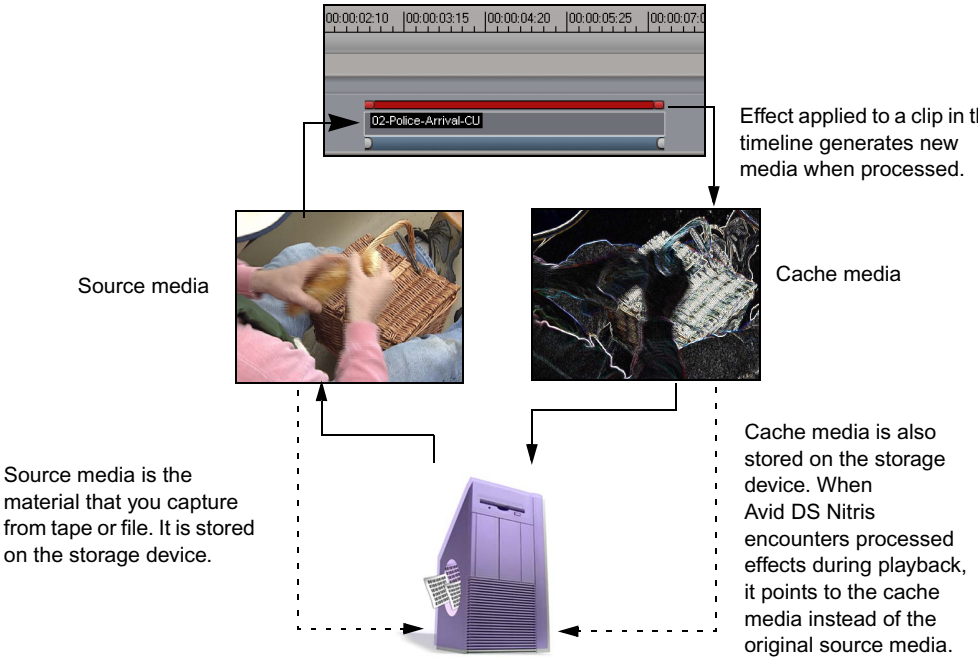
- Understanding Processing
- Workflow: Processing
- Processing Areas of the Timeline
- Processing a Single Effect
- Setting the Processing Options
- Creating Caches at Any Level
- Understanding Processing Modes
- Working with Real-Time Effects
- Remote Processing

Understanding Processing

Avid DS Nitris is built upon a powerful combination of the Nitris Digital Nonlinear Accelerator™ (DNA), which delivers hardware-guaranteed real-time performance, plus a software-based processing architecture, which computes effects using the processor of your workstation.

Processing is the creation of a final image or sequence of images after a special effect has been applied. Depending on the power of your workstation, many effects can be computed in real time, allowing you to view the results during playback. More complex effects, however, may need to be processed before the results can be viewed.

During processing, Avid DS Nitris steps through each clip frame by frame, calculating the various paint strokes, compositing layers, transitions, and other effects that you created, and writes the results to *cache* files so that your source media remains unaltered.



When you play your sequence over the processed frames, Avid DS Nitris points to this cache instead of the clips' source media. This support for non-destructive editing lets you continuously make changes and reprocess your clips without affecting your source media.

You can commit processed results to a master clip and use the cache media as source material in future sequences using the Timeline to Clip button. For more information, see "Extracting Parts of a Sequence" on page 787.

When is Processing Needed?

Processing is usually needed for video images and graphics. Some video effects do not need processing as Avid DS Nitris can compute the effects during playback. These are known as *real-time effects*.

When you apply an effect to a clip, the timeline ribbon above it changes color to indicate the processing requirements. There are three possible color states on the timeline ribbon—green, yellow or red. Once the effect is processed (and a cache is created), the color of the timeline ribbon above it is clear.

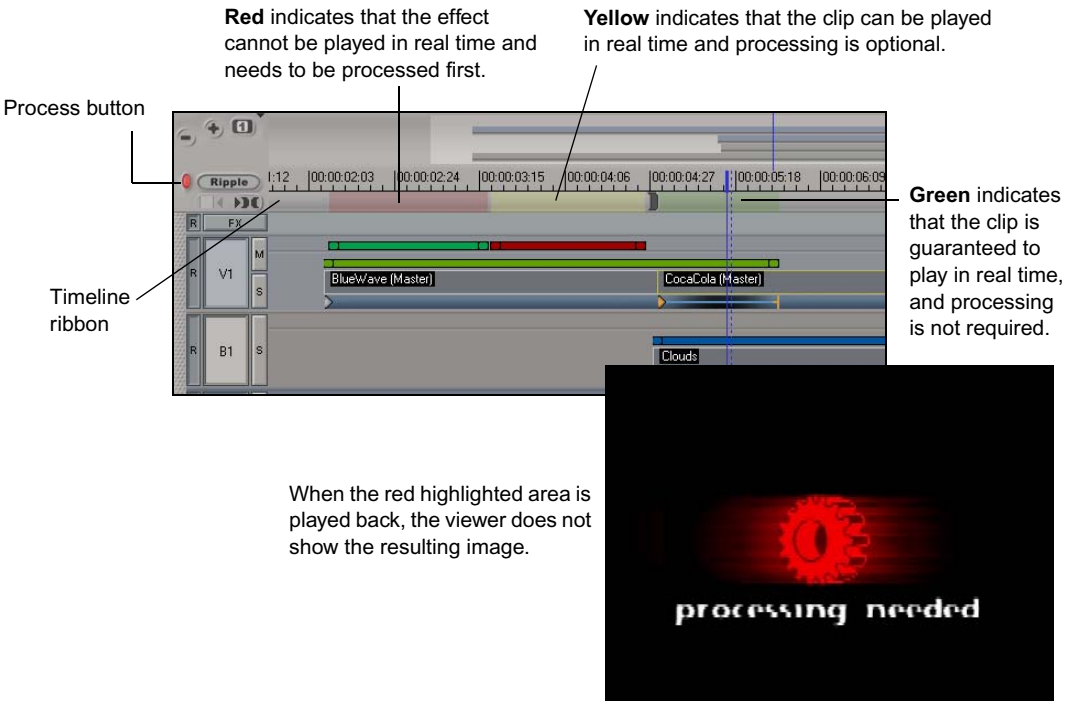
If you have the Avid DS Nitris DNA workstation, you can have real-time playback and output of real-time effects. If so, these effects will have a green color on the timeline ribbon in the area where they are applied.

If you are not using the Nitris DNA hardware, then Avid DS Nitris will process all effects using the software. If your workstation has sufficient power, many effects can be computed in real time by the software, allowing you to view the results during playback without you having to process them. These real-time effects will be indicated by a yellow color on the timeline ribbon.

A real-time effect with advanced settings, or a stack of multiple real-time effects may become too complex for your workstation to process. As a result, the calculated frame might be delivered to the video output late, so Avid DS Nitris skips to the next frame to keep in synchronization with corresponding audio clips. A red dot is displayed on the Play button when a frame can't be delivered in time. This means that the real-time effect will require processing to a cache file before the final output.

Any effects that cannot be processed in real-time by the hardware or the software will have a red color on the timeline ribbon. When you play back the areas where these effects are applied, you will see a “Processing Needed” message displayed in the viewer.

The illustration below shows the different conditions of effects on the timeline (refer to this topic in the Help to see this in full color):



The Process button also turns red or yellow to indicate that processing may be needed. During processing, Avid DS Nitris steps through each clip frame by frame, calculating the various paint strokes, compositing layers, transitions, or other effects that you created. The results of the computation are written to a cache file with the new processed media. This guarantees perfect playback and output of your sequence.

Processing can be demanding on your system resources in terms of both time and storage space. For more information on processing your effects more efficiently, see “Understanding Processing Modes” on page 893.

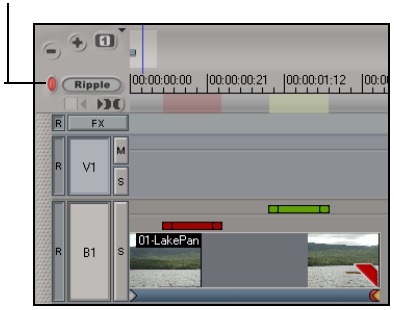
Workflow: Processing

1. On the timeline, select a region or object to process (clip, track, layer, effect, or transition bar).

or

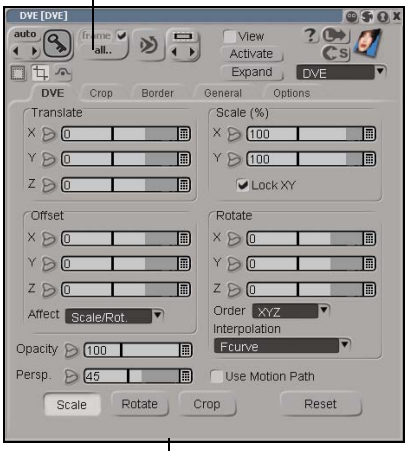
Select an applied effect and open its property editor.

2. Click the Process button.

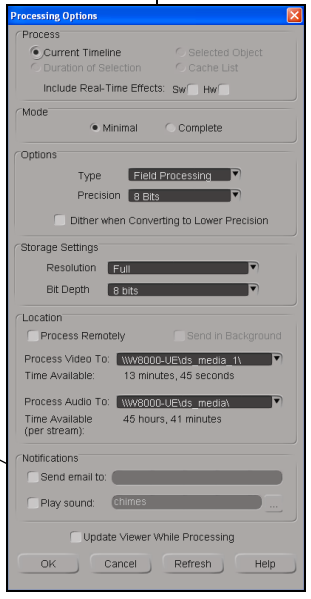


or

Click the all... button.



3. Set the processing options.



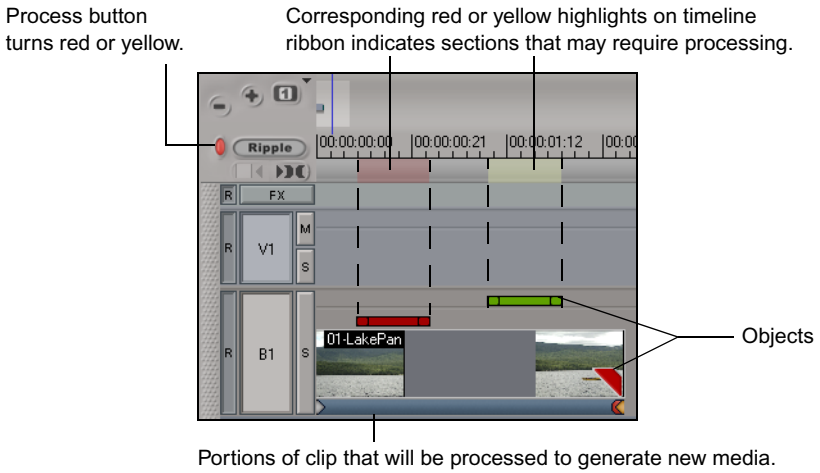
4. Process media for real-time playback.

Processing Areas of the Timeline

Processing on the timeline is based on selection. You can process a selected object or region, or all the clips on the current timeline. To work even more efficiently, you can process your more complex effects at different stages in your sequence. For example, if you have effects nested within a container clip, you can open the container and process the individual effect instead of processing the entire container clip.

The Process button turns red, yellow, or green even if the effect is nested within a container clip.

When a section of the timeline requires processing, the timeline ribbon above the effect turns red, yellow, or green. Red means that the section *must* be processed, while yellow means that processing can be handled by Avid DS Nitris during playback, but you should still process it before final output. Green indicates that the clip is guaranteed to play in real time and processing is not required. You can, however, still process these effects.



To select areas for processing:

Selection	Action
Entire sequence	On the timeline, click the Process button.
Object	Select a clip, effect bar, or transition bar and click the Process button, or • Double-click the effect or transition bar on the timeline to open the property editor. • Click the All... button.
Timespan	Highlight a region of the timeline, and click the Process button.
Cache bar	Select the cache bar and click the Process button, or Right-click the cache bar and select **Process**.

- When you click the **Process** button, the Processing Options dialog box is displayed—for further instructions, see "Setting the Processing Options" on page 882.
- After setting the appropriate options in the Processing Options dialog box, click **OK** to begin processing.

  After processing is complete, the timeline ribbon is updated to reflect the new state of the timeline.

Processing a Single Effect

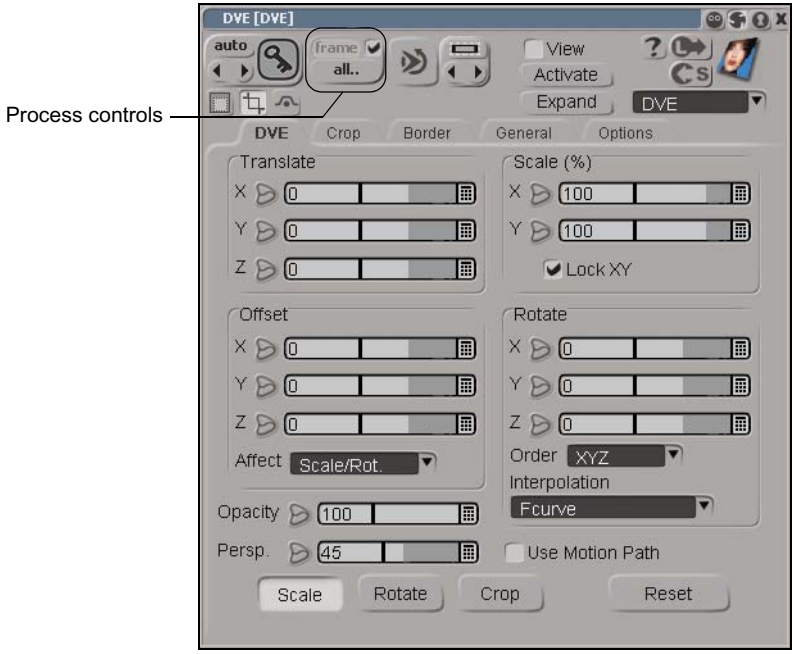
If you are experimenting with an effect, you can process directly from the property editor as you make changes to the parameters. Even within a property editor, there are many options available when processing an effect. You can process the results on a single frame, a subregion of a frame, or all the frames in the clip on which you applied the effect.

To process from a property editor:

1. Double-click on the effect or transition bar on the timeline.

For time-based and source-generated effects, right-click the clip and select Properties, and then select the effect from the menu.

The property editor of the effect opens.



2. Select one of the following:

Use this	To
	Process the current frame.
	Enable the auto-process mode. Each time you adjust a property value, the frame is automatically processed and updated in the viewer. *Results may take time to display while Avid DS Nitris processes the effects.*
	Process all frames on which this effect was applied. This option displays the Processing Options dialog box.
	Process the region selected in the viewer.

3. When you click the Process button, the Processing Options dialog box opens—see "Setting the Processing Options" on page 882 for further instructions.
4. After you set the processing options, click **OK** to begin processing.

   After processing is complete, you can play and view the results.

You can quickly view the results from an effect's property editor.

When previewing effects from within a property editor, the preview only is displayed in the viewer and not on the output monitor.

To preview the results of an effect:

- In the property editor, click the **Preview** button.

  On the timeline, loop markers are placed at the beginning and end of the effect. They include the number of pre-roll and post-roll frames that were set in the User Preferences dialog box. The selected area is played continuously between the marked region until you click the **Stop** button.

Processing a Region of a Frame

If you want to apply an effect on part of an image, you can process only the region of the frame on which the effect was applied. You can also use subregion processing to test an effect on part of the image before processing the effect on all the frames.

To process the effect on a region of the current frame:

1. In the property editor, select **Subregion**.
2. In the viewer, drag diagonally across the image to form a selection box.
3. At the top of the property editor, click the **frame** button.

   The effect is computed for that frame within the selected box.

If you are just using the Subregion option for testing, make sure you deselect it after you've seen the results. Otherwise, when you process all the frames, only the selected region will be processed.

Previewing Effects without Processing

When you place the position indicator at a specific frame, Avid DS Nitris automatically processes all effects applied at this frame. This may not happen instantly as the number and complexity of the effects may require additional computation time. When the computation is complete, however, you can see the results on one frame before processing all the rest. These results are stored temporarily on disk and are known as *interactive caches* or *memory caches*.

These results are only kept temporarily to improve your interaction time when viewing the results of effects on a frame-by-frame basis. This way, there is no need for Avid DS Nitris to recompute an effect when a frame is revisited.

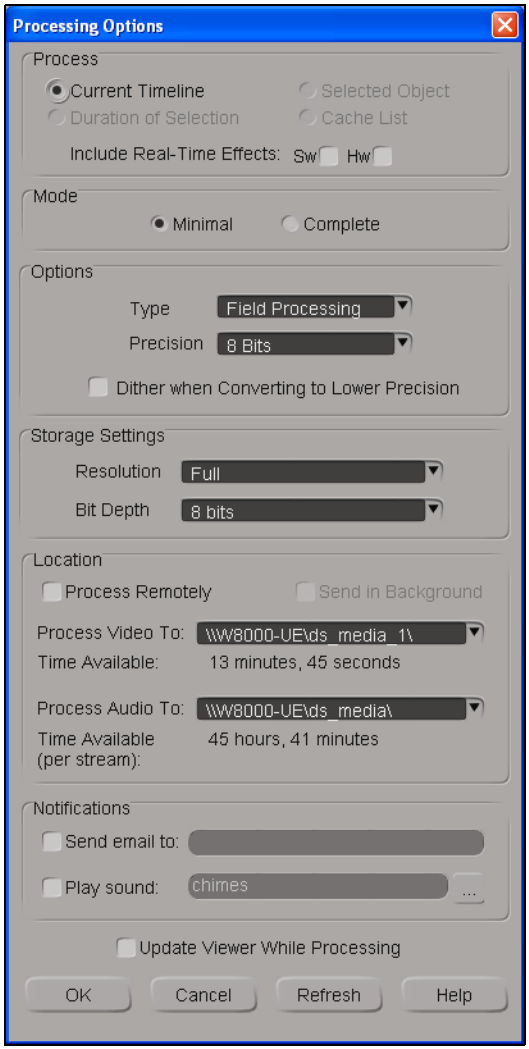
To view an effect on a series of frames:

- Hold down the Ctrl key and click **Play** on the transport controls.

  Avid DS Nitris steps through each frame, creating interactive caches for each one.

Setting the Processing Options

Depending on the complexity of your effects, it may take time and system resources to process images. You can reduce processing time significantly by choosing the options that best suit the task you're currently performing.



For descriptions of all the options in this dialog box, click the **Help** button.

To set the processing options:

1. In the Processing Options dialog box, select one of the following options:

Option	To
Current Timeline	Process a selected region on the timeline.
Duration of Selection	Process a selected region on the timeline.
Selected Object	Process just the objects that you have selected.
Cache List	Process the effects, composites, and/or transitions that have been added to the cache list.

2. Select **Include Real-time Effects** to process real-time effects that are too complex for your hardware to process, and play back in real time without skipping frames. Processing creates a cache on disk for the processed real-time effects, so that you can view them upon playback— for more information, see "Working with Real-Time Effects" on page 898.

All real-time effects are processed by Avid DS RP regardless of the Include Real-time Effects setting.

3. To make processing more efficient, select **Minimal** or **Complete**, depending on your particular scenario—for more information, see "Understanding Processing Modes" on page 893.
4. To optimize the processing quality of your video media, set the Options for **Field** or **Frame Processing**, and **Precision**—see "Understanding the Processing Settings" on page 692.

These settings can also be set specifically on an applied effect. Settings on the Option property page of the effect will take precedence—see "Setting the Processing Bit Depth" on page 692.

5. For the Storage Settings, set the **Resolution** and **Bit-Depth** at which you want to process your media.

   To decrease processing time or save on storage space, you may want to lower the resolution at which the caches are created. The lower the resolution, the faster the processing times and the less storage space used—see "Processing Media at Different Qualities" on page 885.

6. In the Location box, select **Process Remotely** if you have one or more Avid DS RP workstations in your workgroup where you can send your processing job—see "Remote Processing" on page 903.
7. Set the storage devices—**Process Video To** and **Process Audio To**, where your processed media will be stored. (These storage devices were configured when Avid DS Nitris was installed.)

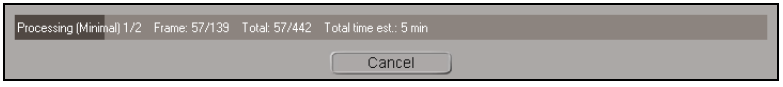
   The Time Available indicates the time remaining on the storage devices for processing and saving video and/or audio caches based on the processing options you selected.
8. To receive an e-mail notification when processing is complete, select **Send email to** and type your e-mail address in the text box.

Before you can use the e-mail Notification option, you must specify your SMTP server in the Data Management property page of the User Preferences dialog box. To receive email from a local process, you need to setup the email server on your workstation.

To receive e-mail from an RP workstation, you need to setup the e-mail server on the workstation where the DMS Broker is installed. Refer to the Avid DS Installation and Administration Guide for details on configuring the DMS Broker to send email notifications.

9. To hear a sound when video processing is complete, select **Play sound** and select an 8-bit or 16-bit .wav file.
10. Select **Update Viewer While Processing** to display the frames in the viewer and monitor as they're processed. This option has no effect on the processing time.
11. If you have sufficient space on the storage device, click **OK** to begin processing.

    A progress bar is displayed at the bottom of the desktop to show the status of the process. The progress bar shows the number of passes, frames, and the estimated time that Avid DS Nitris will take to process your selection. These passes are based on the number of container clips and the levels of processing required within the selected region.



Here's the information that is displayed on the progress bar during processing:

Information field	Description
Processing (Minimal)	The type of processing mode that was selected. You have the option of Minimal or Complete—see "Understanding Processing Modes" on page 893.
1/2	A running count of the number of passes required to process the selected area
Frame: 57/139	A running count of the number of frames to be processed for the current pass
Total: 57/442	A running count of the total number of frames to be processed
Total time est: 5 min.	The total time (min:secs) required for processing the selection

After processing is complete, you can play and view the results of the processed area.

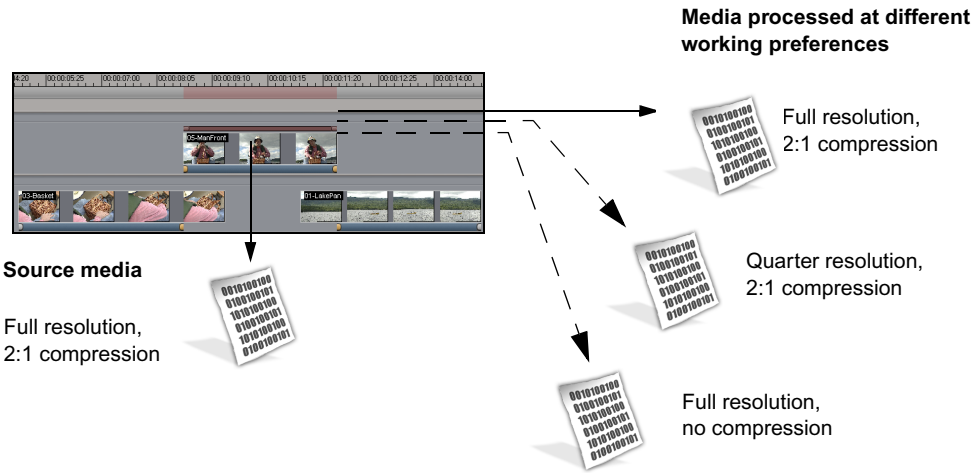
If the processing job was sent to a remote station for processing, the cache bars turn blue to indicate that they have been sent to a remote machine for processing. When the area is processed, the caches are automatically imported into the current project. The cache bar turns green and the red highlights on the timeline ribbon disappear.

If a third-party plug-in effect has not been installed on the RP workstation, then the effect will not be processed.

Processing Media at Different Qualities

Since Avid DS Nitris is resolution-independent, you can process your clips at low resolution or in compressed form during the rough cuts of your work, and then reprocess at full resolution in uncompressed form before outputting to tape. Working with high-quality media increases processing time, so initially, you should process your clips at lower resolution to obtain quicker results. When you're ready to output the final production, you can switch back to the higher quality media.

When you set your working sequences preferences to a lower resolution, the clip in the Avid Explorer (or on the timeline) references the high-quality media on disk, but produces a cache file at lower quality on your workstation. You can change your working preferences at any time to reprocess the clip at a better quality. The clip maintains pointers to all these media files, so you can view the processed media at different qualities. Media and cache files can sometimes be very large, so once you've completed your edits, you can purge the clip to clear out this redundant media. For more information, see "Purging Media" on page 1087.



Each time you change your working qualities (such as switching to a different resolution), Avid DS Nitris automatically looks for media of that quality on your disk for you to work with. When you process your effects, a new cache file is created if no cache file exists at that quality.

When you use a lower resolution for processing, your sequence preferences are automatically set to that resolution, so that you can view the results. To change the resolution of the sequence back to full, open the Sequence Preferences dialog box and set the resolution to Full.

For color correction effects, you may notice a slight shift of color between processed and unprocessed clips. To guarantee consistent output results, use a precision of 16-bit or higher.

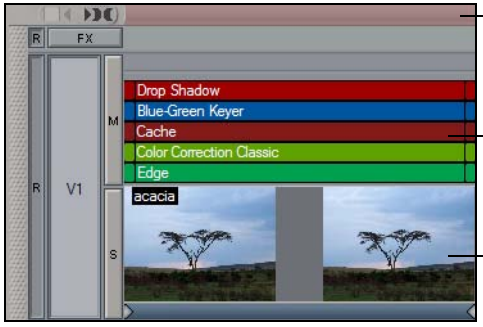
Creating Caches at Any Level

You can create caches at any points in your clip effect stack of effects hierarchy on the timeline, track, or clip. Cache bars are like effect bars; you can resize them and move them along the timeline. You can also add caches in the Effects Tree in the form of nodes.

It is best to add a cache after an effect that has a long processing time or after effects that you are sure will not be modified. This saves time as once the cache is created, you will not need to reprocess the entire stack each time a new effect is added on top of it.

The color of the cache indicates the process status or the playable status of the effects that are below it. It is the same color as the process bar on the timeline.

In this example, the Color Correction and Edge effects have not yet been process and therefore not real time playable.



Cache Bar Colors

Cache bars on the timeline and cache nodes in the Effects Tree have different colors depending on their status and whether the cache generated for the effects have been processed.

Color	Description
Red	The effect needs to be processed. Either no cache currently exists, or the effect properties were changed thus requiring the effect to be reprocessed.
Yellow	The effect is software real time playable.
Green	The effect is hardware real time playable.
Gray	A cache exists and the effects are real time playable.
Blue	The effect is currently being processed on an RP (Remote Processing) workstation. For more information, see “Remote Processing” on page 903.

Even though Avid DS Nitris may be able to play back an effect or several effects in real time, caches bars will still be yellow if the effects have not been processed. The cache bar remains yellow because complex real-time effects are not always 100% real-time playable. Once you process your real-time effects, the cache bar will turn gray, ensuring playback without any frames being skipped.

Using the Cache Bar in the Timeline

If you have a stack of effects in the timeline, you can create caches at any point by adding a cache bar. They are also useful when you want to process the result on a part of an effects stack.

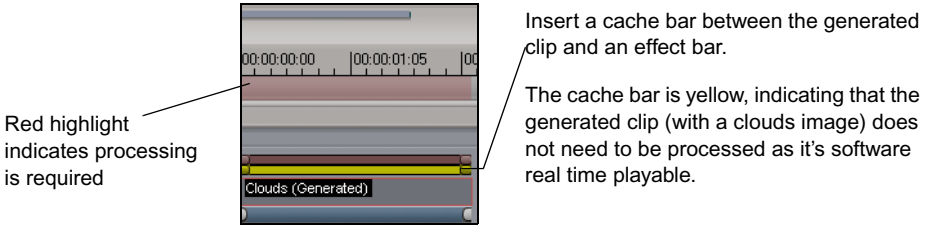
If you have more than one effect on a clip without a cache, then only one cache will be generated. However, if you add a cache between clip-based effects, instead of generating once cache for the entire clip, a cache will be generated for each effect. The cache will turn gray to indicated that the effects have been processed.

You can process the effects, composites, or transitions below the cache bar, which creates a separate cache file. You can also purge the contents of the cache bar or any redundant cache files below the cache bar. For more information, see "Purging Media" on page 1087.

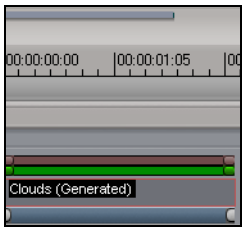
The following example uses the source generated clip to illustrate where adding cache bars on the timeline may be useful.

Example: Working with Some Source Generated Clips

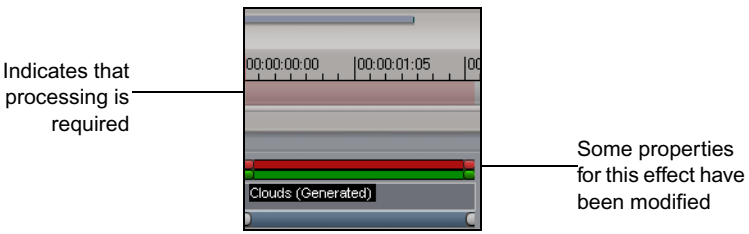
You can add a cache bar between the generated clip and the effect bar



When you process in Complete mode, the cache bar turns gray and the red area on the timeline ribbon disappears.



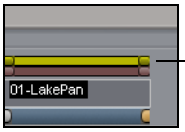
If you modify the effect's properties, the red highlight returns in the timeline ribbon, but the cache bar remains green meaning that the effect is hardware real time playable. You should process the effect with the new modifications. Alternatively, you can add a cache bar on top of the modified effect and process. This is useful when you have a stack of effects on a clip.



To apply a cache bar on the timeline:

1. Do one of the following:
   - Select a clip.
   - Select a region on a track.
   - Select a region on the timeline effect track.
2. Right-click the clip or area selected and select **Add Cache**.

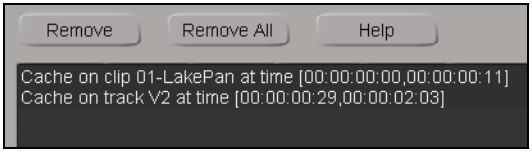
   A cache bar is created over the clip or region you selected. The cache bar is green if the time span covered by the cache bar is playable in hardware real time. It is yellow if the effect is software real time playable.



You can add a cache bar to a clip, track, or to the timeline effect track. If you want to add a cache bar to several clips, you can't multi-select the clips and then add a cache bar. You must do each one separately. For more information, see "Creating Caches at Any Level" on page 887.

3. Right-click each cache bar and select **Add to Cache List**.

   Each cache bar is added to the Cache List.



4. Click the **Process** icon.

   The Processing Options dialog box opens.

5. In the Processing Options dialog box, select the **Cache List** option to process all entries in the cache list.
6. Set the necessary options and click **OK** to begin processing.

To process a cache bar:

1. Do one of the following:
   - Select the cache bar and click the **Process** icon in the timeline controls.
   - Right-click the cache bar and select **Process**.

   The Processing Options dialog box opens.

*You can add a cache bar and process it in one step by right-clicking the selected clip or track and selecting **Add Cache and Process**.*

2. In the Process box, select **Include Real-time Effects**.

If you have real-time effects in the area covered by your cache bars, you should select this option to ensure real time playback for the entire time span covered by the cache bar. If you don't, the cache bar will remain yellow.

3. Select the appropriate settings for the other options and click **OK**.

   Avid DS Nitris processes the effects below the cache bar, which turns gray to indicate that playable media exists for the entire time span covered by the cache bar.

You can also create a clip in the Avid Explorer from the cache you created. Simply right-click the cache bar and choose Cache to Clip from the menu.

Using Cache Nodes in the Effects Tree

The Effects Tree is part of the Compositing layout. For more information, see "Using Effects Trees" in the Help.

If you have a complex Effects Tree, you may want to create caches at key points throughout the tree. By adding cache nodes, you can view the result of an effect or a combination of effects at any point in time. You can also save overall processing time. Cache nodes work like other nodes in the tree. The only difference is that the cache node does not contain any properties like other effect nodes, but is simply a marker, which indicates that a cache file exists up to that point in the tree.

Cache nodes are either yellow, green, or gray. They are yellow if any part of the hierarchy up to the node is unprocessed. They are green if a cache exists, which means that they are playable in real time and gray if they do not require processing.

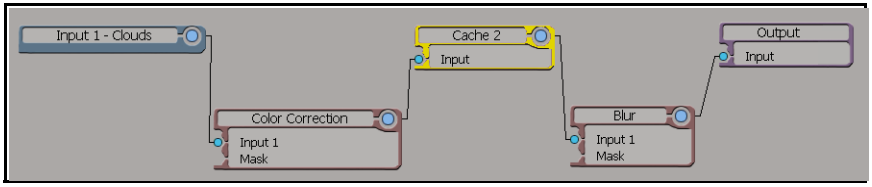
Cache nodes turn blue when they are sent to a remote machine for processing. For more information, see "Remote Processing" on page 903.

You can process the effects, composites, or transitions below the cache node, which creates a separate cache file. You can also purge the contents of the cache node or any redundant cache files below the cache node.

To apply a cache node to an effects tree:

1. Open an Effects Tree.
2. Right-click in the Effects Tree view and select **Add Cache**. and insert the cache node where you want.

   The cache node is added to the Effects Tree and inserted at the point where you want to create a cache. The cache node is yellow indicating that processing is required.

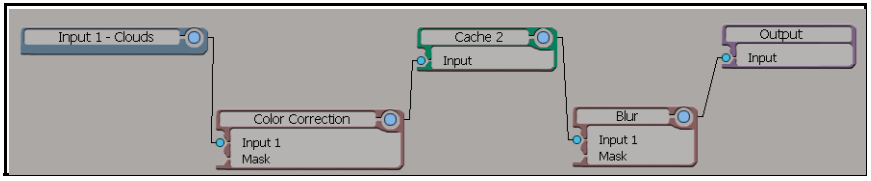


To view the results of the Effects Tree only up to the cache node, right-click the cache node and select View. The cached image is displayed in the viewer.

To process a cache node:

1. Right-click a cache node in your tree and select **Process**.
2. In the Processing Options dialog box, select the appropriate settings and click **OK**.

   Once you've processed the effect(s) up to the cache node, it turns green. This indicates that all effects before the cache are playable in real time.



***Tip**: You can also Ctrl + double-click the cache node to open the Processing Options dialog box.*

Understanding Processing Modes

There are two modes of processing in Avid DS Nitris—Minimal and Complete. In both modes, Avid DS Nitris processes effects down to the deepest level necessary for playback of the current timeline. It also only reprocesses the effects properties that have changed since the last time the clips were processed.

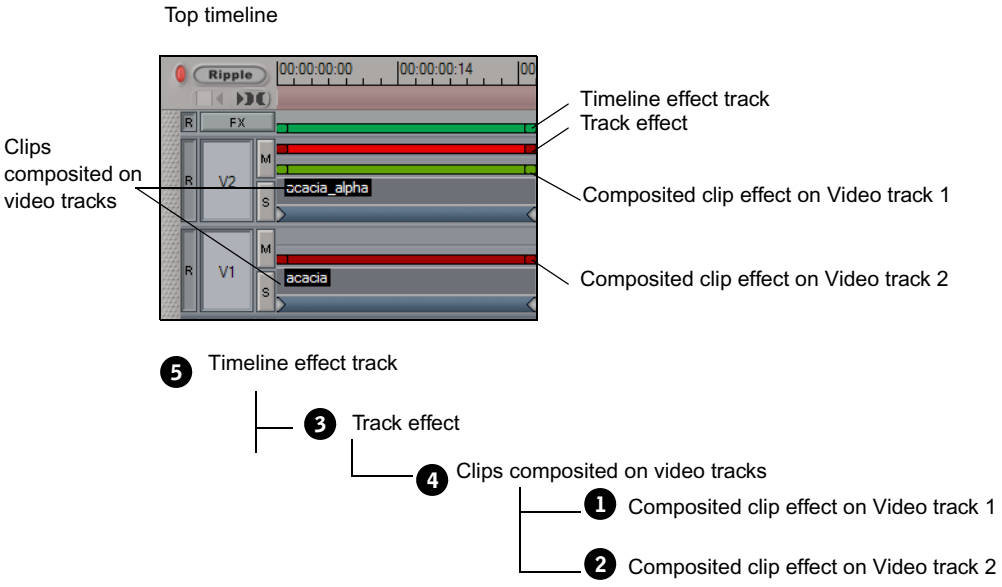
Minimal Processing

The Minimal processing mode is the most efficient when you're in the initial stages of editing. Minimal processing is faster since it processes just the effects, transitions, or layers that are necessary to ensure playback at the current level. It also creates only one cache which is saved at the level where the last effect was processed. The only drawback to this option is that if you make changes at a higher level, you must reprocess all the lower levels to regenerate the cache.

Complete Processing

The Complete processing mode processes all effects, transitions, or layers that are necessary for playback at the current level. It generates caches at each level of the timeline. Although this mode uses more disk space, subsequent processing is more efficient since it only regenerates caches for the changed effects or layers.

When processing in Complete mode, caches are created in this order: clip, track, clips composited on video track, timeline effect track. This is the order in which caches are created on the timeline:



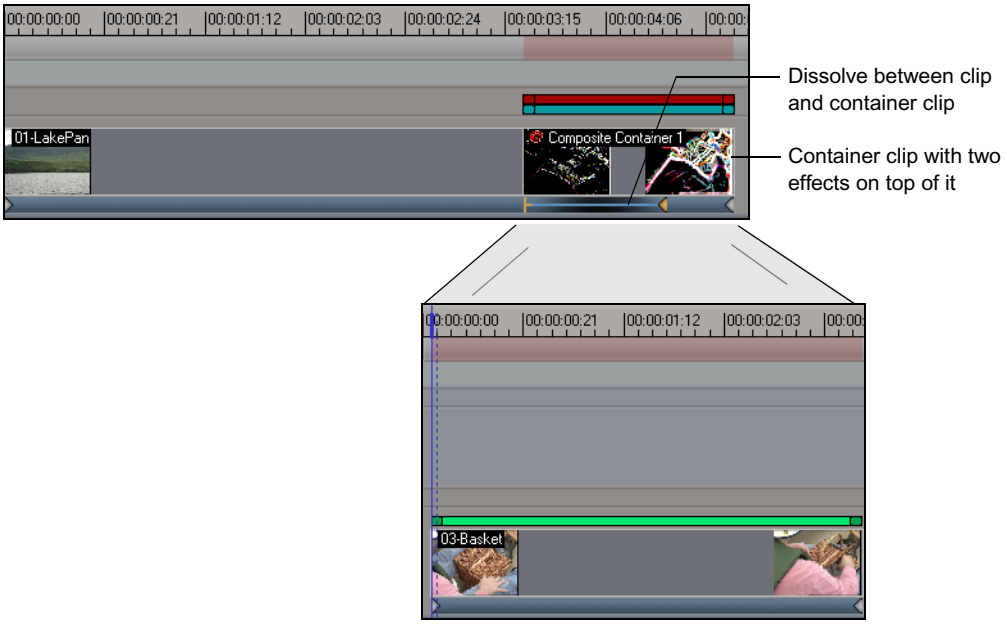
In cases where you have nested or composite container clips on the timeline, the tracks are processed first from the foreground clip working to the background clip. If you have more than one effect on a clip without a cache, then only a single cache will be generated. However, if you add a cache between clip-based effects then a cache will be generated for each clip effect. The clip effect will change to gray indicating that the caches for that effect have been generated and the clip effect is processed.

Example: Minimal versus Complete Processing

The following example is a scenario in which a section of the timeline needs processing. The dissolve to be processed includes part of a container clip that has two effects. Within the container is a clip that also has an effect on it.

Processing a region of a container clip

Top timeline



Clip inside container clip with one clip effect

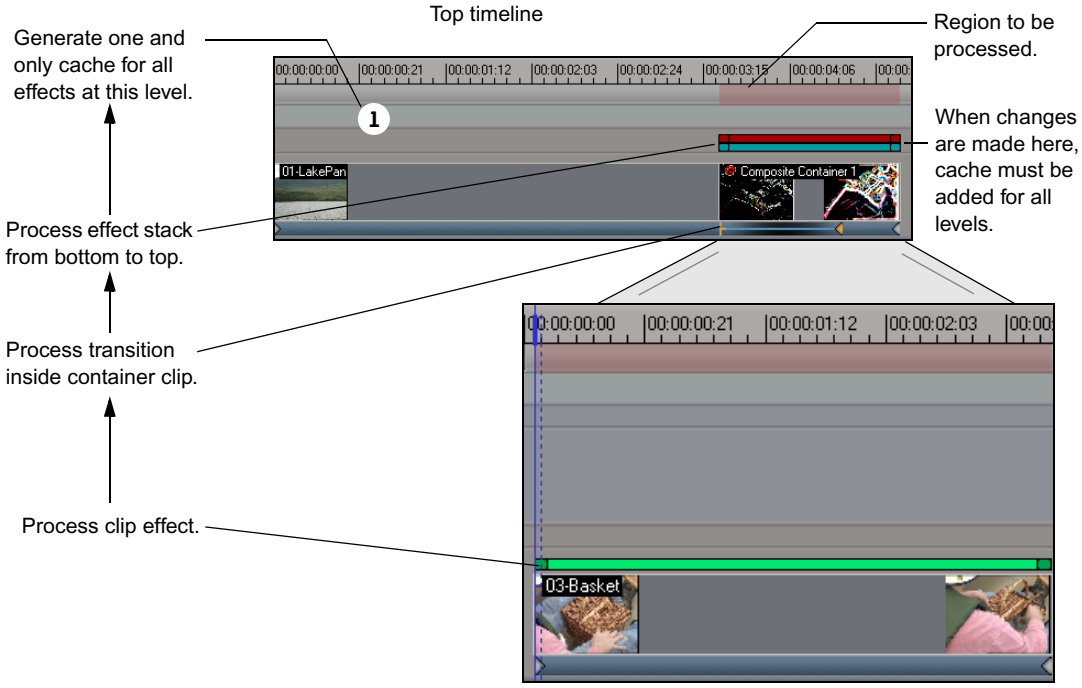
In Case A, we'll perform Minimal processing, and in Case B, we'll use Complete processing.

During processing, Avid DS Nitris works frame by frame. It starts with the source image on the first frame, and dynamically computes the effects on that frame at each level of the timeline. This continues for each frame in the sequence where an effect is applied.

Case A: Minimal Processing

Since the region to be processed includes part of a container clip, Avid DS Nitris first processes the effect inside the container clip. Next, the dissolve between the two clips, and then the two track effects. The results of processing all the effects is saved in one cache at the top timeline level.

Therefore, when you open the container clip and play its contents, you will not be able to view the results of the effect because the cache was saved at the top timeline.



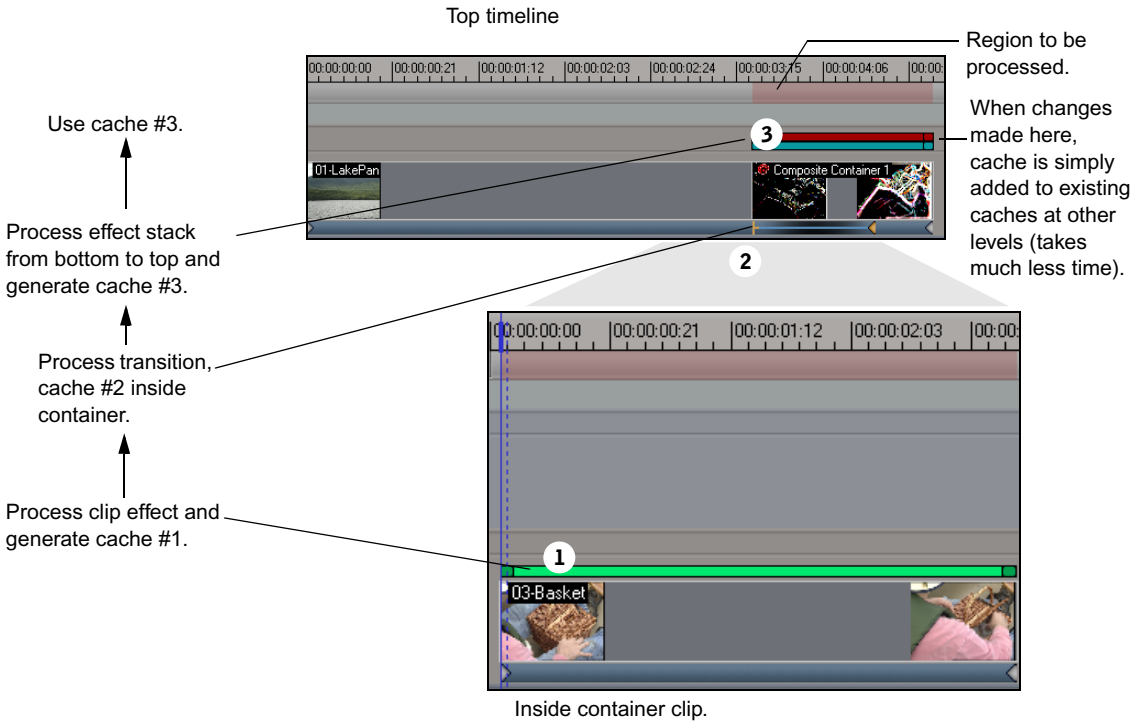
Inside the container clip.

Case B: Complete Processing

With the Complete processing mode, Avid DS Nitris creates caches at each cache level of the timeline where an effect is processed. Avid DS Nitris first processes the clip effect in the container clip. It generates a cache for this clip effect. Since there are no additional track or timeline effects applied, the track and container caches are left empty, but a cache is created for the dissolve.

The clip effects above the container clip are then processed from the bottom of the stack to the top and stored as a clip cache.

If you later make changes to the effects on the top timeline, Avid DS Nitris only needs to reprocess the cache at that level. The effect inside the container clip below it does not require processing as its cache is still valid.



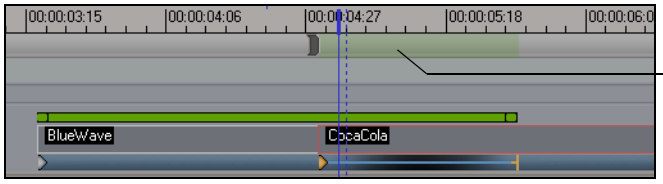
By processing caches at different levels, you can easily purge and reprocess effects without having to reprocess effects created at other levels. However, you may wonder why certain effects need to be reprocessed despite the fact that you processed in Complete mode.

Working with Real-Time Effects

A real-time effect is an effect that you can apply to your sequence and play without having to process it first. Depending on the power of your workstation, many effects can be computed in real time. This means that when you apply a real-time effect to a clip, track, layer, or Effects Tree, you can play the results immediately without having to process the effect.

Real-time effects fall into two categories—*hardware* real-time effects and *software* real-time effects. When you apply a real-time effect to a clip, track, or layer, areas of the timeline ribbon turn green or yellow to indicate that the results of the effect(s) you applied can be played without processing.

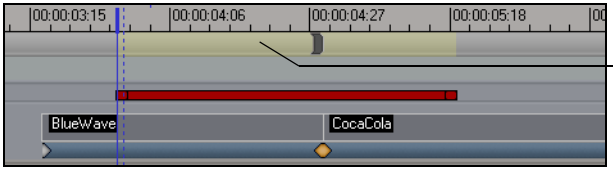
If you have the Avid DS Nitris DNA workstation, you get guaranteed real-time playback and output of some effects. These effects have a green color on the timeline ribbon in the area where they are applied.



Green areas on timeline ribbon indicate effects that are guaranteed to be played and output in real time.

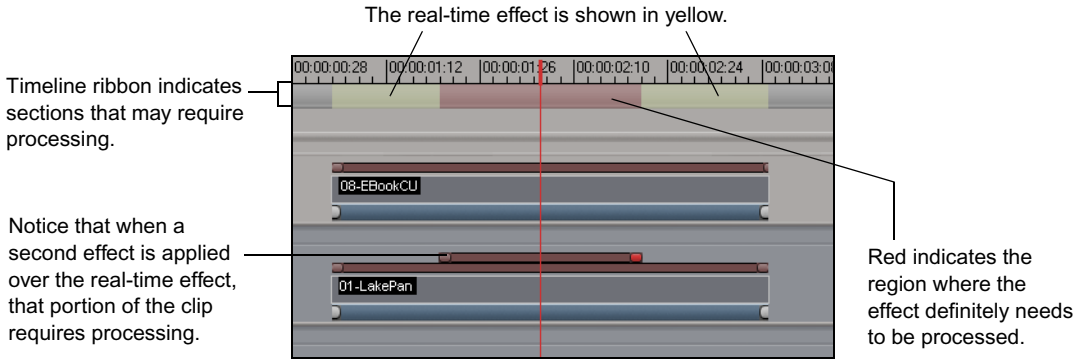
If you are working in a Custom sequence, real-time effects need to be processed regardless of whether they are software or hardware-based.

If you are not using the Nitris DNA hardware, then Avid DS Nitris will attempt to process effects using the software. If your workstation has sufficient processing power, many effects can be computed in real time by the software, allowing you to view the results during playback. These effects will be indicated by a yellow color on the timeline ribbon.



Yellow areas on timeline ribbon indicate effects that can be played in real time.

Several effects, including dissolves, wipes, color correction, DVE, blue-green (chroma) keyer, titles, and audio effects (except Timewarp) can often be played in real time. Stacking multiple real-time effects or boosting some effect parameters, however, may require more bandwidth than your workstation can handle and thus require that you process the effects before final mastering.



In some cases, the calculated frame might be delivered to the video output late. As a result, Avid DS Nitris skips to the next frame to keep in synchronization with corresponding audio clips. A red dot is displayed on the Play button when a frame can't be delivered in time.

If you place the pointer over the Play button when the red dot is displayed, a tooltip indicates how many frames (audio and/or video) were skipped.

The Play button is reset whenever you restart playing.

For a complete list of real-time effects and the conditions under which these effects might cease to be real-time playable, see "Effects that are Playable in Real Time" in the Help.

Examples

- A single color correction will play in real time, but five color corrections require more bandwidth for processing and might skip frames during playback.
- A keyer is a real-time effect, but if you choose to "grow" or "shrink" the matte, you will not be able to play the effect in real time.

These effects can always be processed to cache if required. For more information, see “Creating Caches at Any Level” on page 887.

Playing Real-Time Effects

Avid DS Nitris will always try to play back effects in real time. When it reaches a point where a frame cannot be computed before display time, the system will repeat the previous frame to maintain progression along the timeline.

Skipped frames will occur when a real-time effect sequence is very close to surpassing the processing resources of your workstation. A red dot will appear on the Play button as soon as a frame can’t be delivered in time. This means that the real-time effect should be processed to a cache file before the final output.

If you place the pointer over the Play button when the red dot is displayed, it will indicate how many frames (audio and/or video) were skipped. The normal state of the Play button is reset whenever you restart playing.

***Tip**: Always use the Play button or press the Enter key for playback, and not the Up Arrow on the keyboard which is a 100% varispeed that can cause frames to skip (and hence, any corresponding audio to fall out of sync.)*

If you’re satisfied with the sequence preview in the output monitor and Avid DS Nitris can successfully play effects on the timeline without skipping frames, then you can output your sequence to tape without processing.

For progressive sequences, such as 1080p, and 720p, during play back, the real-time effects are processed on-the-fly in frames. For interlaced sequences, such as NTSC, PAL, and 1080i, real-time effects are processed on-the-fly in fields. When the position indicator is parked on a frame, the real-time effects are processed in frames.

Before mastering, or at any point in your production, you can process real-time effects to a cache, so Avid DS Nitris can refer to this cache file when playing back the effects. By creating a cache, normal playback can take place and guarantee smooth output of your sequence. In general, it is good practice to process real-time effects before mastering.

To force processing of your real-time effects, select **Include Real-time Effects** in the Processing Options dialog box. Each of the processed effects will then have a cache created on disk and Avid DS Nitris will no longer have to process these on-the-fly during playback. For more information see "Setting the Processing Options" on page 882.

Working with Real-Time Effects in HD

With the Avid Nitris DNA hardware capabilities, you can view real-time effects with HD media at full resolution. If you are using a non-Nitris DNA hardware platform, you can get the same real-time effects that are available with Nitris DNA if you work in quarter resolution mode. This way you can do all your work with quarter resolution HD media to view the real-time effects, and then recapture the media at full resolution to add the finishing touches to your project.

To view real-time effects in quarter working resolution mode:

1. Select **File** > **Sequence Preferences**.

   The Sequence Preferences dialog box opens.

2. In the Working Video Settings box, set the resolution to **Quarter**.
3. Under Quarter resolution working mode, select **Enable real-time effects**.

This option is only available when working with an HD sequence on a non-Nitris DNA workstation.

4. Recapture your clips at quarter resolution.
5. Play back your sequence to view the effects.

With the real-time effects option enabled, you can only view clips that have been captured or processed in quarter resolution. You will not be able to play back full and half resolution media and caches. These clips will indicate that processing is needed (red highlight will display in the timeline ribbon). To view these clips, you will need to process them at quarter resolution.

Avid DS RP does not support the real-time effects option, therefore if you are sending your processing request to an RP workstation, it won't recognize that it has to process full and half resolution media.

Outputting Real-time Effects

During an output-to-tape operation, Avid DS Nitris requires extra resources which may result in insufficient bandwidth during playback. When this happens, the Skipped Frames indicator is displayed on the transport controls. Avid DS Nitris will attempt to output again, starting immediately before the skipped frames occurred.

If your system is equipped with an Open G/L card, Avid DS Nitris might stop updating the software viewer to transfer bandwidth resources to the output monitor and prevent frames from skipping.

If the output-to-tape operation fails after several attempts, you will be prompted to stop the operation. At that point, you must process that section of the sequence before restarting the output to tape. This operation is very fast due to the performance of the system.

Be careful with sequences that contain audio. Retrying an output-to- tape operation does not guarantee that the audio will be perfectly synchronized. You should process your sequence or output the audio to tape in a separate pass.

Remote Processing

Instead of waiting while your workstation processes effects, you can send a processing job to a remote workstation running Avid DS RP, so that you continue working on your own workstation.

The RP software can be installed on any number of workstations on your network, and the process requests are automatically dispatched to the first RP workstation that is available. If the RP workstation is already working on another job, your job will be added to its processing queue. For more information on setting up your RP workstation, see the *Avid DS Nitris Installation and Administration Guide*.

Before you send a job for remote processing, make sure Avid DS RP is started on the remote processing workstations.

When in the Source Timeline mode, do not remote process clips on the timeline. You may be able to send the request but the processing will not be performed.

To send a job to an RP workstation:

- Follow the steps in "Setting the Processing Options" on page 882, and select the **Process Remotely** option.

  The **Process Video to** box indicates the folder where the processed media will be placed. You must make sure that the RP workstation(s) have permissions to write media to this folder.

Once you send a processing job to a remote workstation, a blue cache bar is displayed above the clip where the effect was applied. The cache bar turns yellow while the effect is being processed, and eventually turns green when the processing is complete.

If you place your mouse cursor over the cache bar, it will display the processing status of the effect.

As your effects are processed, the caches are automatically imported back into your current project. The highlights on the timeline ribbon will disappear as the process requests are completed.

If you abort the processing request, the cache bar turns red.

If you change certain effects or composites in your sequence that were sent to a remote machine for processing, the caches for those effects or composites will be invalid when they are imported back into your project. The cache bar will turn red to indicate that processing is required.

Monitoring Remote Processing Jobs with the Avid DMS Broker

Avid Distributed Media Services (DMS) Broker lets you monitor and manage your remote processing jobs that have been dispatched to any RP workstation in your workgroup.

To monitor a remote processing job:

1. Open a view of the Avid DMS by clicking the DMS button in the status bar in one of the following ways:
   - Ctrl-click the DMS button to open a view in the Avid DS Explorer. This lets you dock the view directly in the Explorer where it can be easily accessed
   - Click the DMS button to open a view in the Microsoft Internet Explorer
   - Ctrl+Shift-click the DMS button to open a view in the DS Web view
2. The DMS view opens and automatically logs you in as the user.

The Jobs page displays the status and other information about jobs that you have submitted to the DMS Broker. From here you can cancel, delete or retry jobs, depending on your level of privilege.

For more information on using the DMS Broker, refer to the *Avid DMS System Installation and Operation Guide*.

When DMS is installed in an Avid DS workgroup, an Avid DS client functions as a ProEncode client, and an RP workstation as a ProEncode Provider.

Chapter 7
Working with Effects and Transitions

This chapter describes how to apply effects and transitions, and how to nest clips on the timeline.

- Displaying Guides
- Applying Effects on the Timeline
- Applying Transitions
- Nesting Clips
- Displaying Effects in a Viewer
- Processing Sequences

Displaying Guides

As you work with effects and graphics in the viewer, you can display horizontal and vertical guidelines to help you align them precisely. For more information, see “Displaying the Safe/Action Title Guides” in the Help.

The guidelines are used for positioning purposes only. They are not visible in the final sequence.

Applying Effects on the Timeline

Any effects that you apply on the timeline are based on what you have currently selected. You can apply video and audio effects to the entire timeline, individual clips or tracks, or to a selected region of a clip or track.

Before you can select anything on the timeline, you must be in Selection mode. On the timeline navigation bar, click the ***Selection Mode*** *button.*

Effects applied to clips are called *clip effects* and effects applied to a track are called *track effects*. Clip effects are effects that are attached to a clip and move with the clip on the timeline. Clip effects affect only the clips on which you've applied them. Track effects can be placed on audio tracks, video tracks, background tracks, and the timeline effect track. Track effects modify only the clips on the track on which the effect is applied. An effect placed on the timeline effect track affects all the tracks in the timeline.

For more information, see "Applying Effects" in the Help and "Understanding Image Transition Effects" on page 247. For advanced tasks on compositing and working with complex effects, see the *Avid DS Nitris Compositing and Graphics Guide*.

Applying Transitions

Transitions are changes, like dissolves, wipes, fades, DVEs, or cuts that you can apply to or between clips on the timeline. You can apply transitions to the beginning or end of a single clip, or between two clips.

For example, you can use a one-sided transition to fade into a clip at the beginning of your sequence. You can then apply wipes, cuts, and dissolves between other clips on the timeline to move smoothly from one clip to the next.

The type of transition you apply depends on the media you're working with. For instance, you can apply a dissolve, wipe, or DVE to video clips, while you can apply a crossfade, fade-in, or fade-out to audio clips. For more information, see "Understanding Image Transition Effects".

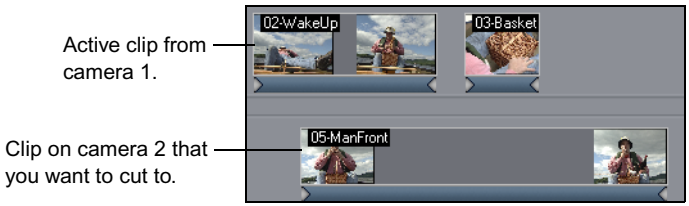
Cutting to a Clip

A cut is a jump or sharp transition between two clips. The cut transfers activeness from one clip to another. The Cut To transition is especially useful for multi-camera editing when you need to constantly switch between different camera shots to create the desired edit. In this case, you must place each camera take on a separate track. You can then "cut on the fly" by switching the activeness from one take to another.

The behavior of a Cut To is the same for both audio and video clips.

To cut to a clip:

1. Place the clips on different tracks and overlap the clips at the appropriate timecodes.

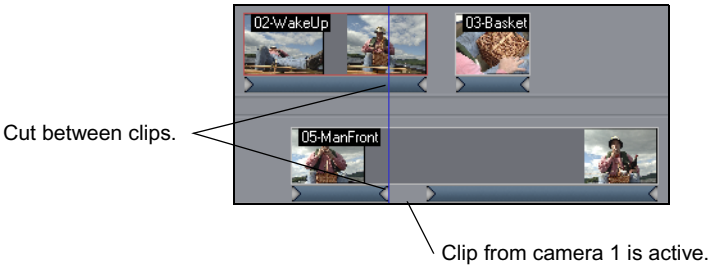


2. Place the position indicator at the point, on the next clip, at which you want to make a cut.

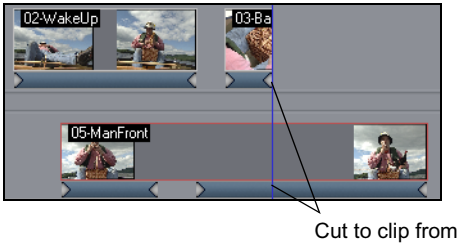
If the clip you are cutting to is inactive or on a lower track, you cannot see its frames in the viewer. To view that clip's frames, click the Solo button on the track on which the clip is located.

3. Select the clip that you want to cut to.
4. From the toolbar, click **Editing** > **Cut To**.

   The activeness is switched from the first clip to the selected clip at the position indicator.



5. Continue to cut back and forth between the two cameras by placing the position indicator at the appropriate frame, selecting the clip you want to cut to, and then clicking **Editing** > **Cut To** from the toolbar.



Creating One-Sided Transitions

You can apply one-sided transitions to clips on the timeline. One-sided transitions are usually applied to the beginning or end of a single clip to transition into it or out of it.

To apply a one-sided transition to a clip:

1. On the timeline navigation bar, click the **Selection Mode** button to select it.
2. On the timeline, select a clip's in-point or out-point.
3. From the toolbar, do one of the following:
   - If you selected a video clip's in-point or out-point, click **Video Effect** > ***effect***.
   - If you selected an audio clip's in-point or out-point, click **Audio Effect** > ***effect***.

   The transition's property editor is displayed, and the transition is displayed as a gradient on the clip's activeness bar.

You can edit the duration of a one-sided transition the same way you would edit a transition between clips; simply drag the transition points.

Creating Transitions Between Clips

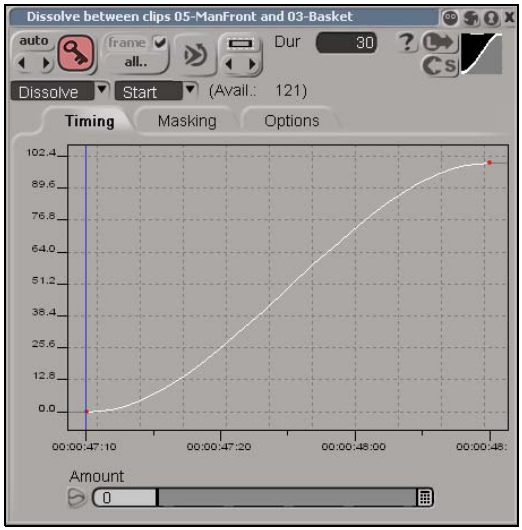
You can apply a transition between clips on the same track, or on different audio and background tracks. You can not apply transitions to different video tracks. Transitions can be created only when there is extra material available on one of the clips.

To apply a transition between clips:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. On the timeline, overlap the clips that you need to work with.

   These clips can be on the same track, on different audio tracks, or on different background tracks.
3. Select the edit point between the two clips.
4. From the toolbar, click **Transition Effects** and select **Dissolve/Crossfade**, **Wipe**, or **DVE**.

   The transition's property editor is displayed.

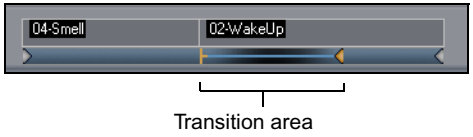


The edit point can be set to be the start, end, or center of the transition. You can also change the type of transition that you've applied. All these options are available in the property editor.

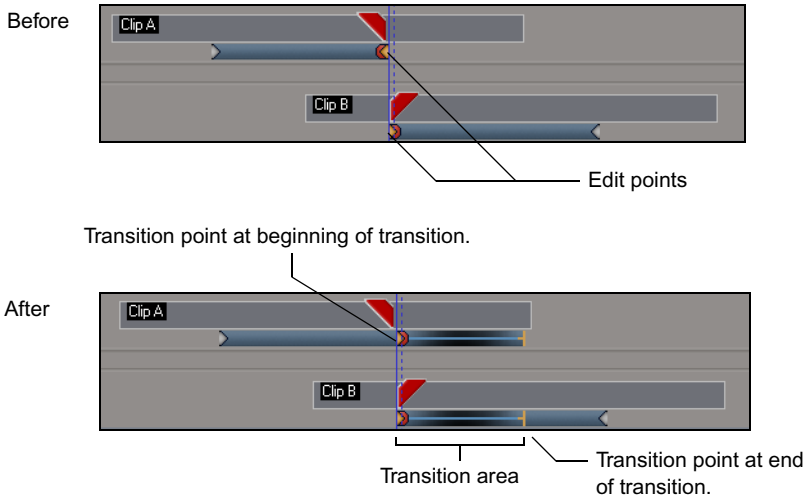
After a transition is applied between two clips, it is automatically shown as a gradient on the activeness bar.

For more information, click the **Help** button.

Same-track transition



A transition between two clips on different background tracks.



Transitions have their own properties with edit points that indicate the beginning, center, and end of the transition. These edit points become highlighted when you select them.

Editing Transition Properties

Once you've applied a transition between two clips, you can change the properties of the transition.

To change the properties of a transition:

1. Do one of the following:
   - Right-click the transition edit point and select **Properties**.
   - Double-click the transition edit point.
2. Change the properties in the transition's property editor.

For more information, click the **Help** button.

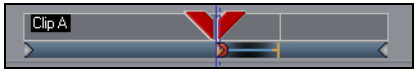
Aligning Transitions

You can change the alignment of a transition to begin at the start, end, or center of the edit point.

To change the alignment of a transition:

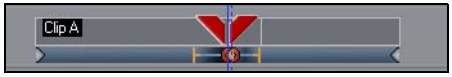
1. In Trim mode, click the transition's edit point to select it.
2. Right-click the **Transition Alignment** button and select one of the following:

- **Transition Start** to align the transition to the right of the edit point.



Transition starts at edit point.

- **Transition Center** to align the transition to center around the edit point.



Transition is centered at edit point.

- **Transition End** to align the transition to the left of the edit point.

Transition ends at edit point.

The icon on the Transition Alignment button represents your alignment selection for the transition.

Removing Transitions

You can easily remove a transition and restore the original clips. When you remove a transition, it becomes a cut from one clip to the next as the edit point remains the same.

To remove a transition, do one of the following:

- Select the transition's edit point and press Delete.
- Right-click the transition's activeness bar and select **Delete** (transition type).

Using the Comparison Buffer

The comparison buffer lets you take a snapshot of a frame in your sequence and temporarily save it to memory. You can then compare the snapshot to its source frame or to another frame in the sequence.

The comparison buffer is useful when you want to:

- See how an effect changes a frame. Take a snapshot and compare it to the frame in the viewer as you apply an effect to it and adjust its properties.

- Fine-tune an effect. Apply an effect and take a snapshot. Then compare it to the frame in the viewer as you adjust the effect's properties.

- Compare one frame in your sequence to another. Take a snapshot of a frame, then move the position indicator to the next frame or different frame in the sequence.

To use the comparison buffer:

1. Right-click the viewer and select **Comparison Buffer** > **Use Compare Buffer**.
2. Right-click the viewer again and select **Comparison Buffer** > **Grab**.

   A white box is displayed around the viewer to indicate the area that is currently saved in the buffer.
3. To manipulate the snapshot, do any of the following:
   - Drag the white lines around the snapshot to resize it.
   - Drag the snapshot to reposition it in the viewer. When you drag any portion of the snapshot outside of the viewer, it is cropped to the limits of the bounding box.

   The size of the snapshot is maintained while the content changes.
   - Press Shift and drag to move the snapshot.
   - Press Ctrl and drag to slide the snapshot inside the bounding box.
   - Press Alt and click the viewer to reset the pan.
   - Press Alt and double-click the viewer to reset the image crop and position.
4. Turn off the comparison buffer by right-clicking the viewer and selecting **Comparison Buffer** > **Use Compare Buffer**.

Nesting Clips

You can break down complicated tasks into more manageable sections by nesting multiple clips in a container clip. This way, an entire special effects scene, for example, can be presented as one container clip on the timeline.

Container clips behave just like any other clip on the timeline. The same rules of activeness, rippling, and other editing functions (trimming, slipping, sliding) apply.

There are three basic types of container clips that you can use:

- **Composite container clips** let you layer several video clips together on video tracks. The result is treated as a single clip.
- **Background container clips** let you edit several video clips together on background tracks and treat the result as a single clip on the top or parent timeline.
- **Audio container clips** let you group several audio clips, mix them together, and treat them as a single clip on the top or parent timeline.

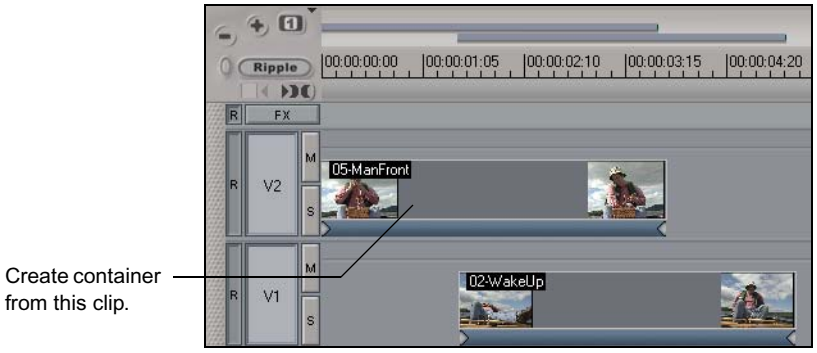
In addition, there are image processing utilities (such as Timewarp, Interlace/Deinterlace, and 3:2 Expand/3:2 Contract) that automatically create container clips to hold the original clip before the effect is applied.

When you close a container clip, it is displayed as a single clip on the timeline. You can reopen a container clip at any time to add, modify, or delete its components.

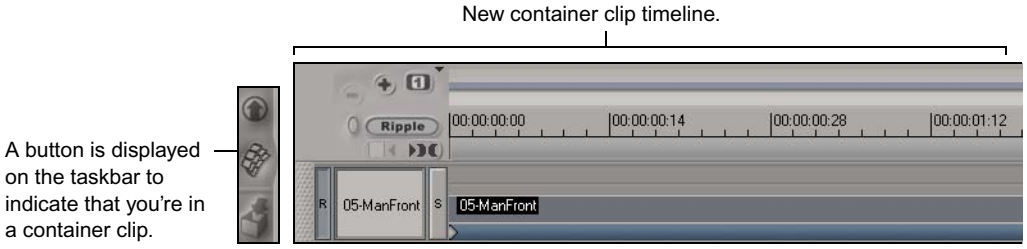
Creating Nested Clips

When you open a sequence, you are always viewing the top timeline. Container clips provide you with a new timeline on which you can place clips. This lets you focus your tasks specifically on clips within the container clip.

By default, the ruler inside the container clip starts at 00:00:00. This lets you build a subsequence that is independent of the final sequence on the top timeline.



A container clip timeline is nested in the top or parent timeline. When you open a container clip, it displays its contents on this new timeline. When you close the container clip, however, the clip is displayed relative in time to all other clips on the parent timeline.

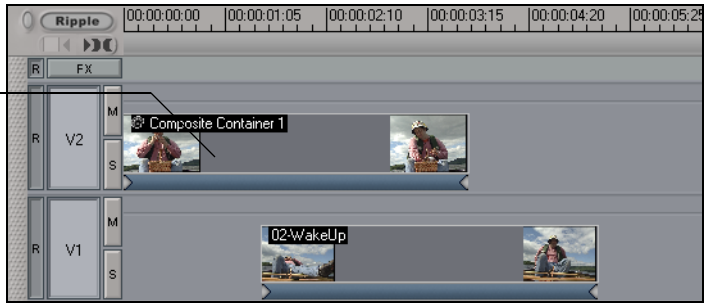


You can add more clips to the container clip and layer or arrange them sequentially for compositing, audio mixing, or editing subsections of a larger project. You can even nest other container clips in this container clip.

You can also set the ruler in the container clip to correspond to the one on the top timeline. This lets you view clips at the exact timecode that they will appear in the final sequence.

By default, a container clip is named "Composite Container *x*", "Background Container *x*", or "Audio Container *x*", where *x* is the next sequential number for that type of container clip. You can easily rename a container clip with a more suitable name by using the clip's property editor. For more information, see "Renaming and Adding Comments to Clips" on page 764.

A closed container clip represented as a single clip on the top timeline.



Creating a Composite Container Clip

Composite container clips let you layer video clips and apply graphics, color correction, keyer, and DVE effects to each layer. Clips placed on video tracks are composited over each other, and when the container is closed, the result is displayed as a single clip on the top or parent timeline.

If you use background tracks within your composite container, they are combined into a single background container within the composite container. All video tracks are stacked on top of the background container within the composite container.

You can also create a composite container clip to draw graphics or add titles to your clips. A composite container clip can contain a number of video clips, and is used primarily for compositing clips and treating the result as a single clip. For more information, see “Using the Effects Tree to Composite” in the Help.

To create a composite container clip:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. On the timeline, select the video clips that you want to use in the container clip. Do one of the following:

To select more than one clip at a time, press Ctrl while clicking clips.

- From the toolbar, click **Containers** > **Composite Container Clip**.
- From the taskbar, click the **Create Container** button and select **Create Composite Container Clip**.

A container clip timeline is displayed. You can now place additional clips on the tracks, add effects, and perform other editing tasks on the clips.

Also, a new container clip timeline button is displayed in the taskbar to indicate that you're working in a composite container clip.

3. Do one of the following after you have finished editing the clips in this container clip:
   - From the toolbar, click **Navigation** > **Go to Top Timeline**.
   - From the taskbar, click the **Top Timeline** button.

The composite container clip is closed and the top timeline is displayed. All the clips are displayed as one clip on the timeline. You can reopen the container clip at any time by clicking the button in the title bar of the container clip.

Creating a Background Container Clip

Background container clips let you edit several video clips together on a background track, and treat the result as a single clip on the top or parent timeline. Any editing tasks that can be performed on the top timeline can also be done in a background container clip.

For example, to perform a double dissolve (commonly known as a *bi-pack*), you first dissolve two clips in a container clip. On the top timeline, you then dissolve the container clip with a third clip.

To create a background container clip:

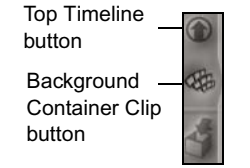
1. On the timeline navigation bar, click the **Selection Mode** button.
2. On the timeline, select the video clips that you want to use in the container clip.

To select more than one clip at a time, press Ctrl while clicking on clips. All these clips will be placed in the same container clip.

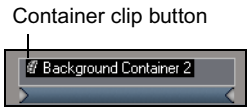
3. Do one of the following:
   - From the toolbar, click **Containers** > **Background Container**.
   - From the taskbar, click the **Create Container** button and select **Create Background Container Clip**.

A container clip timeline is displayed. You can now place additional clips on the background tracks, add effects or transitions, or perform other editing tasks on the clips.

Also, a new container clip timeline button is displayed in the taskbar to indicate that you are working in a background container clip.



4. Do one of the following after you finish editing the clips in this container clip:
   - From the toolbar, click **Navigation** > **Go to Top Timeline**.
   - From the taskbar, click the **Top Timeline** button.



The background container clip is closed and the top timeline is displayed. All the clips are displayed as one clip on the timeline. You can reopen the container clip at any time by clicking the button in the title bar of the container clip.

An option lets the container button appear on the clip. For more information, see "Editing Property Page" in the Help.

Creating an Audio Container Clip

Audio container clips let you group several audio clips, mix them together, and treat them as a single clip on the top or parent timeline. These audio container clips can be synchronized with corresponding video clips or mixed with other audio clips.

You can create submixes by nesting audio container clips in other audio container clips. For example, you can create a container clip just to create a submix of all the drum sound tracks, while another container clip can be used for the guitar submix. These two container clips can then be mixed together to generate the final recording.

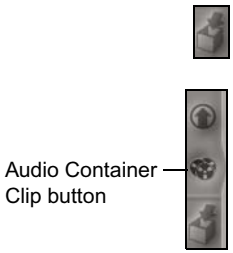
For more information, see "Mixing Audio" on page 1017.

To create an audio container clip:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. On the timeline, select the audio clips that you want to use in the container clip.

To select more than one clip at a time, press Ctrl while clicking on clips.

3. Do one of the following:
   - From the toolbar, click **Containers** > **Audio Container**.
   - From the taskbar, click the **Create Container** button and select **Create Audio Container Clip**.



A container clip timeline is displayed. You can now place additional clips on the tracks, add effects and transitions, and perform other editing tasks on the clips. In the audio container clip, you can set your ruler to display frames or milliseconds for greater accuracy when editing audio clips.

Also, a new container clip timeline button is displayed in the taskbar to indicate that you are working inside an audio container clip.

4. Do one of the following after you finish editing the clips in this container clip:
   - From the toolbar, click **Navigation** > **Go to Top Timeline**.
   - From the taskbar, click the **Top Timeline** button.

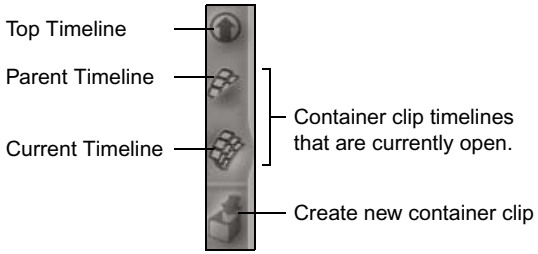
The audio container clip is closed and the top timeline is displayed. All the clips are displayed as one clip on the timeline. You can reopen the container clip at any time by clicking the button in the title bar of the container clip.

Navigating within Nested Clips

When you first open a sequence, the top timeline is displayed. The top timeline is the topmost level of the timeline. This is where you can see all the clips that comprise your sequence.

A container clip timeline is nested in the top or parent timeline. When you open a container clip, it displays the contents of the container clip on this new timeline.

You can also create container clips in container clips. A container clip that contains another is called the *parent container clip*. Each time you create or open a container clip, a corresponding button is displayed at the bottom of the taskbar. As you continue to nest container clips, the list of buttons on the taskbar continues to grow. These buttons provide a quick way of navigating between container clips. The timeline buttons in the taskbar indicate how deep the container clip is nested.



You can identify container clips by the type of button that is displayed in the taskbar.

This button	Represents
	A composite container clip.
	A background container clip.
	An audio container clip.

Opening Container Clips

The button at the top of the timeline buttons in the taskbar represents the top timeline. As you create nested container clips, more timeline buttons appear on the taskbar. The type of timeline buttons that appear correspond to the opened container clips.

To open a container clip, do one of the following:

- Click the button in the container clip.
- Double-click the container clip.
- Select the container clip and click the **Step In** button on the timeline navigation bar.

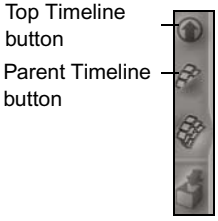
  The container clip timeline is displayed. A new container clip button is displayed in the taskbar, representing the container clip in which you're currently working.

Closing Container Clips

After you've made changes to the container clip, you can close your current container clip and go to the top or parent timeline by clicking the respective navigation button on the taskbar.

When you click the Top Timeline button, it closes all of the container clips below it and displays the top timeline.

Similarly, when you click a parent container clip button, it closes any nested container clips within it and displays only the contents of the selected container clip.



To close a container clip and return to the top timeline, do one of the following:

- From the toolbar, click **Navigation** > **Go to Top Timeline**.
- From the taskbar, click the **Top Timeline** button.

  This closes all open container clips and returns to the top timeline.

To close a container clip and return to the parent timeline, do one of the following:

- From the toolbar, click **Navigation** > **Go to Parent Timeline**.
- In the taskbar, click any container clip button (Parent Timeline button) above the current container clip button.
- On the timeline navigation bar, click the **Step Out** button.

  The current container clip is closed and the parent container clip's timeline is displayed.

Deleting Nested Clips

You can delete any container clip on the timeline. Deleting a container clip removes the container clip and its contents from the timeline.

To delete a container clip and its contents, do one of the following:

- Select a container clip and press Delete.
- Right-click a container clip and select **Delete Clip**.

  The container clip is removed from the timeline.

If the container clip is sync-locked with another audio or video component, the other component remains on the timeline. You have to delete it as an independent clip.

To delete a container clip but preserve its contents:

1. Open a container clip—see "Opening Container Clips" on page 922.
2. Press Ctrl and select all the clips in the container clip.
3. Press Ctrl+C to copy the clips.
4. Close the container clip—see "Closing Container Clips" on page 923.
5. Press Delete to delete the container clip.
6. Place the position indicator at the point on the timeline on which you want to place the clips you copied.
7. Press Ctrl+V to paste the clips back on the timeline.

Displaying Effects in a Viewer

You can display effects in a viewer, such as a floating viewer.

Opening a Floating Viewer

When working on several different effects simultaneously, you can open a floating viewer for each effect, as well as tree effects and container clips. This lets you view the output of individual effects, container clips, and whole timelines. You can also display the red, green, blue, and/or alpha component of an image, and use the transport controls to view the rest of your clip. For more information, see "Viewing Image Components" on page 928.

Unlike the transport controls in the Source and Record viewers, you cannot customize them by adding and removing buttons.

You can also resize and move each floating viewer to a location where it won't obstruct other views, and then pin it in place. Once a floating viewer is pinned, you can freely switch between the different layouts and the floating viewer will remain in place. When you modify an effect, the result is displayed in its floating viewer.

A single floating viewer can display several outputs, see "Changing the Image Displayed in a Viewer" on page 926.

Objects cannot be edited or manipulated in a floating viewer.

To open a floating viewer:

- Right-click one of the following and select **Open Viewer**:
  - Clip
  - Clip, track, or timeline effect bar
  - Timeline effect track
  - Container clip
  - Layer effect
  - Result area in Layers view
  - Effect Tree node
  - Overview area of the timeline

To pin a floating viewer:

- Click the **Pin** button in the upper-right corner of a floating viewer.

***Tip**: You can set the window size and position of floating viewers in the User Preferences dialog box (General property page).*

Changing the Image Displayed in a Viewer

You can view various outputs in a single viewer. The Reconnect Viewer button lets you view the output of individual effects, container clips, or the whole timeline. This is useful when you want to display the full results of a composite in the Record viewer, and view one element at a time in a another viewer.

To display the output of selected objects in a viewer:

1. Do one of the following:
   - Open a floating viewer—see "Opening a Floating Viewer" on page 925.
   - Select a viewer that has a Reconnect Viewer button—see "Customizing Toolbars" in the Help.
2. Click the **Reconnect Viewer** button for the selected viewer.

If the Reconnect Viewer button is not selected, you can still choose options from the pop-up menu, but they will not have any effect until you select the button.

3. Right-click the Reconnect Viewer button and select **Current Selection**.
4. Click an object on the timeline that you want to display in the viewer.

   The Reconnect Viewer button turns red, indicating that there is an alternate object you can view. Each object you select is displayed in the viewer when the position indicator moves to it.
5. (Option) If you want to continue displaying the output of the currently selected object, right-click the Reconnect Viewer button and select **Lock Selection**.

The Reconnect Viewer pop-up menu sets the viewer's connection points. You can choose from three preset options or choose a selection mode. Selection mode displays the output of objects you select on the timeline or in an Effects Tree.

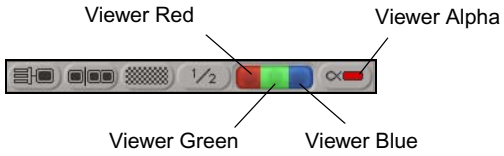
To set a viewer's output connection point:

1. Click the **Reconnect Viewer** button for the selected viewer.
2. Right-click the Reconnect Viewer button and select the desired connection—see "Reconnect Viewer Menu" in the Help.

   You can now click the Reconnect Viewer button to switch between displaying this object and the current object in the viewer.

Viewing Image Components

The viewer lets you display the red, green, blue, and/or alpha component of an image. During compositing, it's particularly useful to display the alpha component, so that you can monitor the matte of a clip or layer.



To display the red, green, or blue component, do one of the following:

- From the viewer tools, click the red, green, or blue button.
- Right-click the viewer, and select **Red**, **Green**, or **Blue Component**.

To display the alpha channel, do one of the following:

- From the viewer tools, right-click the **Viewer Alpha Channel** button, select a degree of opacity, and click the button to display the alpha channel.
- Right-click the viewer and select **Alpha Component** and a degree of opacity.

  The alpha channel displays the resulting composite, either on the top timeline or in a composite container clip.

To display the matte, do one of the following:

- Right-click the viewer and select **Alpha Component** > **Matte**.
- From the viewer tools, right-click the **Viewer Alpha Channel** button and select **Viewer Alpha Full**.
- From a keyer property editor, select the **Output Matte** option to switch the keyer output between the RBG and alpha channels. When selected, the alpha channel (matte) is output as an RGB image. This is useful when a key is applied on a video track as you don't have to solo the track before displaying the alpha channel.

*Before processing the effect, deselect the **Output Matte** option if you don't want to output the alpha channel as an RGB image.*

The alpha channel displays the resulting composite, either on the top timeline or in a composite container clip. You can also view the mattes of individual layers.

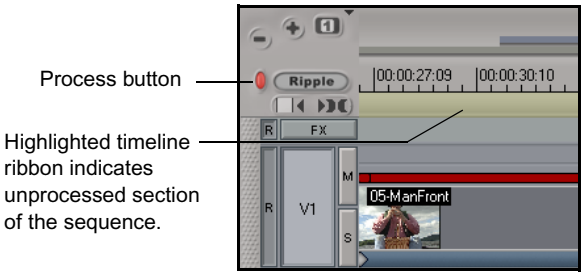
Processing Sequences

If you've applied transitions and effects to clips and then nested them in container clips, you must process them before playing them. Processing is not performed automatically, since it takes time and system resources to process your clips. You can process all or part of the timeline. You can also choose different levels at which to process your clips. For more information, see "Processing Effects" on page 871.

All audio and some video effects and transitions do not need to be processed as they are computed during real-time playback.

To process a sequence:

1. Do one of the following:
   - From the toolbar, click **Processing** > **Process**.
   - In the timeline controls, click the **Process** button.



2. In the Processing Options dialog box, select the appropriate options.

   For detailed information on the processing options, click the **Help** button or see "Processing Effects" on page 871.

3. Click **OK** to begin processing.

   A progress indicator is displayed on the bottom of the desktop to show the status of the process.

4. Click **Cancel** to stop the process at any time.

Chapter 8
Working with Time Effects

This chapter describes the time effects and how to apply them to clips:

- Understanding the Time Effects
- Applying a 3:2 Contract Effect
- Applying a 3:2 Expand Effect
- Applying a Deinterlace Effect
- Applying an Interlace Effect
- Working with the Timewarp Effect

Understanding the Time Effects

The time effects let you process images by rearranging the fields and frames in a clip. Time effects include 3:2 Contract, 3:2 Expand, Deinterlace, Interlace, Timewarp, and Freeze. You can apply time effects only to clips.

These effects aren't like other clip effects, in the sense that they create container clips. You can only apply them from the toolbar.

When you apply a time effect, a container clip is created for holding the entire source clip, even if you only used part of it. First frame and end frame markers inside the container clip indicate the portion of the source clip that is actually used. Only that portion is visible on the top timeline.

Unlike other effects, a time effect is not represented by an effect bar that you can move, copy, delete, or trim. You can, however, save a time effect as a preset and apply it to different clips.

To apply a time effect:

1. From the timeline, select a clip.
2. From the toolbar, click **Time Effects** and select a time effect.

   A container clip is created.

To modify a time effect:

- On the timeline, right-click a container clip, select **Properties**, and then select the parameters that you want to modify.

  The effect's property editor is displayed for you to make any adjustments.

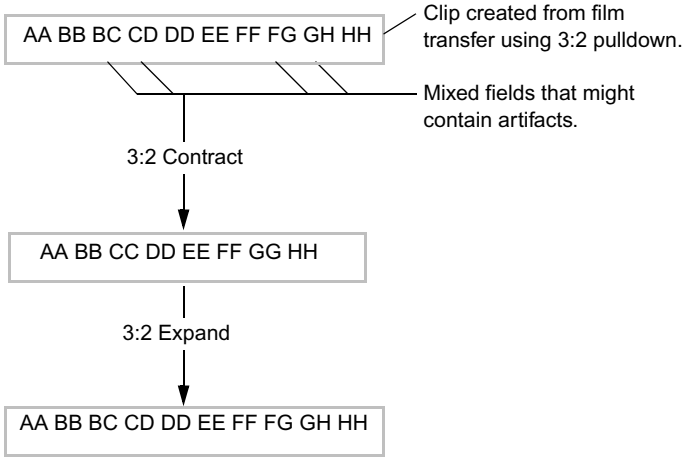
For more information, click the **Help** button.

Applying a 3:2 Contract Effect

The 3:2 Contract effect lets you process video fields to recreate the original film sequence at 24 (23.97) frames per second. This removes the duplicated fields introduced in the 3:2 pulldown process, so that you can work on clean frames.

You can apply the 3:2 Contract effect only to video clips.

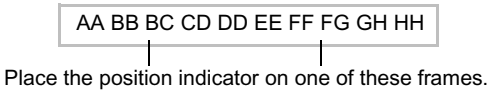
Because the 3:2 pulldown technique is not required with PAL video material, this effect is only used on sequences in NTSC format.



When using these effects inside composite container clips, you should apply the 3:2 Contract effect inside the composite container clip, complete the graphics or compositing tasks, and then go to the parent timeline to apply the 3:2 Expand effect.

To contract video fields:

1. From the timeline, select a clip.
2. Frames composed of mixed fields occur in pairs. Place the position indicator on the first frame in any pair of frames composed of mixed fields.



3. From the toolbar, click **Time Effects** > **3:2 Contract**.

   The clip is contracted to 24 frames per second. A container clip is created.

4. On the timeline, the length of the clip is updated.

For more information, click the **Help** button.

Applying a 3:2 Expand Effect

The 3:2 Expand effect lets you expand the video fields to recreate a 30 (29.97) -frames-per-second clip. Once you've added effects to your 3:2 contracted clips, you need to reexpand the clip.

You can apply the 3:2 Expand effect only to video clips.

Because the 3:2 pulldown technique is not required with PAL video material, this effect is only used on sequences in NTSC format.

To expand video fields:

1. From the timeline, select a 3:2 Contract container clip.
2. From the toolbar, click **Time Effects** > **3:2 Expand**.

   A 3:2 Expand container clip is created and the clip recovers its original length.
3. On the timeline, the length of the clip is updated.

For more information, click the **Help** button.

During a 3:2 Expand, if a clip starts or ends with a frame composed of mixed fields, red frames are added at the beginning or end of the clip to ensure a fully recoverable operation. You can trim the clip to remove these frames. For more information, see "Understanding Trimming" on page 811.

Applying a Deinterlace Effect

The Deinterlace effect lets you separate each frame of a clip into two fields: one containing even lines and the other containing odd lines.

In the deinterlaced clip, each field appears as one frame and contains half the lines of video information of the original frame. For viewing purposes, the in-between lines are replaced either by duplicates or by interpolation. As a result, the clip becomes twice as long on the timeline.

You can apply the Deinterlace effect only to clips.

Deinterlacing clips is useful for several tasks, including:

- Working with clips originally shot with a video camera or field-based material.
- Creating a field-based animated matte (rotoscopy) or paint animation: The camera captures 60 fields per second; when objects are moving very fast, individual fields might contain slightly different images. If you want your matte to accurately track the outlines of the moving object, you must create a different matte for each field. When you deinterlace the clip, each field is displayed separately. You can then use the graphics tools to create a matte which accurately tracks the moving object.
- Retouching images: Artifacts on clips sometimes appear only on one field of a clip. The way to remove such artifacts is to deinterlace the clip, expose the corrupt field, retouch it, and then reinterlace the clip.
- Tracking: Since individual fields can contain different images, you should deinterlace clips before tracking to more accurately track objects.

After you've worked on the fields in a clip, you must recombine (interlace) them to display the resulting frames and recover the original playback speed. For more information, see "Applying an Interlace Effect" on page 940.

To use the Deinterlace and Interlace effects in a composite container clip:

1. Apply the Deinterlace effect to a clip on the top timeline.
2. Apply the composite container clip to the deinterlace container clip.
3. Perform the graphics or compositing tasks inside the composite container clip.
4. Go to the top timeline to apply the Interlace effect.

To preserve your edits on the top timeline, make sure that the Ripple mode is activated.

To deinterlace a clip:

1. Apply the Deinterlace effect to a clip.

   A container clip is created and the Deinterlace property editor is displayed.

2. From the Interpolation box, select one type of interpolation.
3. Select the **Invert Fields** option to change the order in which odd and even fields occur in time.

   The duration of the clip is doubled.

If you deinterlace a clip that is part of a composite, the clip's duration is doubled. To maintain synchronization, make sure that you deinterlace the other clips in the composite.

For more information, click the **Help** button.

Applying an Interlace Effect

The Interlace effect lets you shorten deinterlaced clips by half because every two consecutive frames are interleaved into a single frame. This interlaced frame contains both odd and even fields. You can use the Interlace effect after you've finished making the necessary modifications to a deinterlaced clip.

You can apply the Interlace effect only to clips.

To interlace a clip:

1. From the timeline, select a Deinterlace container clip.
2. From the toolbar, click **Time Effects** > **Interlace**.

   A container clip is created and the Interlace property editor is displayed.
3. Select the **Invert Fields** option to change the order in which odd and even fields occur in time.

   The duration of the clip is reduced by half.

For more information, click the **Help** button.

To use the Deinterlace and Interlace effects in a composite container clip:

1. Apply the Deinterlace effect to a clip on the top timeline.
2. Apply the composite container clip to the deinterlace container clip.
3. Perform the graphics or compositing tasks inside the composite container clip.
4. Go to the top timeline to apply the Interlace effect.

To preserve your edits on the top timeline, make sure that the Ripple mode is activated.

Working with the Timewarp Effect

The Timewarp effect is a powerful tool for creating and customizing motion effects. The Timewarp effect lets you change the speed of clips. You can speed them up, slow them down, or have them play in reverse.

Applying a Timewarp effect creates a container clip in which frames are added, removed, or rearranged to create the pacing that you want. Slowing the action down increases the number of frames, while speeding the action up decreases it.

The timewarp container clip holds the entire source clip, even if you only used part of it. First frame and end frame markers inside the container clip indicate the portion of the source clip that is actually used in the timewarp.

You can use FluidMotion™ rendering as a method of interpolating motion in a video Timewarp effect. FluidMotion results in extremely smooth motion. The FluidMotion options allow you to refine the results of rendering effects.

Applying an Audio Timewarp Effect

The audio Timewarp effect lets you alter the length and speed of an audio clip without affecting the original pitch. There are two methods of changing the speed—by specifying a percentage of the original speed or by typing a new SMPTE duration.

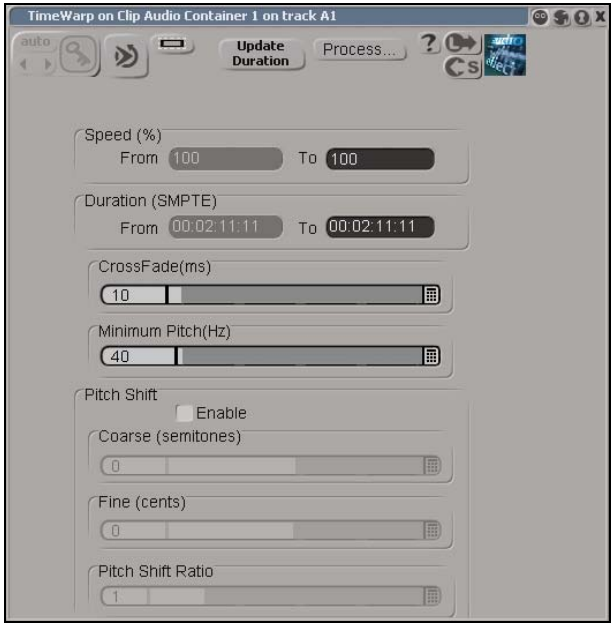
You can also adjust the pitch of any source audio with or without a change in its duration. This effect lets sounds to be transposed a maximum of two octaves up or down in pitch with or without altering playback speed. The audio timewarp has been optimized for human speech.

If your Avid DS Nitris system has a Merging Technologies audio card installed, you can use the audio Timewarp Timezone effect, from Merging Technologies. For more information, see *"Applying Merging Audio Timezone Effects" on page 943.*

To apply the audio Timewarp effect:

1. From the timeline, select an audio clip.
2. From the toolbar, click **Time Effects** > **Timewarp**.

A timewarp container clip is created and the Timewarp property editor is displayed.



3. Do one of the following to define the new speed:
   - In the **Speed (%)** box, type a new speed as a percentage of the original speed.
   - In the **Duration (SMPTE)** box, type a new end timecode for the container clip.

   You can define the speed using either the speed or duration control. Because these properties are interdependent, when you change one, the other is updated automatically. For example, if you specify a new end timecode, the speed is adjusted so that the clip fills the new duration.
4. Adjust the length of the crossfade using the **CrossFade** control.
5. Adjust the **Minimum Pitch** control to set the minimum or lowest pitch used during the timewarp processing.
6. Do the following to adjust the pitch shift:
   - In the Pitch Shift area, click **Enable** to active the pitch shift options.

- Adjust the pitch by changing the values of the **Coarse** and **Fine** options. The Coarse option transposes in semitones (half steps) and the Fine option transposes in cents (hundredths of a semitone).
- Adjust the **Pitch Shift Ratio** control to set the amount of transposition (pitch change).

For more information, click the **Help** button.

Applying Merging Audio Timezone Effects

The audio Timewarp Timezone effect lets you alter the length and speed of an audio clip without affecting the original pitch. The audio timewarp has been optimized for human speech.

To use the audio Timewarp effect, Timezone from Merging Technologies, you must have a Merging Technologies audio card installed on your system.

There are two methods of changing the speed: by specifying a percentage of the original speed or by entering a new SMPTE duration.

To apply the audio Timewarp (timezone) effect:

1. From the timeline, select an audio clip.
2. From the toolbar, click **Time Effects** > **Timewarp**.

   A timewarp container clip is created and the Timewarp TimeZone property editor is displayed.

   We are so happy for you that you have reached such an important step in your life. Thank you for letting us share it with you.

3. Click the **Load Preset** button and select one of the Merging TimeZone presets.
4. Do one of the following to define the new speed:
   - In the **Speed (%)** box, type a new speed as a percentage of the original speed.
   - In the **Duration (SMPTE)** box, type a new end timecode for the container clip.

   You can define the speed using either the speed or duration control. Because these properties are interdependent, when you change one, the other is updated automatically. For example, if you specify a new end timecode, the speed is adjusted so that the clip fills the new duration.

5. In the **Quality** box, specify how you want the processing to be done. The higher the quality setting, the more processing power, and therefore more time is required to complete the process. You can, for example, set the quality to Fast while you experiment with parameters. Once you've decided on your settings, set the quality to High to process the final result.
6. Click the **Update Duration** button to update the clip displayed on the timeline.
7. On the **Advanced** property page, set the following parameters:
   - **Blocklength**: Specify the size of the audio blocks used to perform the Timezone processing. As a general rule, percussive sounds, such as drums, piano, or clicks, should use shorter blocklengths, while instruments such as strings, wind, and flute, should use longer blocklengths. For clips that combine both percussive and tonal sounds, like music, you'll need to experiment with this parameter for an optimal setting.
   - **Cross Fading**: Specify the length of the crossfade applied between each audio block during the Timezone processing.
   - **Energy Detection (dB)**: Specify the energy threshold for processing audio blocks. When you select this option, only audio blocks that do not exceed the specified energy threshold are processed. This is particularly useful for percussive content or for speech applications. Do not select this option when an exact processed file size must be guaranteed.

For more information, see "Timewarp (audio timezone) Property Editor" in the Help.

Applying a Video Timewarp Effect

The video Timewarp effect lets you speed up or slow down the action in a video clip. You can also reverse the action in a clip, freeze frames, or match the duration of two clips. You can adjust the quality of the effect using the settings in the Timewarp property editor. The FluidMotion rendering options provide a method of interpolating motion in a Timewarp effect to produce smooth motion. For more information about using FluidMotion rendering, see "Setting the Image Quality and Interpolation" on page 957.

You can control the warping of the interpolated images in a Timewarp effect using the Correction tools, as you would with the Warp effects. For information about creating shapes, see “Warp Effect” in the Help. For information about using the Correction tools, see “Fixing FluidMotion Rendering Problems” on page 958.

The Timewarp effect has five modes:

Mode	Description
Constant	Speeds up or slows down the action in a clip by giving it a new constant speed—see “Applying a Constant Speed” on page 947.
Speed	Applies a variable speed, so that the action speeds up and/or slows down progressively—see “Applying a Variable Speed” on page 949.
Input Speed	Applies a variable speed based on the source clip in the timewarp container clip, so that the action speeds up and/or slows down progressively—see “Applying a Variable Speed Based on the Source Clip” on page 951.
Position	Rearranges the action completely by changing the position of frames in time—see “Changing the Position of Frames” on page 953.
Hold	Freezes frames—see “Freezing Frames” on page 954.

Inside a timewarp container clip, audio and video synchronization are not valid. Therefore, you cannot play the audio portion of a clip from inside a video timewarp container clip or from a clip that is a container clip of a timewarp container clip.

To apply a video timewarp:

1. From the timeline, select a video clip.
2. From the toolbar, click **Time Effects** > **Timewarp**.

   A timewarp container clip is created and the Timewarp property editor is displayed.

3. From the Mode list, select one of the following:
   - **Constant** to apply a constant speed to the entire clip.
   - **Speed** to specify a speed that varies throughout the clip.
   - **Input Speed** to specify a speed based on the source clip.
   - **Position** to apply frame mapping.
   - **Hold** to freezes frames.

*To freeze frames in the selected clip, you can also go to the frame that you want to freeze and click **Time Effects** > **Freeze** in the toolbar.*

4. Select the appropriate options on the General property page. The options vary depending on the mode you selected from the Mode list.
5. Select the **Invert Fields** option to reverse field dominance in a clip—see "Understanding Video Settings" on page 681.

If you selected the Frame Processing option in the Processing Options dialog box, then the Invert Fields option in the Timewarp property editor will have no effect when you process the timewarp.

6. On the Quality property page, select the **Interpolation** mode you want to use for the timewarp.

As frames are added or removed, the timewarp interpolates between frames (or fields in field processing mode) to create a smoother motion.

7. On the Correction property page, select the view and settings to correct any defects in the output.
8. On the Options property page, select the appropriate options.
9. Click the **Update Duration** button to change the duration of the Timewarp effect to include the entire source effect.

If you have problems applying a timewarp to material that has been transferred from film using a 3:2 pulldown, you should first apply a 3:2 Contract effect, then apply a Timewarp, and then apply a 3:2 Expand effect on the timewarped results, using the Frames option in the Processing Options dialog box. For more information, see "Applying a 3:2 Contract Effect" on page 935 and "Applying a 3:2 Expand Effect" on page 937.

For more information about the Timewarp property editor options, click the **Help** button.

Applying a Constant Speed

Using the Constant mode, you can assign a new apparent speed to a portion of a clip. For example, in a scene where a runner is crossing the finish line, you can set the speed to 50% to slow down the action.

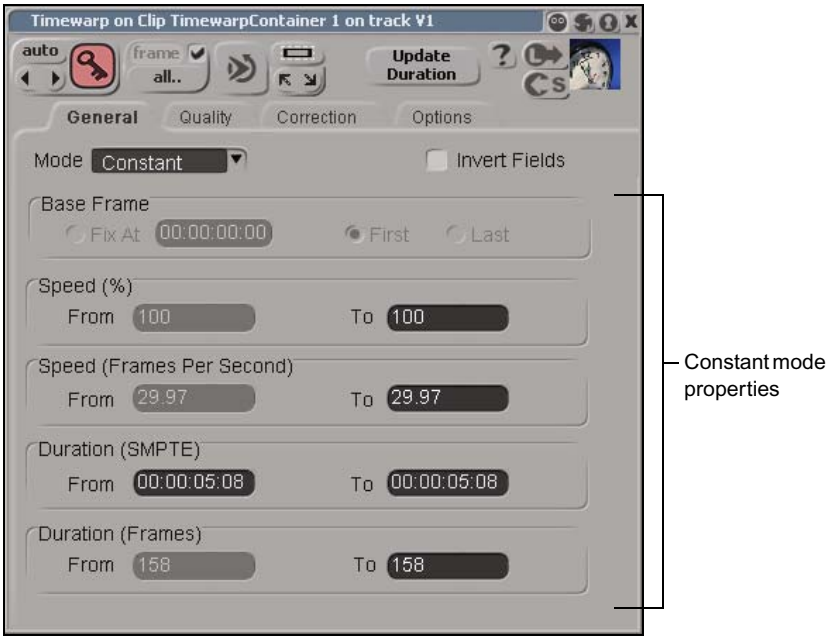
You can define the speed using any of the speed or duration controls. Because these properties are interdependent, when you change one, the others are updated automatically. For example, if you specify a new duration by changing the end timecode, the speed is adjusted so that the clip fills the new duration.

Once you've applied a new constant speed to a clip, you can adjust the clip's in and out-points and its duration.

To apply a constant speed:

1. From the Timewarp property editor, select **Constant** from the Mode list.

   The Constant mode properties are displayed.



2. To define the new apparent speed, do one of the following:
   - **Speed (%)**: Type a new speed as a percentage of the original speed.
   - **Speed (Frames per Second)**: Type a new speed in frames per second (enter a negative value if you want to reverse the action in the clip).
   - **Duration (SMPTE)**: Type a new duration for the container clip.
   - **Duration (Frames)**: Type a new duration in frames.

   Frames are added or removed from the clip to change the apparent speed of action. Speed values are rounded, so that the number of frames is an integer.
3. Click the **Update Duration** button to update the container clip's duration on the timeline.

If the Interpolation option on the Quality property page is set to None and the new constant speed is slower than the original speed, the updated duration of the clip on the timeline may not match the updated duration in the property editor. This is because slowing down the clip without interpolation simply duplicates each full frame a fixed number of times. To remove the extra frames, you can simply trim them in the timeline.

When Interpolation is selected, extra frames are not generated because some frames are mixed together.

For more information about the Timewarp property editor options, click the **Help** button.

To adjust the clip's in and out-points on the source clip:

1. Select the timewarped clip that contains the in or out-points you want to change.
2. Do one of the following:
   - From the top timeline, select the clip's in or out-point. Hold down the F key and drag the edit handle to move the in or out-point forward or backward in time.
   - From inside the timewarp container clip, select the First Frame or End Frame marker and drag it to the new in or out-point.

   The clip now uses more or less material, but its duration on the top timeline does not change. This will either speed up the action or slow it down, depending on whether you increased or decreased the number of frames being used.

To adjust the clip's duration:

1. Select the timewarped clip whose in or out-points you want to change.
2. From the top timeline, select the clip's in or out-point.
3. Hold down the G key and drag the edit handle to move the in or out-point forward or backward in time.

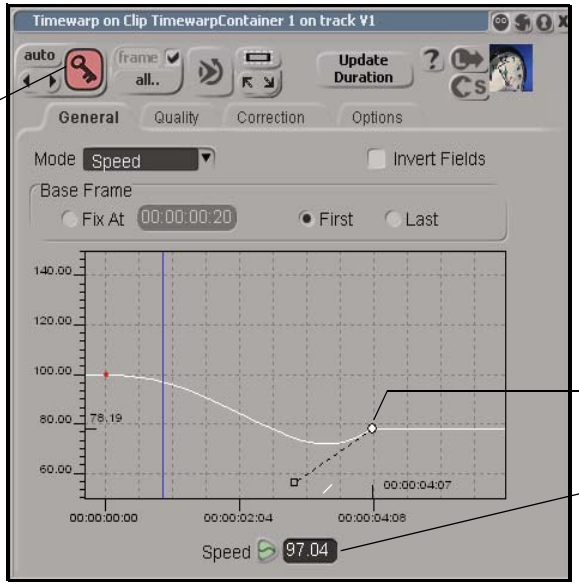
   The clip's duration is increased or decreased, but its in and out-points in the source material do not change.

Applying a Variable Speed

Using the Speed mode, you can assign different speeds to different parts of a clip without changing the clip's duration on the timeline.

For example, if you apply a timewarp to a clip in a basketball scene, you can slow the action down and then speed it up again to make the ball gradually slow down as it approaches the net, come to a stop above the net, and then fall through the net at full speed.

Changing the speed changes the portion of the source clip that is used, since more or less material is needed to maintain the clip's duration. After each change, the first frame and end frame markers inside the timewarp container clip are updated accordingly. A base frame marker is set at the frame where you originally applied the timewarp.



Animation Key button

Apparent speed at timecode 00:00:04:07.

Apparent speed at position indicator.

To apply a variable speed:

1. From the Timewarp property editor, select **Speed** from the Mode list.

   The Speed function curve is displayed.

2. Change the apparent speed of the clip by doing one of the following:

   - Edit the function curve—see "Working with the Animation Graph" on page 986.
   - Move the position indicator to a specific timecode and type a value in the **Speed** text box.

   If the Autokey mode is on, a keyframe is created on the function curve.

   If the Autokey mode is off, you can use the Set/Remove Key button in the Timewarp property editor to add or remove keyframes from the function curve.

*You can also edit the function curve in the animation editor by right-clicking the Animation Key button and selecting **Animation Editor**.*

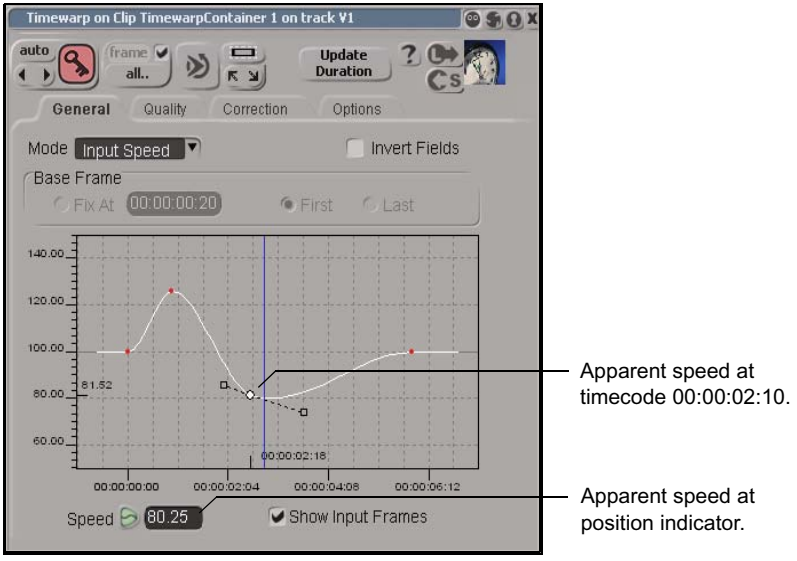
In the animation editor, you can work on a copy of the function curve and preserve the original until you're ready to accept your changes. For more information, see "Making Temporary Copies of Function Curves" on page 1004.

For more information about the Timewarp property editor options, click the **Help** button.

Applying a Variable Speed Based on the Source Clip

Using the Input Speed mode, you can assign different speeds to different parts of a clip, and update the clip's duration accordingly.

Changing the speed in the Input Speed mode does not affect the portion of the clip that is used because the changes are based on the source material. Instead, the clip's duration is lengthened or shortened, depending on whether you slowed the clip down or sped it up. However you change it, the final timewarped clip will retain the first and end frames that you originally specified.



To apply a variable speed based on the source clip:

1. From the Timewarp property editor, select **Input Speed** from the Mode list.

   The Input Speed function curve is displayed.

2. Select the **Show Input Frames** option.

   The Input Speed function curve is updated to represent the source material for the timewarp container clip.

3. Change the apparent speed of the clip by doing one of the following:

   - Move the position indicator to a specific timecode and type a value in the **Speed** text box.
   - Edit the function curve—see "Working with the Animation Graph" on page 986.

   If Autokey mode is activated, a keyframe is created on the function curve.

   If Autokey mode is deactivated, you can use the Set/Remove Key button in the Timewarp property editor to add or remove keyframes from the function curve.

4. Deselect the **Show Input Frames** option.

5. Click the **Update Duration** button to update the duration of the clip on the top timeline.

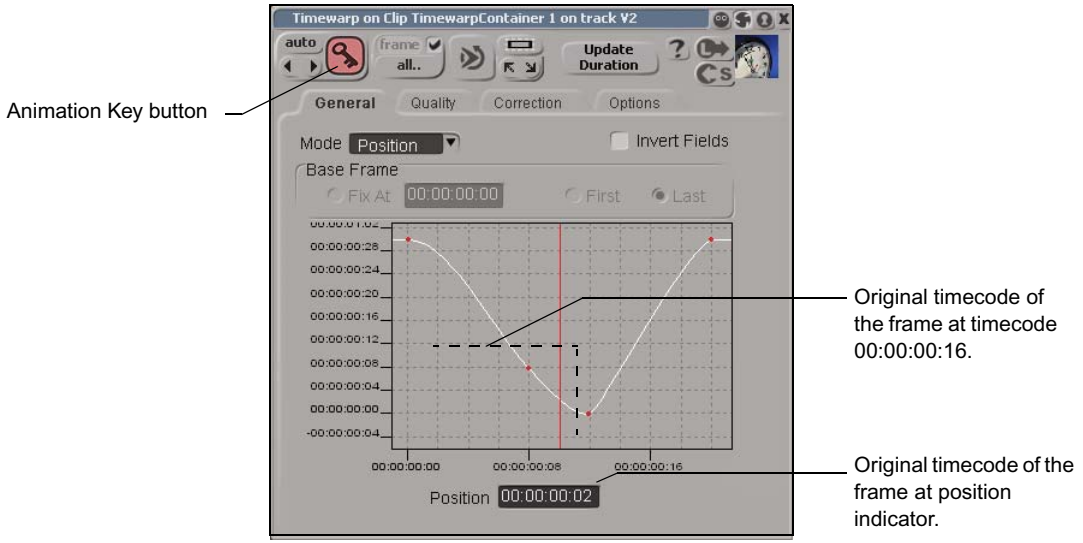
For more information about the Timewarp property editor options, click the **Help** button.

Changing the Position of Frames

Using the Position mode, you can move frames to different timecodes. For example, to reverse the action in a clip, you can place the last frame first and the first frame last.

In Position mode, a position curve maps the frames' original timecode inside the container clip (the vertical axis) versus their new timecode (on the horizontal axis). You can change this mapping by editing the function curve.

In the following example, the clip plays backward slowly from the last frame to the first, then plays forward fast, from the first frame to the last.



To change the position of frames:

1. From the Timewarp property editor, select **Position** from the Mode list.

   The Position function curve is displayed.

2. Change the position of frames by doing one of the following:

   - Edit the function curve—see "Working with the Animation Graph" on page 986.

- Move the position indicator to a specific timecode.
- In the Position box, type the original timecode of the frame that you want to move to the current location of the position indicator.

If Autokey mode is activated, a keyframe is created on the function curve.

*You can also edit the function curve in the animation editor by right-clicking the Animation Key button and selecting **Animation Editor**.*

In the animation editor, you can work on a copy of the function curve and preserve the original until you're ready to accept your changes. For more information, see "Making Temporary Copies of Function Curves" on page 1004.

To reverse the action in a clip:

1. From the timeline, select a clip.
2. From the toolbar, click **Time Effects** > **Timewarp**.

   A container clip is created and the Timewarp property editor is displayed.

3. Click the **Load Preset** button.
4. From the Load Preset dialog box, select the **Reverse** effect.

   In the Base Frame box, Last is selected. In the Speed (%) box, the value is -100, indicating that the clip will play in reverse.
5. Change the negative speed value to make the clip play backwards at a different speed.

For more information about the Timewarp property editor options, click the **Help** button.

Freezing Frames

Using the Hold mode, you can freeze the action of a specified frame by giving it a speed of zero. Then you can specify whether to freeze a frame or field by using the Hold On options. Avid DS Nitris replaces frames in a specific part of the clip by using the frame or field you specified in the Timewarp property editor. Field-based holds require processing whereas frame-based holds do not.

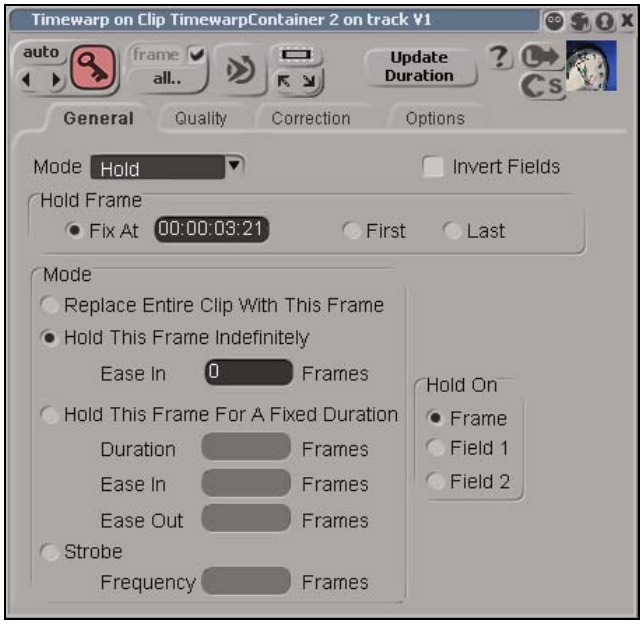
To freeze frames:

1. From the timeline, select a clip.
2. Using the transport controls, locate the frame you want to freeze.

3. From the toolbar, click **Time Effects** > **Freeze**.

   A timewarp container clip is created and the Timewarp property editor is displayed.

*You can also freeze frames by clicking Timewarp and selecting **Hold** from the Mode list in the Timewarp property editor.*



Notice that the Fix At text box contains the selected frame's timecode in the timewarp container clip, and not on the top timeline. A base frame marker is set at this timecode on the timeline in the timewarp container clip.

All subsequent frames in the clip are replaced by the current frame causing the action to freeze indefinitely. You also have the option of holding the first or last frame of the container clip.

4. Adjust the base frame by changing the **Fix At** value.

You can also adjust the base frame by moving the base frame marker in the timewarp container clip.

5. By default, the **Hold This Frame Indefinitely** option is selected. If you want the action to slow down gradually, type a value in the **Ease In** text box.

   The action slows down over the specified number of frames.

6. If you want to convert the clip into a still image based on the specified frame, select the **Replace Entire Clip With This Frame** option.

7. If you want to freeze a frame and then let the action resume, select the **Hold This Frame for a Fixed Duration** option and set the following:

   - **Duration**: Type the number of frames during which the action is frozen.
   - **Ease In**: Type the number of frames during which the action slows down to a stop.
   - **Ease Out**: Type the number of frames during which the action recovers its original speed.

8. If you want to create a strobe effect do the following:

   - Select the **Strobe** option.
   - In the **Frequency** text box, type the number of frames that are repeated and then skipped.

   Starting with the first frame in the container clip, a specified number of frames is repeated and then the same number of frames is skipped.

9. To freeze either a frame or field, select one of the following from the Hold On boxes:

   - **Frame**: Freezes both fields of the selected frame.
   - **Field 1**: Freezes the first field of the frame.
   - **Field 2**: Freezes the second field of the frame.

Freeze frame timewarps do not require processing when you set the Hold On mode to Frame, and you've set the Ease In and Ease Out values to zero.

Freeze frame timewarps do require processing when you set the Hold On mode to Field 1 or Field 2, or when you've specified an Ease In or Ease Out value.

10. Click **Update Duration** to update the clip's duration.

For more information about the Timewarp property editor options, click the **Help** button.

Giving One Clip the Duration of Another

You can use the Timewarp effect to give one clip the same number of frames as a second clip. This is useful when you want to composite a clip that contains a single-frame image with another clip that contains action.

To give one clip the duration of another:

1. Place two clips on the timeline.
2. Select the first clip (the clip whose duration you want to change).
3. Press Ctrl and click the second clip (the one whose duration you want to match).
4. From the toolbar, click **Time Effects** > **Timewarp**.

   A container clip is created over the first clip and the Timewarp property editor is displayed. On the timeline, the length of the first clip is updated to match the length of the second clip.

For more information about the Timewarp property editor options, click the **Help** button.

Setting the Image Quality and Interpolation

You can choose the image quality and interpolation for a Timewarp effect. You can go from a fast low-quality test image to a slower higher-quality image for final output by simply changing a few of the settings in the Quality property page.

The Interpolation settings let you choose how the actual pixels of the timewarped object are calculated. The FluidMotion option uses an interpolation algorithm that creates intermediate images by morphing the motion across the bracketing images. The application examines each pixel in the outgoing image, finds the corresponding pixel in the incoming image, and creates a motion path between the two that it uses to build the intermediate images necessary to fill out the effect.

This results in extremely smooth motion. However, it can also introduce artifacts (distorted areas) into the effect, particularly when objects move in front of or behind other objects, move significantly from one frame to the next, or move into the image from outside the frame. The Timewarp property editor provides tools for correcting artifacts in a Timewarp effect. For more information about correcting artifacts, see “Fixing FluidMotion Rendering Problems” on page 958.

To create a smoother motion when playing the effect:

1. From the timeline, select a clip.
2. From the toolbar, click **Time Effects** > **Timewarp**.

   A container clip is created and the Timewarp property editor is displayed.
3. In the Timewarp property editor, select the Quality property page.
4. Select **Interpolation** > **FluidMotion**.
5. Adjust the intensity of the FluidMotion effect using the Amount setting.
6. Select the degree of quality you want versus the process time using the Method settings.
7. Define the width of the border using the Border settings.
8. Correct any artifacts introduced by FluidMotion rendering, see "Fixing FluidMotion Rendering Problems" on page 958.

For more information about the Timewarp property editor options, click the **Help** button.

Fixing FluidMotion Rendering Problems

When you select FluidMotion to render the Timewarp effect, artifacts might appear in images particularly when objects:

- Move in front of or behind other objects
- Move significantly between one frame and the next frame
- Move into the image from outside the frame

The bracketing images, whether frames or fields of original material, do not have artifacts.

Artifacts appear when the FluidMotion engine cannot determine the motion of an object between a pair of sequential input frames or fields. It incorrectly calculates the correspondence between an object in the first frame and the same object in its new position in the second frame.

The Correction tools let you specify to the FluidMotion engine what the correct correspondences are to fix the artifacts. You can use the shape tools to draw a shape around an artifact object in the first input frame or field, and then move or edit the shape in the subsequent input frame or field to specify where that object is positioned in the second frame.

You can then select the style of adjustments that you want to use to fix the artifacts, either Hint, Correction, or Constraint. For full descriptions of the options available on the Correction property page, see "Correction Property Page (Video Timewarp)" in the Help.

Shapes span the length of the effect, but have an additional property for activeness which can be enabled or disabled independently for each pair of successive input frames or fields. A shape's correction is applied only to timespans between two frames or two fields where the shape is active. Therefore, allowing a shape to correct a problem on a few frames of the effect without affecting any other part of the effect timespan.

To correct artifacts introduced by FluidMotion rendering:

1. In the Timewarp property editor on the Quality property page, select **Interpolation** > **FluidMotion**.
2. Select the Correction property page.
3. Select a view from the View options to view the input frame or input field that displays the artifacts.

   For example, select View Frame and Previous Input Frame to view a frame.
4. Select Edit and Show Shapes.
5. Create a shape around the area you want to fix.
6. Use the Shape Behaviour tools to adjust how the artifacts in the selected shape area are corrected.
   - From the Type menu, select the style of adjustment that you want to apply to the shape area. Selecting Hint applies the least amount of change to the area, whereas, selecting Correction applies the most change to the area, and Constraint is a combination of Hint and Correction. The best choice is usually Hint, because it treats the shapes as an approximate area and will try to improve on the positioning. Whereas, Constraint and Correction use the exact positioning of the shape you created. Constraint is usually the second best choice.
   - Select Activeness to let the corrections apply to the area defined by the shape. Each shape you draw spans the length of the effect. However, only frames or fields where the shapes are active will the corrections to the shape area affect the output image.

- Select Enable AutoBarrier if you want to restrict the correction to be within a certain distance of the shape. For example, use Enable AutoBarrier to prevent a strong correction in the lower left of an image from adversely affect the top right of the image.

7. View the subsequent frame or field by selecting Next Input Frame or Next Input Field.
8. Edit or move the shape to specify the new position of the image object that the shape is correcting.
9. Select Result to view the corrections.

For more information about the Timewarp property editor options, click the **Help** button.

Chapter 9
Animating Objects

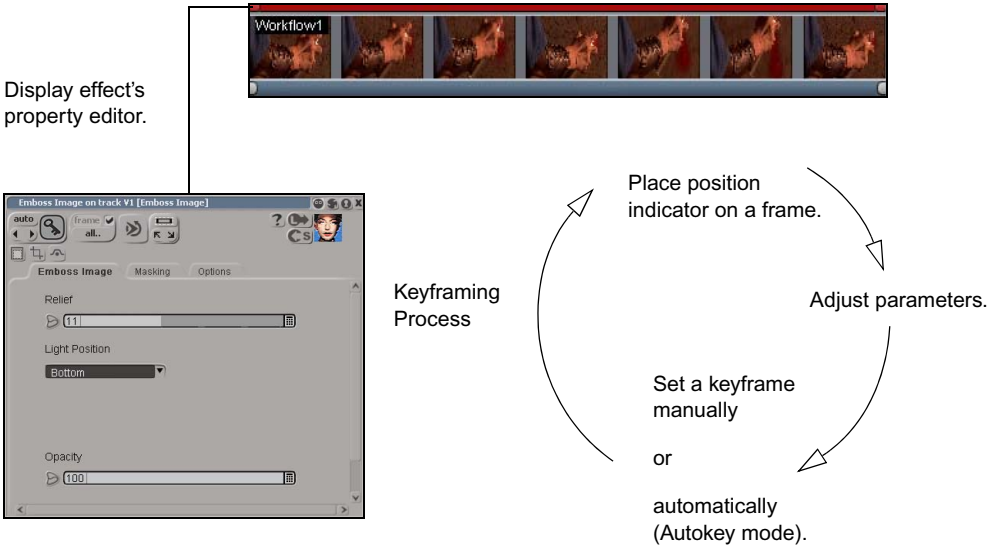
This chapter describes the different ways you can animate an object's properties. You can use the animation tools to create and adjust animation by setting keyframes and manipulating function curves.

After you master the animation techniques, you can refer to specific chapters in this guide and the *Avid DS Nitris Compositing and Graphics Guide* to learn how to animate transitions, video and audio effects, composited layers, or graphics.

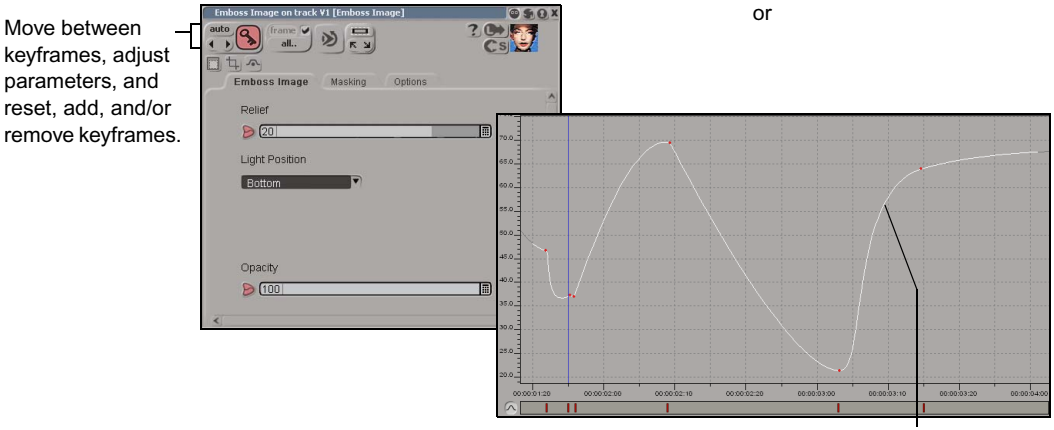
- Workflow: Animating Properties
- Creating Animation
- Understanding the Animation Editor
- Editing Animation
- Processing Animation

Workflow: Animating Properties

1. Create animation.

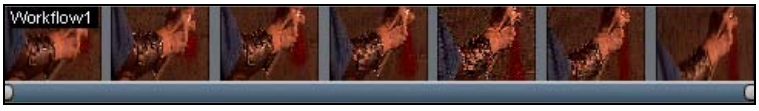


2. Edit animation.



3. Process animation.

In the final sequence, the effect's properties change over time.



Creating Animation

Animation is the change of an object/image over time. To create animation, you record changes to an object's properties. Using a process called *keyframing*, you specify the object's properties at the first and last frame of each change. Properties are automatically calculated and set for the frames in between, producing a change in the object. You can add as many keyframes to an object as you need to create your animation.

Adding animation requires system resources that might impact your system's performance.

Objects and effects that you can animate include transitions, video and audio effects, layers, and graphics. For example, you can animate the blur on a video effect, the order of a layer in a composite, the rotation of a stroke, or the color of a title.

There are several ways to create animation:

- Use the Autokey mode to set keyframes automatically, as you adjust the object's properties—see "Setting Keyframes Automatically" on page 964.
- Use the Animation Key button and Animation button to set keyframes manually each time you adjust the object's properties–see "Setting Keyframes Manually" on page 965.
- Use the animation editor to manipulate the function curves of selected object properties—see "Understanding the Animation Editor" on page 981.
- Use mathematical functions to drive the parameter(s) of one effect using a parameter(s) of another effect and to modify the relationship of those parameters—"Animating with Expressions" on page 969.
- Create a motion path to animate a DVE.
- Record audio animation in the mixer.

When you create animation, the corresponding animation keys appear in the animation editor and in the position bar below the Record viewer.

Setting Keyframes Automatically

When you activate the Autokey mode, keyframes are automatically created each time you modify an object's properties. Automatic keyframing only sets keyframes for the properties that you modify, which is useful when you want to adjust specific properties without adding or modifying the keyframes of the other properties.

To set keyframes automatically:

1. When you're ready to begin animating, do one of the following:

   - On the status bar, click the **Autokey** button.
   - From the File menu, select **User Preferences** to open the User Preferences dialog box. From the Animation property page, select the **Set Keys When Changing Values** option.
   - Right-click the Animation Key button in the property editor of the object that you want to animate, and select **Autokey**.
   - Click the **auto** button in the property editor.

   The Autokey mode is activated and the Animation Key button turns red whenever a keyframe is set. Keyframes will automatically be set for all property editors and animatable properties until Autokey is deselected.

2. Move the position indicator to the frame on which you want the animation to start.
3. Use the property editor to adjust the values of the properties that you want to animate.

   A keyframe is automatically set each time you adjust the properties.
4. Go to another frame and adjust the properties again.

   A new keyframe is set at the current timecode and property values are computed for all frames between the keyframes.
5. If necessary, go to different points in the clip and continue adding keyframes.
6. If you want to stop adding keyframes automatically, click the **Autokey** button again to deactivate the Autokey mode.
7. Do one of the following to view the animation:
   - Process the effect and play the clip—see "Processing Animation" on page 1016.

- In the property editor, click the **Preview** button.
- Press **Ctrl** and click **Play** to play the clip frame by frame.

When you play the clip, the keyframed properties change as the clip advances.

In the Autokey mode, keyframes are set only for the properties that you modify. To set a keyframe for all animatable properties, you should use the Animation Key button. For more information, see "Setting Keyframes Manually" on page 965.

Setting Keyframes Manually

You can create animation by adjusting properties and manually setting keyframes at different points in time. Manually setting keyframes lets you to preview your changes before you actually set any keyframes.

This method is also useful when you want to set keyframes using the controls in the property editors or views, or interactively in the viewer.

The Animation button at the left of numeric parameters on property editors lets you to set a keyframe for individual parameters at the current position of the position indicator.

The animation controls change color depending on the status of the animation and keyframe. For example, the animation controls turn yellow when you modify the value of an animation parameter but do not set a keyframe. The yellow indicates a temporary value for the parameter. If you move the position indicator to another frame, the temporary value is removed and the curve is restored. If you want to set a keyframe for the temporary value of the parameter, click the Animation button for that parameter.

When you click the Animation Key button, keyframes are set for all animation properties of the effect at the current position of the position indicator. However, when the Animation Key button is yellow (indicating there are temporary values) clicking the Animation Key button will set keyframes only for those properties that have temporary values.

When keyframes are set for all properties, clicking the Animation Key button removes all the keyframes.

The following table describes the animation control status indicator colors.

Color	Status description
Gray	No keyframes are set. You can preview adjustments to animation parameters.
Green	No keyframes are set at the current position of the animation.
Red	Keyframes are set at the current position of the animation.
Yellow	Temporary change to a parameter value at the current position of the animation.

For the Color Correction and Color Correction Classic effects, clicking the Animation Key button does not set keyframes if all the parameters are set to their default settings. For more information, see "Returning to Default Values" in the Help.

To set keyframes manually:

1. Click the **Autokey** button to turn off Autokey mode.
2. Open the property editor in which you want to create animation.
3. Move the position indicator to the frame in which you want the animation to start.
4. Adjust the properties that you want to animate.
5. Set keyframes by doing one the following:

- To set a keyframe for an individual numeric parameter, click the **Animation** button beside the parameter.

- To set keyframes for several properties that you modified, click the **Animation Key** button.
- To set a keyframe for all properties in the property editor when there are temporary values, press **Ctrl** and click the **Animation Key** button.
- To set a keyframe for all properties in the property editor when there are no temporary values set, click the **Animation Key** button.

6. If necessary, go to different points in the clip and continue adding keyframes.
7. To view the animation, do one of the following:
   - Process the effect and play the clip—see "Processing Animation" on page 1016.

- In the property editor, click the **Preview** button.
- Press **Ctrl** and click **Play** to play the clip frame by frame.

When you play the clip, the keyframed properties change as the clip advances.

Viewing and Moving Animation Keys

Once you've created animation, each animation key you set is displayed in the position bar below the Record viewer. Animation keys are represented as red bars. You can only view and reposition animation keys in the position bar.

To view animation keys:

- Select an effect from the timeline.

  If the effect has animation, its animation keys are displayed in the position bar.

To reposition animation keys:

- Select an animation key from the position bar and drag it to a new location.

To show or hide the animation keys:

- Right-click the position bar and select/deselect **Show Animation Keys**.

To snap the position indicator to an animation key:

1. Press Ctrl and click an animation key.
2. Reposition the key in the position bar.

   The key moves with the position indicator and you can see, in the viewer, where you're moving it.

Animating with Expressions

Expressions are mathematical formulas that you can use to control any parameter that can be animated, such as translation, rotation, blur radius, or hue.

You can create almost any connection between parameters, from simple "A = B" relationships to very complex ones using predefined variables, standard math functions, random number generators, and more. Regardless of how you use expressions, you'll find that they're powerful because they allow you to animate precisely, right down to the parameter level. Using expressions, you can:

- Match the position and/or rotation of one DVE to the position of another DVE,
- Match the settings of several Color Correction effects, or
- "Lock" several properties that do not have a lock option.

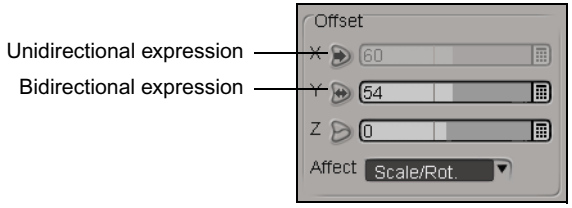
Expressions in Avid DS Nitris are built using the same expression language as Softimage®/XSI.®

Creating Expressions

You can create an expression in different ways, depending on the complexity. You can create simple expressions using an effect's property editor or write more complex expressions using the expression editor.

One way to create a simple expression is by dragging and dropping one parameter over another in a property editor. The parameter that you choose to originate the expression is referred to as the "input". The input is the parameter that drives the parameter(s) that you constrain it with.

Once you create an expression, you will see an arrow on the animation button of the parameter you are constraining. This indicates the presence of an expression. A single-headed arrow indicates that an expression present is unidirectional and a double-pointed arrow indicates that an expression is bidirectional. For more information, see "Editing Bidirectional and Unidirectional Expressions" on page 979.

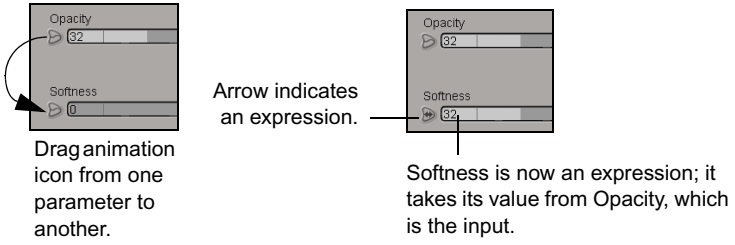


If you create an expression on a parameter that already has animation, such as a function curve or another expression, the existing animation is overwritten by the expression. You can press Ctrl+Z to undo and bring back the animation/expression.

To create a simple A = B (constraint) relationship:

- In a property editor, drag parameter A's animation icon onto parameter B's animation icon.

  Parameter B's animation icon shows an arrow and its value changes to that of parameter A.



***Tip**: If you're creating a constraint type expression, and need to switch property pages, start dragging the animation icon and then hover over the tab of the property page you want to switch to. This will let you access the other property pages.*

To open the expression editor and create a default expression:

- In a property editor, right-click the animation icon of a parameter and select **Create Expression**.

  The expression editor displays, and you can write and edit expressions.

In Avid DS Nitris, expressions can have any number of inputs (including 0).

For more information, see “Expression Editor” in the Help.

Validating and Applying Expressions

After creating an expression, you can validate and apply it. When you validate an expression, the syntax of the expression is checked but not applied. When you apply an expression, it is connected to the target parameters. Any changes you make to the expression do not take effect until you apply the expression.

To validate an expression:

- In the expression editor, click the **Validate** button.

  A message displays in the message pane, informing you of whether or not the expression is valid.

To apply an expression:

- In the expression editor, click the **Apply** button.

  The expression is automatically validated. If the expression is invalid, a message informs you and the expression is not applied.

Bypassing Expressions

When you want to deactivate, but not delete an expression, you can bypass it. When you bypass an expression, the resulting expression will either take the value from the first input or use the value of zero if there are no inputs.

To bypass an expression:

- In the expression editor, click the **Bypass** button.

Writing Expressions

Once you have the expression editor open, you can write an expression by typing it in the expression pane. When using mathematical operators, constants, and functions, it is inserted in the expression pane of the expression editor along with placeholder(s) for the parameter. For example, the Add operator will insert the following in the expression pane:

<expr1> + <expr2>

All you have to do is replace the placeholders “expr1” and “expr2” with values.

***Tip**: To place only the mathematical operator, and not the accompanying placeholder(s), press Ctrl while selecting an operator to add to the expression pane.*

Here's how to write an expression:

1. Select an input from the input pane and drag it to the expression pane.
2. In the expression pane, enter an expression by typing or choosing items from the Insert menu.
3. Validate and apply the expression.

To add inputs to an expression, do one of the following:

- Drag an input from the input pane and drop it in the appropriate location in the expression pane.
- Position the cursor at the appropriate place in the expression pane, click **Insert > Inputs** and select an input.

Reverting Expressions

While writing or editing expressions in the expression editor, you can revert or go back to the text of the expression that is currently in use for the property.

To revert an expression in the expression editor:

- While writing an expression in the expression editor, click the **Revert** button.

Resulting Value of an Expression

The value of an expression is always a floating-point value (meaning it can be a number like 12.345 instead of an integer like 12). The expression editor always shows the mathematically correct value. However, some parameters can only accept integers or values in a specific range. In this case, the value returned by the expression is automatically rounded off.

Using Inputs

An input is the parameter that will drive the parameter(s) that you constrain it with in an expression. You can have multiple inputs in an expression, and they can be connected to other

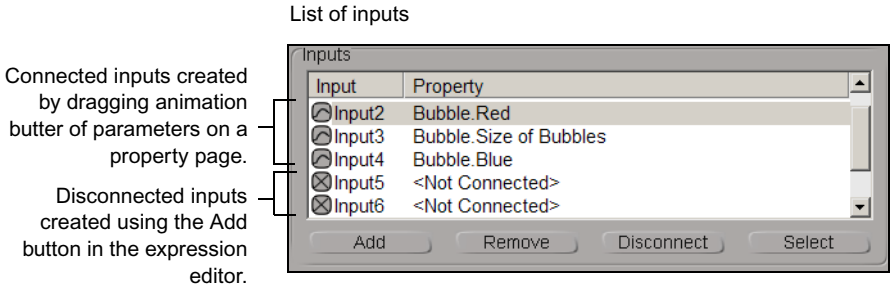
Connected and disconnected inputs are indicated in the expression editor by an icon. All inputs are listed in two places: the Insert menu (click Insert > Inputs) and the input pane at the bottom of the expression editor.

You can undo (Ctrl+Z) any add, remove, connect, and disconnect operation when working with inputs.

Connected input

Disconnected input

You can only use animatable properties as expression inputs. These have an animation button beside them on a property page.



To add inputs, do one of the following:

- In the expression editor, click the **Add** button at the bottom of the property page.

  A numbered input is added to the bottom of the Inputs list. It is not connected to anything.

- Drag the animation button of a property from a property editor to the Inputs list in the expression editor. You can place it anywhere in the list.

  An input is added to the Inputs list. It is automatically connected to the property from which it originated.

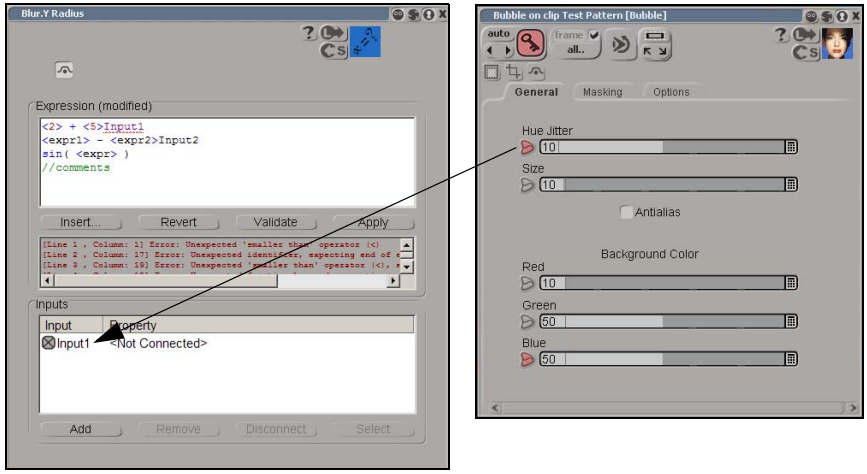
To connect an existing input:

- Drag the animation button of a parameter and drop it on any input (disconnected or not) in the input pane.

If the input was disconnected, it is now connected to the parameter. If the input was already connected to a property, it is replaced with the new property.

- On a property page, right-drag the animation button of a parameter and drop it on a parameter that already has an expression (the animation button will have an arrow on it).

  A menu displays, giving you the option to connect to an existing input or to a new input.



To remove inputs:

- Select one or more inputs from the input pane, click the **Remove** button.

To disconnect inputs:

- Select one or more inputs from the input pane, click the **Disconnect** button.

Expression Syntax

Here are a few things to remember when creating expressions:

- Parentheses must always be closed.
- Spacing is irrelevant. Spaces, tabs, and carriage returns make an expression easier to read, but they are ignored by Avid DS Nitris.

Syntax Colors

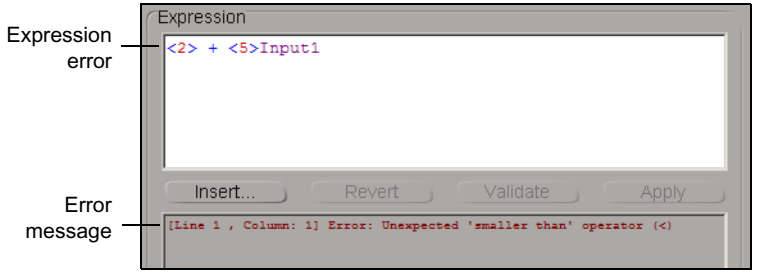
As you start writing expressions, you'll notice that the text is highlighted in different colors. Here's what they mean:

Color	Description
Purple	• Connected inputs. • Disconnected inputs are purple, underlined in red.
Blue	Keywords, functions, and operators.
Red	Numbers, predefined constants, and syntax errors.
Black	User-defined variable and sub-expression names.
Brown	Strings
Green	Comments

Syntax Errors

When you validate or apply an expression, the message window updates to display the result. If the expression contains any syntax errors, it is highlighted along with the line and column number.

Also, if one or more inputs used in the expression are not connected or do not exist, a warning message is displayed.



To identify syntax errors in an expression:

- In the message pane, double-click the error.

  The error is highlighted in the message pane.

Removing Expressions

Before you can remove an expression, you'll need to recognize when an expression is present. When there is an expression on a property, you'll see an arrow on the animation button.

Arrow indicates that an expression is present on a property.

To remove an expression:

- Right-click an animation button that contains an expression and select **Remove Expression**.

  If other expressions were using this expression as an input, they are still connected to that property.

Saving and Loading Expression Presets

A preset is a customized set of properties for an effect. The expression's property page is similar to the property pages of effects. You can load and save presets through the property editors or toolbars.

Loading a preset into an expression will only affect the text of the expression and its bypass state; it will not add, remove, reconnect, or disconnect inputs.

When saving and loading an expression preset, only the inputs that are contained within a particular effect will be valid in the preset. If there are inputs connected to properties in other effects, they will still be saved with the preset, but will not be connected to anything when you load the preset. For more information, see "Using Presets" in the Help.

Adding Comments to Expressions

You can add comments to an expression by using the // notation. Anything from the // to the end of the line is considered to be a comment. It is displayed in green in the expression pane, and will be ignored when the expression is validated. For example:

```
// Input1: Connect to X position of other object
var Period = Fr;  // Number of frames for 1 turn
var Radius = 100; // Radius of circle
Input1 + cos( Fc * 360 / Period ) * Radius
```

Comments are handy when you want to:

- Explain what should be connected to each input. This is useful for expression presets, so you know what to connect to the expression after loading the preset,
- Explain what each variable means, and
- Comment out lines. For example, you can comment out an expression and replace it by a different expression just to test something, and then return to the original expression.

To add comments:

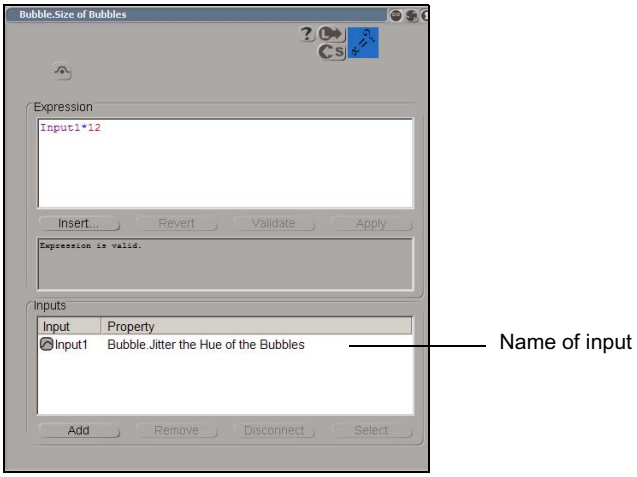
- In the expression pane, type // and then your comments.

  Your comments appear in green.

Editing Expressions

After creating an expression, you can fine-tune it in the expression editor or by modifying parameters in the property editor. For example, in the Bubble effect, let's create an expression on the Size parameter using the Hue Jitter parameter as the input.

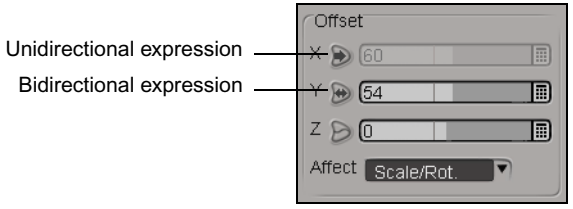
If you change the value of the Hue Jitter, the Size parameter will update to always be equal to the other parameter. Now let's say you want the Size to be 12 times larger than Hue Jitter. Here's how you would do it. In the expression pane, type *12 and click the Apply button. The expression is validated and applied.



Another way to edit an expression is to modify and set keyframes (in the property editor) from either the source property or on the expression in the expression editor.

Editing Bidirectional and Unidirectional Expressions

A bidirectional expression is an expression that you can modify and set keyframes on the property editor from either the input parameter or in the expression. For example, B = A is a simple bidirectional expression. B's expression is drive by A. You can edit the expression by changing the value of either A or B. However, the more complicated an expression is, the less likely it is to be bidirectional.



A unidirectional expression is indicated by a single-headed arrow; the expression goes in only one direction because there is no inverse. Some examples of unidirectional expressions include:

- An expression with no inputs cannot be inverted, so it is unidirectional.

- An expression with multiple inputs has an ambiguous inverse.

For example, B = A + C is unidirectional. Why? Because if we change A, we know that B is also changes. If we change B, we don't know if it changes A or C. Also, you'll notice that the slider and calculator icon are dimmed on the property page, since you can no longer edit the property.

***Tip**: You can eliminate the ambiguity of an expression by using the Read Only function found on the Insert menu (Value > Read Only) in the expression editor. For example, suppose B's expression is:*

B= Input1 + Input2

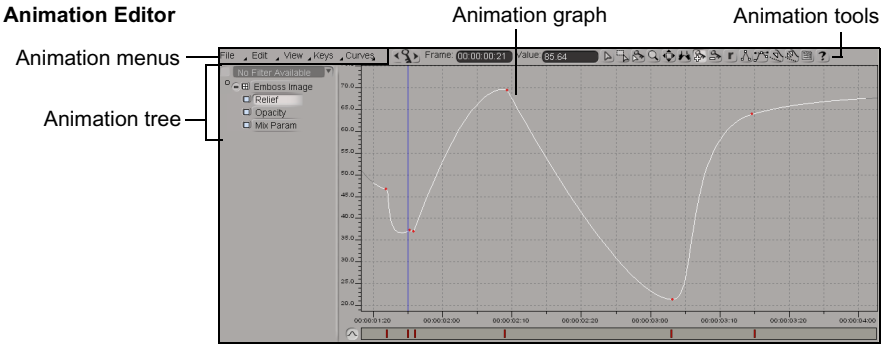
If you change B, it's unclear if it will change Input1 or Input2. However, if you make Input2 read only, then the ambiuity is gone.

B= Input1 + Input2(readonly)

Understanding the Animation Editor

The animation editor is where you can display and control the animation of a selected object. An object's animation is represented by a function curve on the animation graph. A function curve is a graphical representation of an object's property changes over a period of time. All function curves can be edited.

Some property editors contain animation graphs, where you can view or manipulate function curves without opening the animation editor.

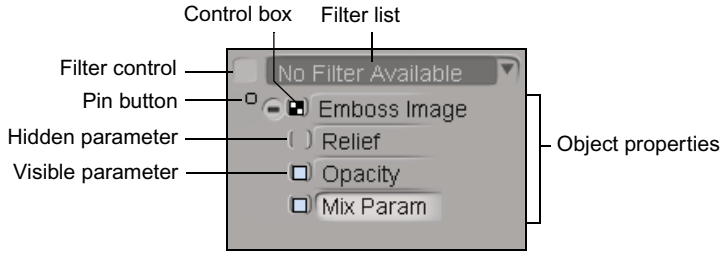


To access the animation editor, do one of the following:

- From the view switcher, select the **Animation Editor** button.
- Select **View** > **Single-Instance Views** > **Animation Editor**.
- In a property editor with animation controls, right-click the Animation Key button and select **Animation Editor**.

Using the Animation Tree

The animation tree displays a hierarchy of animated objects, such as effects or layers. You can navigate this tree to locate individual animated properties. When you select an item in the tree, its function curve is highlighted in the animation graph. You can also hide individual curves, leaving only the ones that you want to edit.



Option	Description
Control box	Indicates properties where function curves exist
Filter list	Displays a list of filters for displaying function curves that meet a specific set of criteria
Filter control	Makes the tree display the contents of the filtered list
Pin button	Marks an object so that it remains in the animation editor when you select a different object
Hidden parameter	Represents a parameter that is not displayed in the graph
Visible parameter	Represent a parameter that is displayed in the graph.
Object properties	Represents the animated properties of an object

Navigating the Animation Tree

When you select an object, the animation property tree displays its properties. When you select a property from the tree, it highlights the corresponding function curve.

You can expand and collapse the tree to show or hide properties. A plus sign (+) marks each property icon that has additional properties. After you click the plus sign to expand an item in the tree, it changes to a minus sign (-) to indicate that it can be collapsed.

To expand or collapse the animation tree:

- To expand the animation tree, click the plus sign (+) next to an object.

  The object's animatable properties are listed below the expanded object, and the plus sign changes to a minus sign.

- To collapse the animation tree, click the minus sign (-) next to an object.

  The object's properties are no longer visible in the animation tree, and the minus sign changes to a plus sign.

Displaying Function Curves

When editing function curves, it is often useful to display several curves simultaneously, so that you can synchronize the animation of different properties. Conversely, it is useful to hide the function curves of properties that you do not want to animate.

To show or hide a property's function curve:

- In the animation tree, click the control box next to the property whose function curves you want to hide or display.

  The control box is light-blue when the function curve is displayed. It is gray when the function curve is hidden.

To hide or display all the function curves of an object:

- In the animation tree, click the control box next to the object whose function curves you want to show or hide.

  A plus sign in the control box indicates that all of its function curves are displayed. The control box is gray when all the function curves are hidden.

Displaying Function Curves of Different Objects

You may want to view or edit several function curves simultaneously. For example, when applying color correction to two clips, you may want to see their animated properties simultaneously. You can do this by pinning (marking) the function curves of different objects, so that they can all be viewed in the animation editor at the same time.

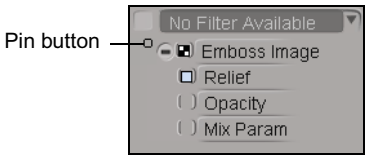
If more than one object is selected in the 3D DVE layout, the animation editor does not display its function curves.

To see the animation curves, select the first graphics object and view the desired animation parameters in the animation editor. Pin these parameters by clicking the pin icon to the left of each parameter (e.g. Transform, Surfaces ...) in the animation editor. The pin icon will turn red. Now, select the second graphics object and view the desired animation parameters in the animation editor. The animation curves for both objects should be displayed.

To view the function curves of multiple objects:

1. Open the property editor of the first animated object.
2. Right-click the Animation Key button and select **Animation Editor**.

   The animation editor is displayed. In the animation tree, all the animatable properties are displayed.
3. Click the **Pin** button of the function curve that you want to keep displayed in the animation editor.



4. Leaving the animation editor open, select another object whose function curve you want to view.

   The animatable properties of the second object are displayed in the animation editor above the pinned properties.
5. Pin the properties of the new objects that you want to display.

To unpin a function curve:

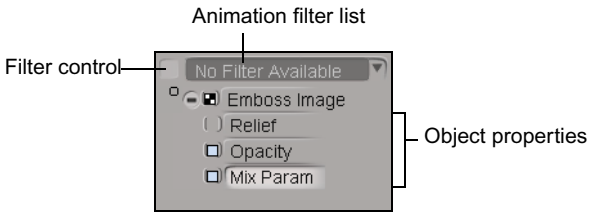
- Click the **Pin** button to unpin the property.

  When you open a different object, the unpinned properties are no longer displayed in the animation editor.

Filtering Function Curves

By filtering function curves, you can customize the contents displayed in the animation tree and view only those files that meet a specific set of criteria. For example, you may want to view or edit only the function curves that begin with the letter “c” and have the opacity parameter. By displaying only the function curves that meet these criteria, you can easily locate and edit them.

The animation filter is located at the top of the animation tree. By default, the animation filter list is displayed; you can hide it you need more room to display function curves in the animation tree.You can also turn the list on or off, but only if there is one or more filters present in the list. If there are no filters, then the entire tree is displayed.



To show or hide the animation filter:

- In the animation editor, select **View > Filter**.

To turn the animation filter on or off:

- Select the Filter control beside the filter list to turn it on.

  The function curves that meet the criteria of the selected filter are displayed.

- Deselect the Filter control to turn it off.

  The entire animation tree is displayed.

To create a filter:

1. In the animation editor, select **View > Edit Filter**.

   The Edit Filter dialog box opens and the last created filter is displayed.

2. Click the **Clear** button.
3. From the Criterion list, select a filter option.
4. In the Value text box, type the text or portion of text that you want to use as a filter criterion. For example, to view function curves that contain opacity, select Contains as the criterion and type “opacity” in the Value text box.
5. Repeat step 4 to add additional filter criteria.
6. To clear all data, click the **Clear** button.
7. Click the **Save** button and type a name for the filter. Click **OK**.
8. Click the **Close** button.

   The animation filter list is activated and your filter appears as an option in the list.

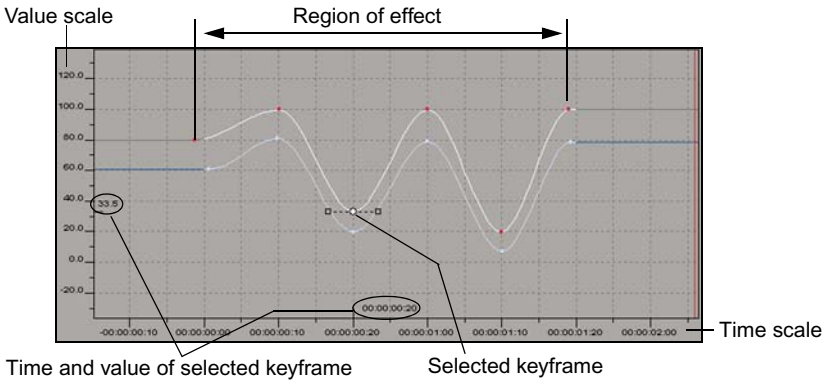
To delete a filter:

1. In the Edit Filter dialog box, select a filter from the Filter Name list.
2. Click the **Delete** button.

Working with the Animation Graph

The animation graph is the area on the animation editor where you can manipulate the function curve or keyframe values of any animated property. You can edit the keyframed values by adjusting the key points on a selected function curve. The horizontal axis (X axis) displays the time scale in frames or milliseconds. The vertical axis (Y axis) displays the values of the animated property.

In the animation graph, function curves are highlighted in light-blue over the duration of the animated effect. In addition, when you select a function curve, it is displayed in white over the duration of the effect and its keyframes are displayed in red. When you select a keyframe, its precise coordinates are reflected on the X and Y scales.



Customizing the Animation Graph

By customizing the display of the animation graph, you can change the incremental values of the time and value scales, the spacing between grid lines, and show or hide other indicators on the graph. For example, the grid in the animation graph is useful when adding or moving keyframes. You can display or hide the vertical or horizontal grid lines independently.

To customize the animation graph:

1. From the animation editor, click the **Preferences** button.
2. In the Animation Editor Preferences property editor, select the **Editor** tab.
3. To show or hide the grid, do one of the following:
   - In the Grids area, set the **Display Grid** options.
   - Press G.
4. To display the precise coordinates of a selected keyframe, select the **Key Coordinates** option, in the View box.

   Small indicators on the animation graph's axes show the value and time of the selected keyframe.

Changing the Time Scale

Like the timeline, you can set the time scale on the X axis to display in frames or milliseconds.

To change the time scale:

- In the timeline, right-click the ruler and select **Display As**.

  The time scale on the ruler changes according to your selection.

Zooming the Animation Graph

You can enlarge or reduce the animation graph to view function curves at close range or view all the function curves in an animation.

To zoom in and out:

1. To activate the zoom mode, do one of the following:
   - Press Z.
   - In the animation editor, click the **Zoom** button.

2. To zoom in on a specific rectangular area, drag on the animation graph.

   When you drag the pointer, a rectangle is displayed. When you release the mouse button, the display zooms into the rectangular area.
3. To perform a continuous zoom, right-drag on the animation graph.

To reset the zoom:

- Press Z and click the animation graph.

Panning the Animation Graph

You can scroll over the animation graph to view the full length of the function curves in an animation.

To pan the animation graph, do one of the following:

- Press X and drag up/down to pan the Y axis, and drag left/right to pan the X axis.
- In the animation editor, click the **Pan** button to activate the pan mode.

To reset the pan:

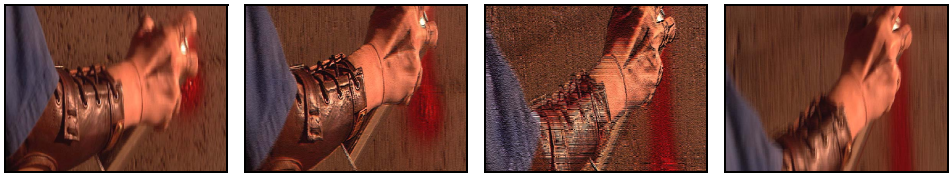
- Press X and click the animation graph.

***Tip**: To reset both the pan and the zoom, press the Z+X keys, and click the animation graph.*

Editing Animation

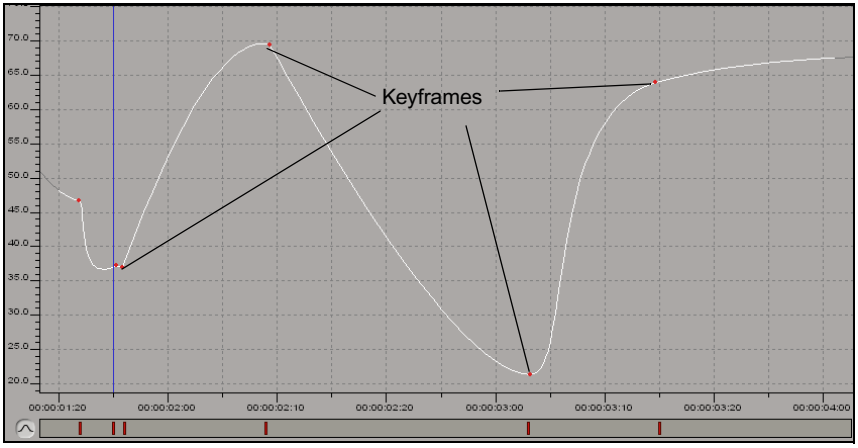
Once you've animated an object, you can use the animation editor to view and modify its properties. The animation editor represents the animation as one or more function curves on the animation graph, where the values of the animated properties are plotted over time.

Emboss effect changes over time



Frame 0 Frame 4 Frame 9 Frame 12

Relief property gradually increases and then decreases rapidly.



Function curve of the Relief property

You can use the animation editor to manipulate a function curve, or to fine-tune the animation frame-by-frame. You can also add, move, or delete function curves or keyframes, and trim, crop, or remove an entire animation.

The animation editor can display function curves for multiple animations simultaneously. Pinning an animation to the animation editor keeps its function curves displayed while you work on other function curves.

Some effects, like fades or transitions, have an animation graph built into one of their property pages. You can add keyframes on this function curve the same way you add keyframes to function curves in the animation editor.

When you want to adjust properties using the controls in property editors or layer controls on other views, you can edit animations with the Animation Key. For example, if you're adding a graphics animation to a composite, you would typically create the graphics in the viewer and record keyframes using the Animation Key.

Editing Keyframes Manually

You can manually set or delete keyframes on a frame-by-frame basis using the object's property editor.

To edit keyframes manually:

1. Open the property editor in which you want to create animation.
2.
In the property editor, right-click the Animation Key button and select **First Key**.

   The position indicator moves to the first keyframe in the animation.
3. If necessary, edit the settings and click the **Animation Key** button to set a keyframe.

   The new settings at this frame automatically override any previous settings.
4.
Click the **Next Key** button to move to the next keyframe.
5. If you want to add a keyframe, use the **Frame Backward** and **Frame Forward** buttons on the transport controls to advance your clip to the appropriate timecode. Change the values and click the **Animation Key** button to add a keyframe.
6. Continue to edit keyframes until you reach the end of the animated sequence.

To remove a keyframe:

1. In a property editor or view, click the **Previous Key** or **Next Key** buttons (located next to the Animation Key button) to go to a timecode where a keyframe has been set.

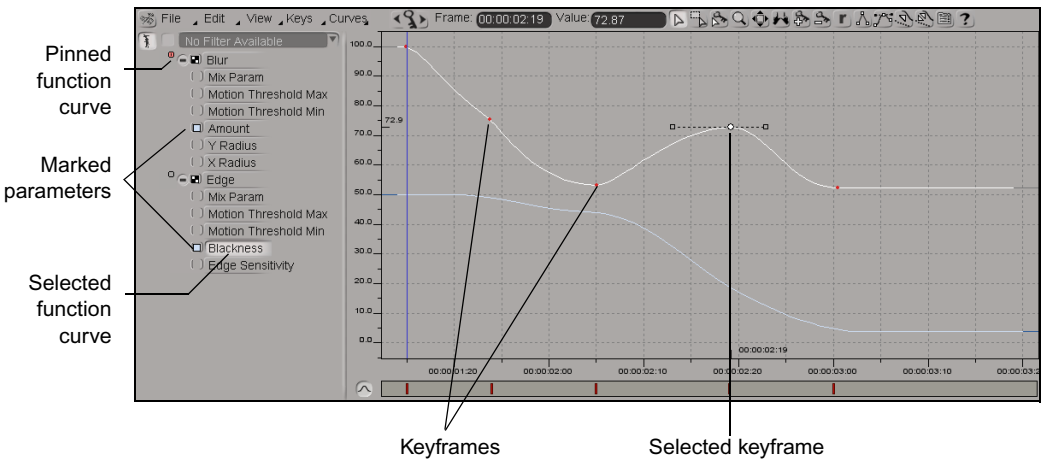
   The Animation Key button will be red to indicate that a keyframe is set on the current frame.

2. Right-click the Animation Key button and select **Remove Key**.

   The current keyframe is removed.

Editing Animation on the Animation Graph

In the animation editor, each animatable property is represented by a different function curve on the animation graph. You can modify these curves to edit the animation.



When working in the animation graph, you can display the function curves of properties that you want to animate, or hide curves to isolate a specific property. Function curves on the graph appear in blue for the duration of an effect. When you select them, they're highlighted in white and their keyframes are displayed.

As you modify function curves, you can take snapshots that let you compare the results of a change to a function curve to the original curve. Snapshots appear in black on the graph.

There are several ways of manipulating keyframes to change the result of an animation. You can add new keyframes, delete existing ones, move a keyframe to a new value or time, and control all of the keyframes at a specific timecode.

You can also adjust a keyframe's tangents to increase or decrease the slope of the function curve at that keyframe. For example, if you want a property to change rapidly at a specific time, you can increase the slope of the function curve at that keyframe.

Once you've finished adjusting a curve, you can snap keyframes to the nearest point on the grid to precisely align keyframes with timecodes.

You can undo any operation performed on a function curve. From the Edit menu, select Undo or press Ctrl+Z.

For more information, see "Animation Graph Menu" in the Help.

Viewing Locators in the Animation Graph

In the animation graph, you can display any locators that you placed on the timeline to help you align keyframes at specific points in your sequence.

To display locators in the animation graph:

- From the animation editor, select **View** > **Locators**.

Selecting Keyframes in the Animation Graph

Once animation has been created for an object, you can edit the individual keyframes that have been set. Before you can edit a keyframe, you must select it.

To select a keyframe:

1. In the animation editor, click the **Select** button.
2. In the animation graph, click a keyframe.

   The selected keyframe is highlighted and its tangent handles are displayed.

To select multiple keyframes:

- Press Shift and click a keyframe.

  The selected keyframes are highlighted.

To select a range of consecutive keyframes:

- Press V and drag over a section of the function curve.

The selected region is highlighted in white.

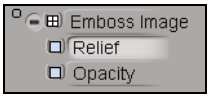
Tip: To change the value of multiple keyframes, press Shift and click to select the keyframes and enter a new value in the Value text box.

Adding, Moving and Deleting Keyframes

Using the animation tools, you can add, move, and delete keyframes to edit an animation.

On the animation graph, you can move keyframes to values that are out of a property's range. However, the values that are actually processed are the maximum or minimum values displayed in the property editor.

To add a keyframe:



1. In the animation tree, click a property to select its function curve.

   In the animation graph, the function curve is selected and the keyframes are displayed in red.

2. To add a keyframe, click the **Add Key** button and click the animation graph.

   The closest selected function curve updates to pass through the new keyframe.

You can use the Select tool to change the value of multiple keyframes. Press Shift and click keyframes to select them. Now enter a new value in the animation graph value box.

To move a keyframe:

1. In the animation tree, click a property to select its function curve.

   In the animation graph, the function curve is selected, and the keyframes are displayed in red.

2. To move a keyframe, click the **Select** button and do one of the following:

   - Drag a keyframe to a new position.

     The value and/or frame of the selected keyframe is updated.

   - Click a keyframe and in the Frame and Value boxes, enter a new frame and/or value.

     The function curve is updated to pass through the modified keyframe.

To delete a keyframe

1. In the animation tree, click a property to select its function curve.

   In the animation graph, the function curve is selected and the keyframes are displayed in red.

2. To delete a keyframe, click the **Remove Key** button, and click a keyframe.

   The keyframe is removed and the function curve is updated.

3. To remove all the keyframes on the selected function curve, right-click the **Animation Key** button and select **Remove Animation**.

   You will be prompted to confirm before all the keyframes are deleted.

Pressing the Delete key only deletes selected keyframes.

Selecting Function Curves

Before you can manipulate a function curve or edit specific keyframes, you must select it. Before you can cut, copy, or paste function curves, you must select a region.

You can select individual keyframes, a region of the function curve, the entire function curve, or several function curves.

To select function curves:

1. In the animation editor, click the **Select** button and do one of the following:

   - In the animation tree, click a property and select its function curve. Press Shift and click additional properties to select multiple function curves.

   - Press Shift and click a function curve to select it. Click additional function curves for multiple selection.
   - Drag the pointer to form a rectangle over the function curve(s) that you want to select.

   Any function curves that pass through the rectangle are selected. Using this method, you also select the individual keyframes.

In the animation graph, selected function curves are displayed in white over the duration of the effect, and keyframes are red.

2. Click the **Frame** button to view the entire selection.

   The selected function curve is framed, so that you can see it in full view. Framing is based on the duration and values of the keyframes on the function curve.

To select a region of a function curve:

1. Select a function curve.

2. In the animation editor, click the **Select Region** button or press V to activate the Select Region mode.
3. In the animation graph, drag over a region to select it.

   Using this method, you also select the individual keyframes that are within the region and on the selected function curve.

Manipulating Keyframes

When you select a function curve, its keyframes are displayed in red. You can add new keyframes, as well as move or delete existing keyframes. In addition, you can change the value or frame of a keyframe.

When you create a shape using tools, such as the ones in the Graphics layout or the Matte or keyer effects, you can edit the resulting shape keyframes by selecting the Shape curve in the animation editor and using the meta curve to adjust the keys.

Shapes are represented by keyframes in the meta curve region. There is no corresponding function curve in the animation editor.

To add a keyframe:

1. From the animation graph, select a function curve.

2. Click the **Add Key** button or press A.
3. On the animation graph, click to add a keyframe.

   The closest selected function curve is updated to pass through the new keyframe.

To move a keyframe:

1. From the animation graph, select a function curve.

   The function curve is highlighted and the keyframes are displayed in red.

2. Drag a keyframe to move it to a new position.

   The value and/or frame of the selected keyframe is updated.

On the animation graph, you can move keyframes to values that are out of a property's range. However, the values that are actually processed are the minimum or maximum values displayed in the property editor.

To remove a keyframe:

1. From the animation graph, select a function curve.

   The keyframes are displayed in red.

2. Do one of the following:

   - Click the **Remove Keyframe** button.
   - Press D.

3. Click the keyframes that you want to remove.

***Tip**: To remove a keyframe, you can also select it and press Delete.*

To remove all the keyframes on a function curve:

1. From the animation graph, select a function curve.

   The keyframes are displayed in red.

2. Press the Backspace key.

   You are asked to confirm the deletion. Click **OK** to delete all the keyframes on the selected curve.

Pressing the Delete key only deletes selected keyframes.

To change the value or frame of a keyframe:

1. In the animation graph, select a keyframe.
2. In the **Frame** and **Value** text boxes, enter a new frame and/or value.

   The function curve is updated to pass through the modified keyframe.

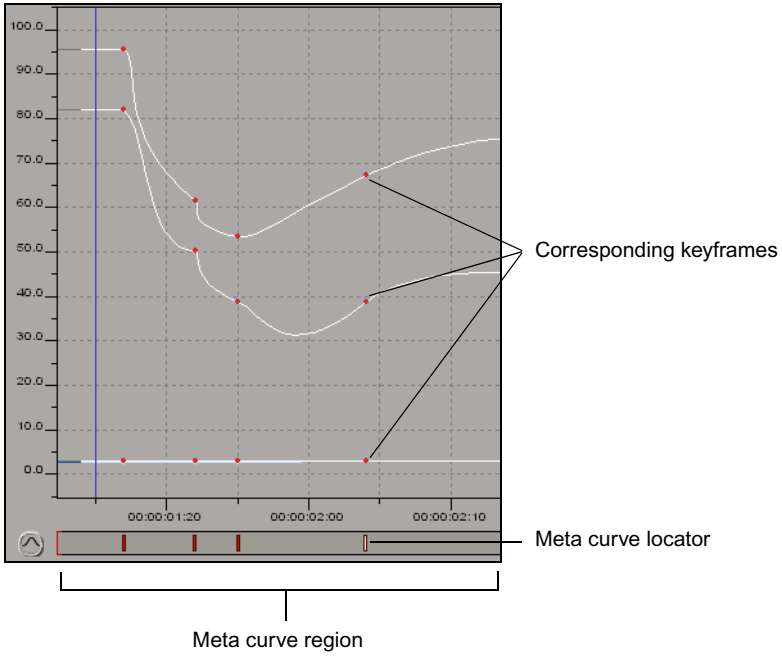
Manipulating Keyframes on Multiple Function Curves

The meta curve region is a powerful tool that lets you add, move, and remove keyframes on every visible function curve in the animation graph.

When you display the meta curve region, red locators appear below the animation graph at every timecode at which a keyframe is placed on a function curve. If several function curves have keyframes at the same timecode, all of those keyframes are represented by a single locator.

Although locators in the meta curve region can represent and control multiple keyframes, those keyframes are not locked together. If you move a keyframe out of alignment with other keyframes, a new locator will appear in the meta curve to represent the keyframe's new location.

Adding keyframes in the meta curve region places a keyframe on every visible curve, at the current timecode. Moving a locator in the meta curve region moves all of the keyframes at that timecode. Deleting keyframes from the meta curve region removes any keyframes on any function curves at the current timecode.



To display the meta curve region, do one of the following:

- To display all curves, select **View** > **Meta Curve Region** > **Display for all curves**.

  The meta curve region is displayed below the animation graph. The locators for all function curves are displayed.

- To display selected curves only, select **View** > **Meta Curve Region** > **Display for selected curves only**.

  The meta curve region is displayed below the animation graph. The locators for the selected function are displayed.

To display the locators for a selected function curve:

1. From the animation tree, select a function curve.
2. Click the button beside the meta curve region.

   The button appears pressed, and the locators for the selected function curve are displayed.

To display the locators for all function curves:

- Click the button beside the meta curve region.

  The button appears unpressed and the locators for the selected function curve are displayed.

To hide the meta curve region:

- From the animation editor, select **View** > **Meta Curve Region** > **Hide Meta Curve Region**.

  The meta curve region is hidden.

To add a keyframe to all visible function curves:

1. From the animation editor, click the **Add Key** button.
2. Click anywhere in the meta curve region.

   A keyframe is added to every visible function curve in the animation editor at the current timecode.

To move all keyframes at a specific timecode:

1. From the animation editor, click the **Select** button.
2. Drag a locator in the meta curve region.

   All keyframes represented by the locator are moved to the new timecode.

To delete a keyframe from all visible function curves:

1. From the animation editor, click the **Remove Key** button.
2. Click a locator in the meta curve region.

   All keyframes represented by the locator are deleted.

Synchronizing Animation

You can synchronize keyframes in the animation editor by dragging their locators in the meta curve region. Moving one locator to the same timecode as another synchronizes their respective keyframes at the current timecode. This is useful when, for example, you want to coordinate changes to several of an object's properties at the same time.

To synchronize keyframes:

1. In the animation graph, select a function curve and add a keyframe to it.

   A locator is displayed in the meta curve region, representing the first keyframe.
2. Select a different function curve, and add a keyframe to it.

   A locator is displayed in the meta curve region, representing the second keyframe.
3. In the meta curve region, click the second keyframe's locator and drag it on top of the first keyframe's locator.

   The keyframes are now synchronized, and represented by a single locator in the meta curve region. Moving the locator moves both of the keyframes.

Modifying Regions

In Avid DS Nitris, you can select and modify a region of the animation graph. Keyframes in a selected region are automatically selected, and can be moved simultaneously. You can also stretch or shrink a selected region horizontally or vertically.

To modify a region of the animation graph:

1. Click the **Select Region** button, and select the region of the function curve that you want to copy.

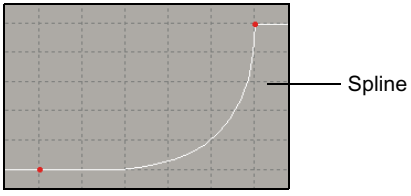
   The selected region is highlighted, and edit controls appear along on all four sides.

2. Drag the edit controls to stretch or compress the region.

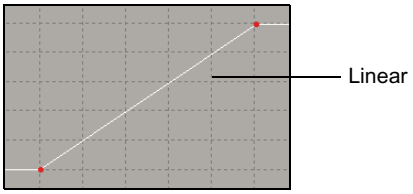
Changing the Slope of a Function Curve

The slope of a function curve determines how a property changes between keyframes. For example, in a scene where an actor moves from artificial lighting to sunlight, you can animate the color correction, so that it changes at the same rate as the light changes, as illustrated in the following examples:

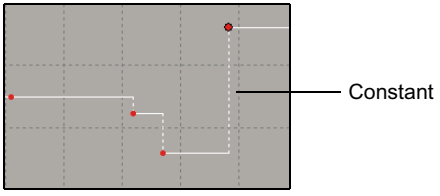
- If the actor is walking through an open door, the color correction should increase rapidly along a spline curve.



- If the actor steadily approaches the end of a tunnel, the color correction should increase linearly.



- If the actor is suddenly exposed to sunlight, the color correction should be constant, and then change in one step.



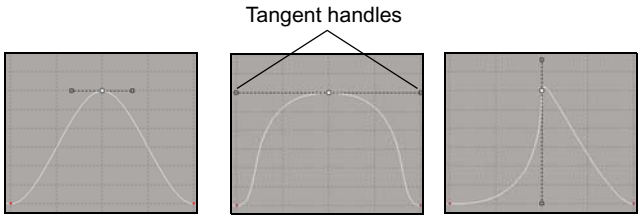
When you select a keyframe, its tangent handles are displayed, allowing you to change the slope of the function curve at that keyframe.

To change the slope of a function curve:

1. Select a keyframe.

   The tangent handles are displayed.

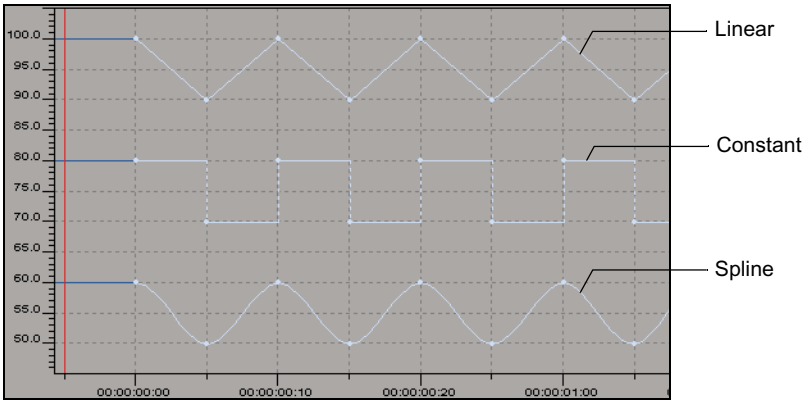
2. Select a tangent handle and drag it to a new position. If the tangent handle is close to the key point, press Ctrl to give priority to the tangent handle.



Changing the Type of Function Curve

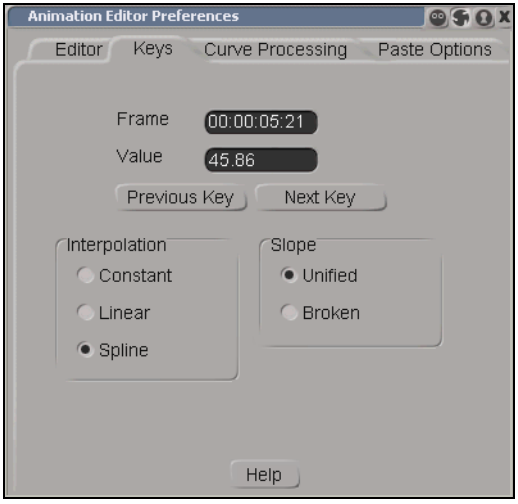
There are three types of function curves: linear, constant, and spline.

- **Linear**: A type of curve that consists of straight line segments between control points. Use this type of curve when you want a property to change at a constant rate between two keyframes.
- **Constant**: A type of curve where a property's value changes only at keyframes; between keyframes, the value is constant.
- **Spline**: A type of curve that lets you fine-tune the animation by changing the slope of the curve at each keyframe.



To change the type of curve for selected keys:

1. From the animation editor, select a function curve.
2. Click the **Animation Editor Preferences** button.



For detailed information, click the **Help** button.

3. From the Animation Editor Preferences property editor, select the **Keys** tab.
4. From the **Interpolation** box, select a curve type.

Option	Description
Constant	Creates a curve with constant values that change in steps.
Linear	Creates a curve where keyframes are joined by straight lines.
Spline	Creates a smooth curve whose slope you can modify at any point.

The function curve is updated between the keys that you selected.

To change the type of curve for selected curves:

1. From the animation graph, select a function curve.
2. Do one of the following:
   - From the animation editor menu, select **Curves** > **Constant Interpolation**, **Linear Interpolation**, or **Spline Interpolation**.

- Right-click the curve, and select **Constant Interpolation**, **Linear Interpolation**, or **Spline Interpolation**.
- From the animation editor, click one of the interpolation buttons.

The function curve is updated according to the option you selected.

To set the tangent slope options:

1. From the animation editor, select a function curve.
2. Click the **Animation Editor Preferences** button.

3. On the Keys property page, select one of the following options from the Slope box:
   - **Unified** to keep the slopes together as they move, keeping a constant angle between them.
   - **Broken** to let the slopes move freely as you drag each handle individually.

Click **Help** for detailed information on the Animation Editor Preferences.

To change the slope of a spline at a keyframe:

1. On a spline function curve, select a keyframe.

   The tangent handles are displayed at the selected keyframe.
2. Click a tangent handle to select it and drag it to a new position.

   The slope of the function curve changes at the keyframe.

If the tangent handle and the keyframe are close together, hold down the H key and drag. This lets you manipulate the tangent handle.

Making Temporary Copies of Function Curves

Snapshot curves are temporary copies of function curves that stay in the animation graph after you edit the original curves. Using the snapshot curves, you can edit function curves, compare the edited curve to the temporary copy of the original, and revert to the original if you're not satisfied with the change. When you're ready to accept your changes, you can update the snapshot curve to reflect the edits that you made.

To use snapshot curves:

1. From the animation editor, select a function curve.
2. Click the **Animation Editor Preferences** button.
3. On the Editor property page, select the **Snapshot Curve** option from the View box.

   A snapshot curve is created and hidden behind the original function curve.
4. Edit the selected function curve.

   The snapshot curve is displayed in black.
5. If you want to revert to the snapshot curve, click the **Swap** button.

   The original curve is highlighted and you can edit it.
6. When you're satisfied with the edits, click the **Snap** button.

   The black snapshot curve is updated to match the white function curve.

For detailed information, click the **Help** button.

Snapping Keys to Grids and Frames

You can make keyframes snap to the nearest frame on the grid's X axis or to the nearest frame on the grid's X axis. Snapping keyframes to the grid lets you position them at precise timecodes.

To snap a keyframe to the grid:

- Select **Edit** > **Snap to Grid**.

To snap a keyframe to its nearest frame:

- Select **Edit** > **Snap to Frame**.

Click Help for detailed information on the Edit menu commands.

Locking Keyframe Positions

You can freeze a keyframe's values, as well as its location in time by locking the key's position on the X or Y axis.

If the function curve uses a spline interpolation to transition action to the next keyframe, you can also freeze the keyframe's speed of transition and influence on the function curve by using the animation editor's tangent handle locking controls.

To lock a keyframe's position on the animation graph:

1. From the animation graph, select a keyframe.
2. Do one or both of the following:
   - Click **Keys** and select **Lock in X** (Time) to lock the key's location in time on the X axis.
   - Click **Keys** and select **Lock in Y** (Value) to lock the key's value on the Y axis.

   The keyframe is frozen in place on the graph and cannot move until Lock in X or Lock in Y is deselected. You can still manipulate the keyframe tangent handles to change the shape of the slope.

Offsetting Animation

You can offset an animation by moving an entire function curve. If, for example, you're satisfied with a function curve's slope, but want the corresponding change in properties to occur later in the animation, you can move the entire curve farther down the timeline.

To offset an animation:

1. From the animation editor, select a function curve.
2. Hold down the R key, and drag the curve to reposition it on the timeline.

To offset multiple function curves:

1. Hold down the Shift key, and click each function curve to select it.
2. Hold down the R key, and drag the curve to reposition it on the timeline.

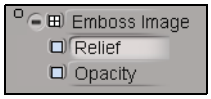
Copying Animation

You can copy the animation of one property to another by copying the function curve. For example, you can animate the Z position of an object, so that it appears to move away from the viewer. You can then copy the animation to a blur effect, so that the blur increases as the objects move away from the viewer. You can then adjust the blur function curve according to the scale of the blur parameter.

To copy an animation, you simply copy a property's function curve and paste it onto the function curve of another property. You can copy the entire curve or a region of a curve. When pasting the animation, you can do one of the following:

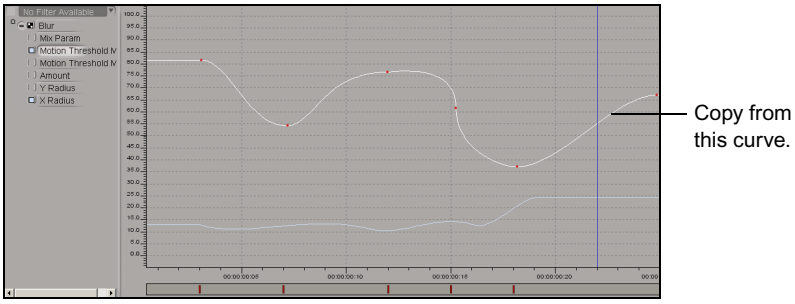
- Insert the copy at a selected timecode.
- Replace a portion of the function curve at a selected timecode.
- Paste the copy over a selected region.

To copy an entire animation:



1. In the animation tree, click a property.

   In the animation graph, the property's function curve is highlighted.

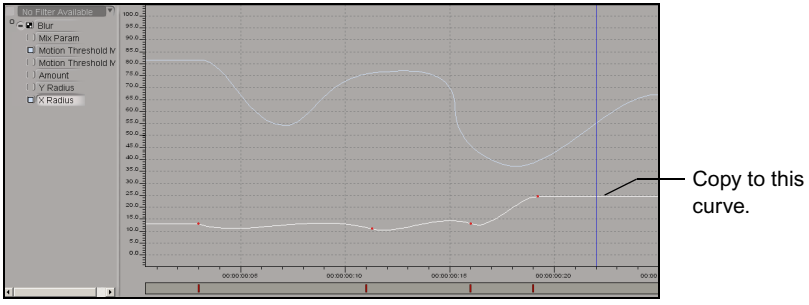


2. Press Ctrl+C.

   The animation is copied.

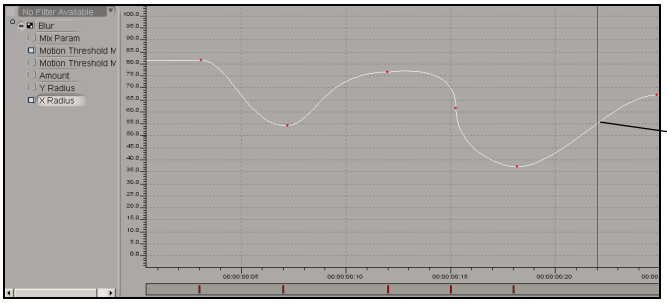
3. In the animation tree, click a property to receive the animation.

   In the animation graph, its function curve is highlighted.



4. Press Ctrl+V.

The animation is pasted. In the animation graph, the function curves for both properties are identical and appear as only one curve.



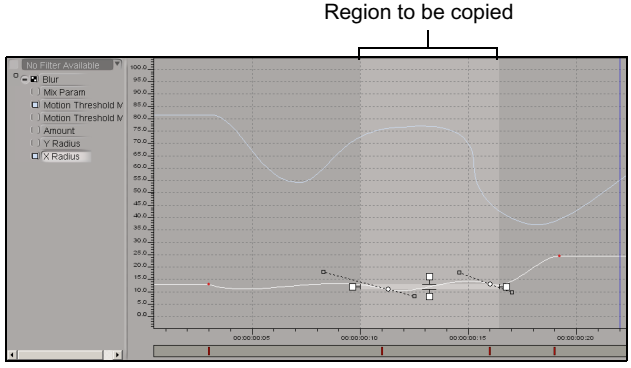
To copy a region of a function curve:

1. In the animation graph, do one of the following to specify the region that you want to copy:

   - Select contiguous keyframes.

     The region to be copied is between the first and last selected keyframes.

   - Click the **Select Region** button and select the region of the function curve that you want to copy.



2. Press Ctrl+C.

   The animation is copied.

3. If you want to paste the animation to a different property, select a function curve.
4. Specify where to paste the animation by clicking the **Select Region** button and doing one of the following:
   - Clicking a timecode.

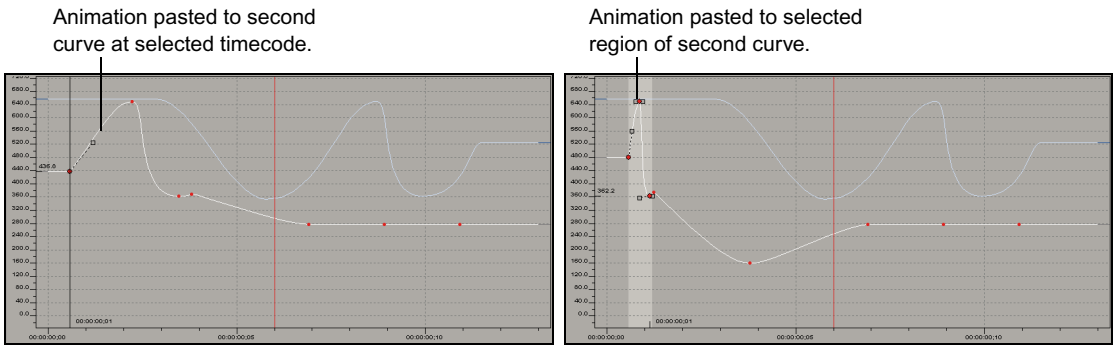
     When the animation is copied, it starts at the specified timecode.
   - Selecting a region.

   When the animation is copied, it fits into this region. If you copy an animation to a region of a different size, the animation is automatically scaled in time.

If you do not specify where to paste the animation, it's pasted at its original timecode on the selected curve.

5. Press Ctrl+V.

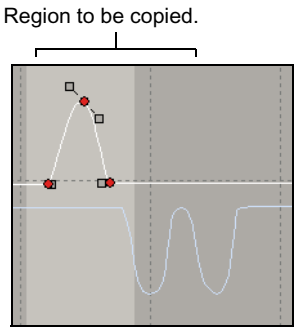
   The animation is pasted, replacing the selected function curve over the specified region.



To insert a copied region of a function curve:

1. In the animation graph, do one of the following to specify the region that you want to copy:
   - Select contiguous keyframes.

     The region to be copied is between the first and last selected keyframes.
   - Click the **Select Region** button and select the region of the function curve that you want to copy.



2. Press Ctrl+C.

   The animation is copied.

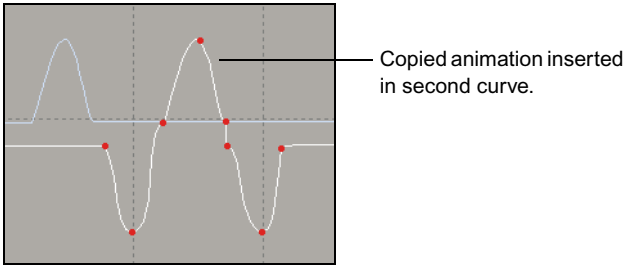
3. If you want to paste the animation to a different property, select a function curve.

4. Click the **Animation Editor Preferences** button.
5. On Paste Options property page, select the **Insert** option from the Paste Options box.
6. To specify where to insert the animation, click the **Select Region** button, and click a timecode.

If you do not specify where to paste the animation, it's pasted at its original timecode on the selected curve.

7. Press Ctrl+V.

   The animation is pasted at the selected timecode on the selected curve.



Repeating Animation

Cycling animation lets you to repeat a function curve for the duration of an animation. By applying different types of cycles, you can quickly create repetitive animations like blurring in and out.

When you create cycles, the repeated information is not added to the function curve. It's based on the original keyframes, but does not contain any keyframes. When you adjust the original keyframes, changes are reflected throughout the cycle.

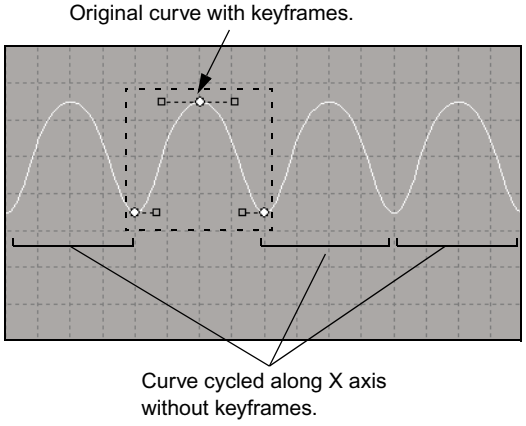
Creating a Basic Cycle

A basic cycle repeats the shape and pattern of a function curve, as defined by the keyframes, for the duration of the animation. For example, you can use a basic cycle to animate a blur in and out of a clip.

To create a basic cycle:

1. In the animation graph, select the function curve whose shape you want to repeat.
2. Click **Curves** and select **Cycle**.

   The pattern is repeated along the X axis of the animation.

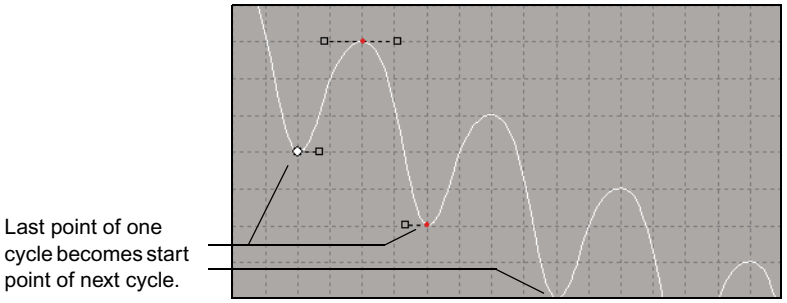


Creating a Relative Cycle

A relative cycle repeats the shape and pattern of the function curve by starting each cycle at the value of the last key in the preceding cycle. The result is a progressive offset that creates a gradual overall change in the animation while repeating the basic pattern. For example, you can use a relative cycle to blur in and out of a clip, while gradually sharpening the overall focus.

To create a relative cycle:

1. In the animation graph, select the function curve whose shape you want to repeat.
2. Click **Curves** and select **Relative Cycle**.



Freezing a Cycle

Freezing a cycle applies it to the time span between two specified timecodes in the animation. When the cycle is frozen, the keys in the cycled part of the function curve are sampled and applied to each cycle in the frozen part of the curve. You can then edit the function curve. If the cycle is not frozen to the entire length of the animation, it will be removed from any leading or trailing frames.

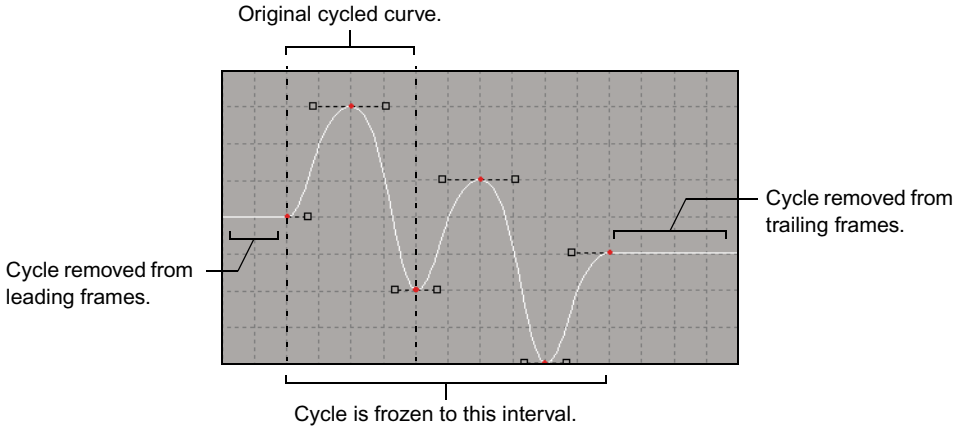
Freezing cycles is useful when you only want to repeat a cycle for part of an animation, or when you want to make slight modifications to the same basic curve throughout the animation.

To freeze a cycle:

1. In the animation graph, select the function curve whose shape you want to repeat.
2. Click **Curves** and select **Freeze Cycle**.

   The Freeze Cycle dialog box is displayed.
3. Enter a start and end timecode.

   The cycle is applied between the start and end timecodes, and the repeated information is added to the function curve.



Deleting a Cycle

Since the repeated information is not added to the function curve, you can delete the cycle while preserving the original keyframes.

To delete a cycle:

- Click **Curves** and select **Constant Extrapolation** or **Gradient Extrapolation**.

Trimming Animation

When you want to trim animation, you should trim the animated effect by rescaling the function curves or cropping them.

To specify how the animation is trimmed:

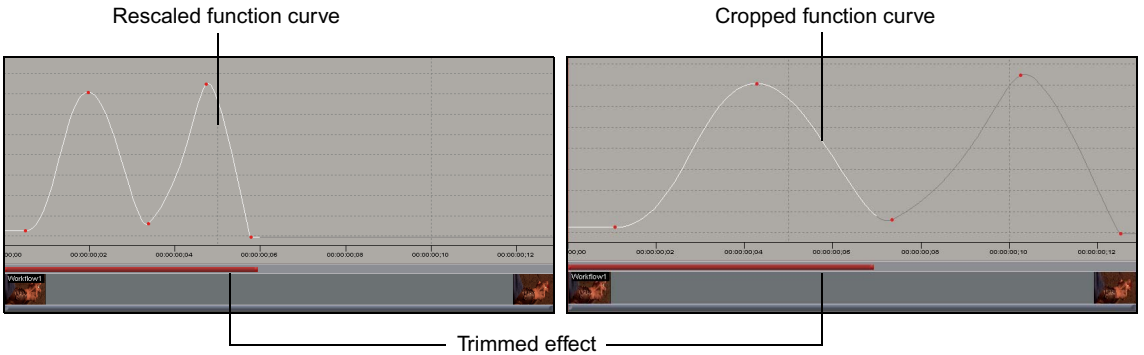
1. Open the property editor of the effect that you want to trim.
2. In the property editor, do one of the following:

   - Deselect the **Crop Curves** option to rescale the function curves.

     When you trim the effect on the timeline, the function curves are rescaled in the animation editor.

   - Select the **Crop Curves** option.

   When you trim the effect bar on the timeline, the function curves are cropped in the animation editor. On the animation graph, the highlighted area of the function curve shows the new length of the animated effect. For more information, see “Saving Effects” in the Help.



Removing Animation

An object’s animation can be composed of more than one function curve.A separate function curve exists for each animatable property of an object. When removing animation, you can choose whether you want to remove the entire animation or just selected animated properties within the animation.

Removing the Entire Animation

When you remove an animation, you’re deleting the function curves for all the animated properties of the selected object.

When you remove animation, locked keys will also be deleted.

To remove the entire animation:

1. Open the property editor or view for the property whose animation you want to remove.
2. Right-click the Animation Key button and select **Remove Animation**.

All keyframes on all functions curves are deleted. The function curves become straight lines.

Removing the Animation of a Single Property

You can remove the animation of a single property by removing all the keyframes from the property's function curve.

To remove all the keyframes on a function curve:

1. Select an animated object.
2. In the animation editor, select **View** > **Animation Editor**.

   The animation tree is displayed.
3. From the animation tree, click the property whose function curve you want to remove.

   In the animation graph, the corresponding function curve is highlighted.
4. Press the Backspace key.

   All keyframes on the function curve are deleted and the function curve becomes a straight line.

Processing Animation

You can view the evolution of your animation by stepping through the animation frame by frame. Before you can play the clip, you must first process the animation.

To process animation:

1. Do one of the following:
   - From the toolbar, click **Processing** > **Process**.
   - In the timeline controls, click the **Process** button.
2. In the Processing Options Dialog Box dialog box, select the appropriate options.
3. Click **OK** to begin processing.

   A progress bar is displayed on the bottom of the desktop to show the status of the process.
4. Click **Cancel** to stop the process at any time.

For more information, click the **Help** button or see "Understanding Processing" on page 872.

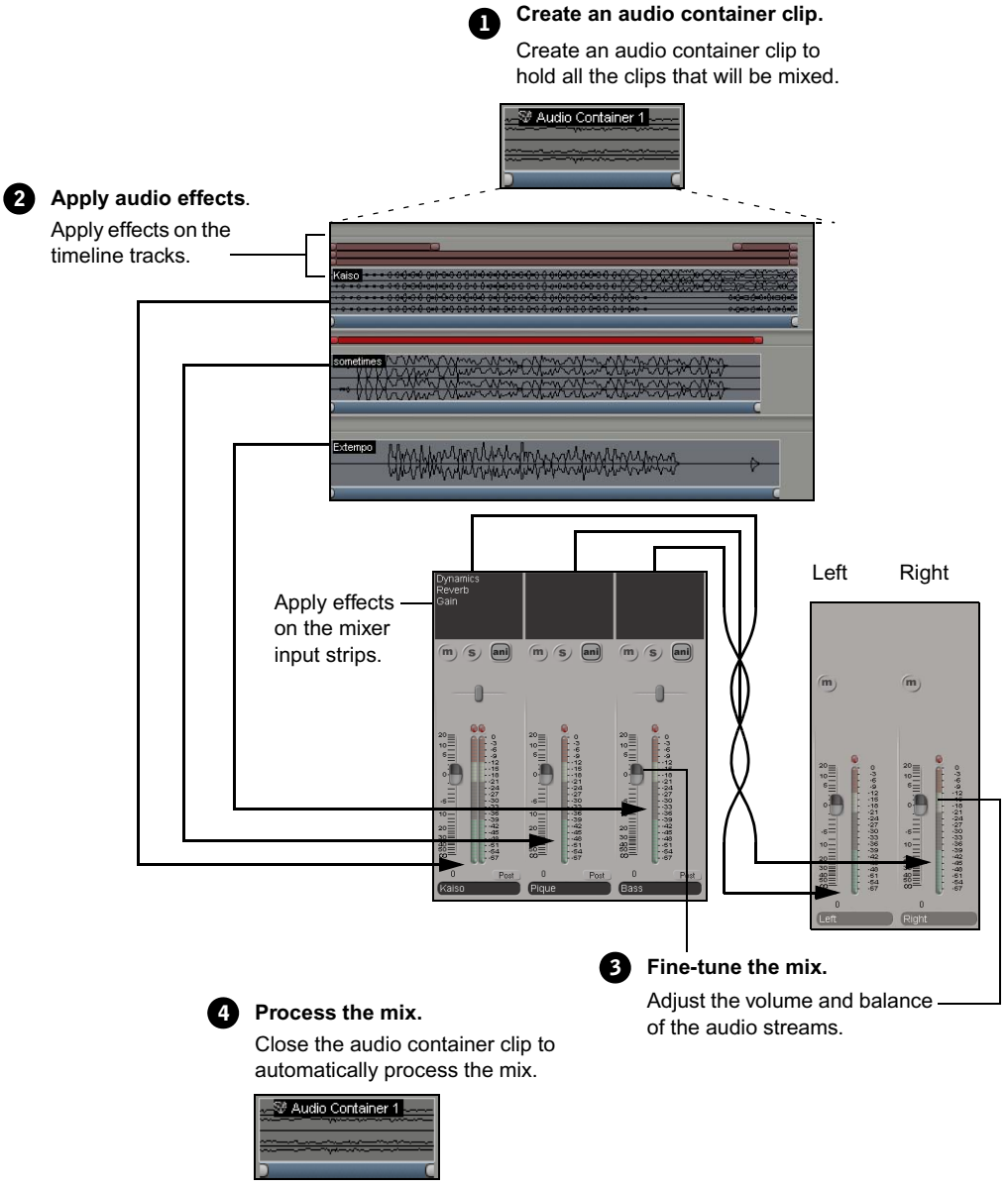
Chapter 10
Mixing Audio

This chapter describes how to mix audio, as well as how to create mixes and submixes using audio container clips and effects. You will also learn how to animate your audio mixes.

- Workflow: Mixing Audio
- Working in Audio Container Clips
- Audio Clips and Tracks
- Understanding the Mixer
- Using an External Controller
- Building an Audio Mix
- Fine-tuning the Mix
- Animating the Audio Mix
- Audio Media Conversion
- Processing the Mix

Workflow: Mixing Audio

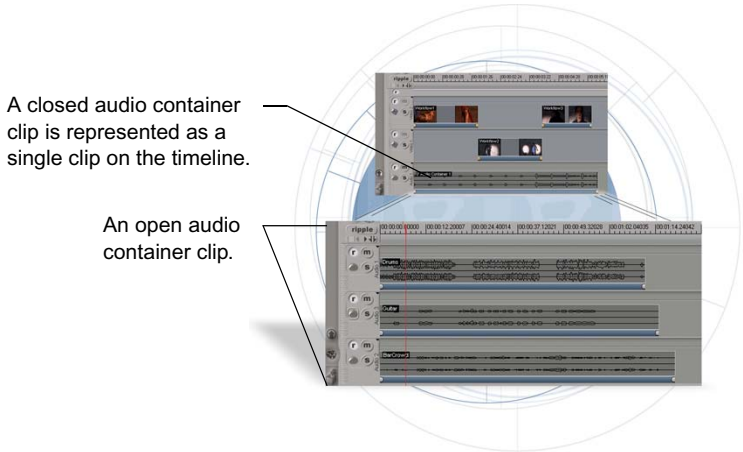
Audio mixes are best created in an audio container clip. The following illustration shows how the audio tracks are created and fed into the mixer.



Working in Audio Container Clips

Audio container clips let you compress multiple audio tracks with up to 64 tracks of audio down to a single audio clip on one track, leaving you with more audio streams and tracks to work with. You can have any combination of audio clips and tracks in an audio container clip. The format of the container clip itself, however, depends on the mixer configuration specified inside the container clip.

This illustration shows a group of audio clips that have been mixed down to a single clip on the timeline.



Here are other reasons for using audio container clips:

- **Animating (automating) your mix**: If you need to boost or lower the signal at different points in time, it's more efficient to animate the mix in a container clip. This way, if you move the container clip, its animation moves with it.
- **Submixing**: You can edit specific sounds more efficiently by creating submixes of common track types. For example, mix hard sound effects like creaking floors and footsteps in one container clip, vocal tracks in another, and instrumentals in yet another container clip. Then, premix all of the clips in their respective container clips and play them simultaneously on the parent timeline.

- **Sample Accurate Editing**: Within an audio container clip, you can do your editing in terms of audio samples as opposed to the video frames used on the top timeline.
- **Processing**: When you close an audio container clip, the tracks and any effects are automatically processed and represented as a single clip on the parent timeline.

For more information, see “Creating Nested Clips” on page 916.

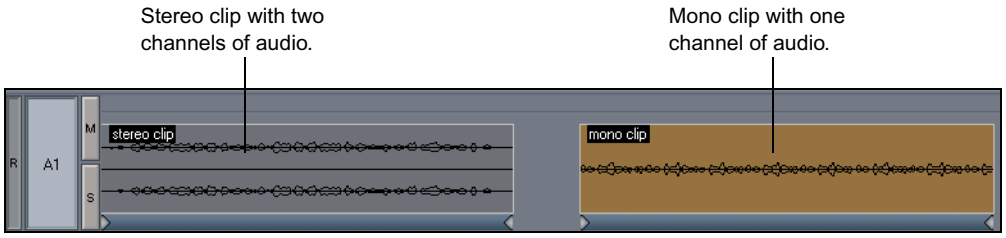
Audio Clips and Tracks

Audio clips and tracks can have up to eight channels of audio in any of the following formats:

Format	Description
Mono	Single channel of audio
Stereo	Two audio channels: Left and right
Quadraphonic	Four audio channels: Left, right, left rear, right rear
LCRS	Four audio channels: Left, center, right, surround
4 Stream	Four audio channels: Output 1 to 4
5.1	Six audio channels: Left, right, center, Low Frequency Emitter (LFE), left surround, right surround
6.1	Seven audio channels: Left, right, center, Low Frequency Emitter (LFE), surround center, side left, side right
7.1	Eight audio channels: Left, right, center, Low Frequency Emitter (LFE), left surround, right surround, left center, right center
8 Stream	Eight audio channels: Output 1 to 8

Since the clip and track formats are independent of each other, you can place any kind of audio clip on any audio track. You can also place different format clips on the same track. For example, you can place a mono and a stereo clip on the same stereo track.

You can manipulate audio clips in much the same way as video clips. You can play them in the viewer, drag and drop them from the Avid Explorer to the timeline, trim, copy, and delete clips, and add effects to them.



When you place an audio clip on a track with a different format, it turns orange. This does not prevent you from playing it back.

Understanding the Mixer

Although you can perform some mixing by applying effects to the audio clips on the timeline, the mixer gives you greater flexibility and control over your overall audio mix. The mixer combines the audio signals coming from the audio tracks and routes them to the output strips.

You can assign the channels of an audio track to a specific output strip. Depending on your audio hardware configuration, you can have up to eight audio output channels available. For more information, see "Assigning a Mixer Input Strip to an Output Channel" on page 1030.

The mixer has two views:

Standard view	The standard view is the default view of the mixer. In this view you can add audio effects, adjust the volume levels, pan the signals, and mute or solo the various tracks. You can also animate most of the controls on the mixer.
Routing view	The Routing view contains the Matrix Routing panel for the input strips, which lets you assign the input strips to audio output channels. Also, in this view, the number of level meters on the input strips matches the number of audio channels on the track. For example, 5.1 tracks have six level meters and eight stream tracks have eight level meters. *If you've activated the pan on a mono track, the number of level meters on the input strip matches the number of output channels. This is because the mono signal has been split to allow for the positioning of the sound with the pan control.*

To access the mixer:

- From the view switcher, click the **Mixer** button.

To access the routing view:

- Click the **Routing View** button.

To access the standard view:

- Click the **Standard View** button.

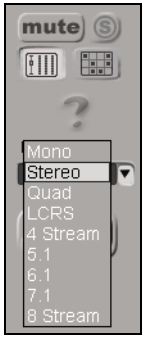
For information about the mixer controls, click the **Help** button.

Changing the Mixer Configuration

You can capture and output up to eight channels of audio in various formats. For more information, see “Mixer Configuration Formats” in the Help.

To change the mixer configuration:

- Click the **Mixer Config** list box and select a configuration.



Using the Input Strips

Input strips appear on the mixer as you add audio tracks to the timeline. On each input strip, you can control the sound of all the clips on its corresponding audio track. You can use the strip controls to adjust the overall volume, add effects to the whole track, and pan the signal to the output strips.

The results of the adjustments on the input strips are mixed and passed to the output strips, which let you adjust the output volume of the audio signals. The signal from the output strips is then directed to an external device.

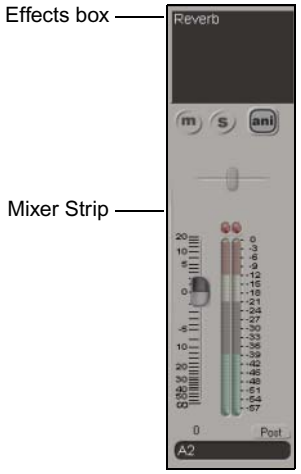
An input strip corresponds to an audio track on the timeline. The strip controls let you add effects and adjust the overall volume and balance of each track. The signals from all strips are then mixed and routed to the output strips.

For more information, see “Mixer Input Strips” in the Help.

Adding Effects on a Mixer Input Strip

Adding an effect on the mixer strip is equivalent to applying an effect to the entire audio track. When you apply an effect to a mixer strip, the effect is displayed in the mixer strip's effects box. Effects on the mixer strips are processed from top to bottom. These effects are also applied before you make any adjustments to the volume and pan controls.

You can apply an effect to a mixer input strip by selecting one from the Load Preset dialog box or by dragging an effect preset from a toolbar.



To add an effect using the Load Preset dialog box:

1. Right-click the effects box and select **Add Effect**.

   The Load Preset dialog box is displayed.

2. Select an effect and click **OK**.

   The effect is applied to the strip and displayed in the effects box.

To add an effect using a toolbar:

- From a toolbar, drag an audio effect or preset to the effects box.

  The effect is applied to the strip and displayed in the effects box.

Adjusting the Volume

The level meter lets you monitor the level of incoming and outgoing audio signals (in decibels). There are level meters on the input and output strips.

The fader is used to control the volume on the mixer strips. It simulates an audio taper fader, except the scale is more precise (between +5 and -5 dB).

To adjust the volume on the mixer strips:

- Drag the fader up or down to set the volume at the appropriate decibel level.

The fader levels do not correspond to the level meter. The fader levels range from 20.0 dB to -inf dB, while the level meter shows the energy level of the signal from 0 dB to -inf dB.

By default, the level meters on the input strips are post-effects and pre-fader. This means that they display the energy levels according to the strip effects that have been applied. When you adjust the volume, the change is only shown on the output strips. However, it is possible to make the level meters on the input strips post-fader.

To make the level meters of an input strip post-fader:

- Click the **Post** button on the mixer input strip.

***Tip**: Double-clicking the fader returns it to the zero position.*

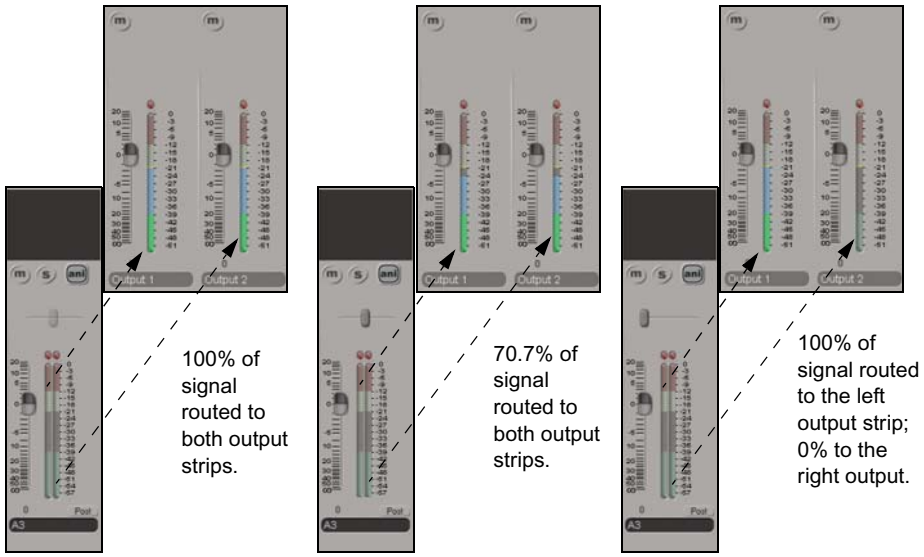
Adjusting the Audio Balance

The pan control lets you adjust the balance of the signal to the output strips. Dragging the slider left or right determines the percentage distribution.

You can only change the balance of the signal if the mixer is configured as stereo. If the mixer is configured in one of the surround formats (LCRS, Quadraphonic, 5.1, 6.1, or 7.1) you must use the Surround Panner.

If you move the pan control all the way to the left or right, then 100% of the signal is routed either to the left or right output strip. On mono tracks, the pan control at the center position splits the signal 50/50. For stereo tracks, however, 70.7% of the signal is routed to each of the output strips when the pan control is at the center.

The following example illustrates the distribution of the signals on a stereo track with the pan activated and deactivated.



To pan the signal on the input strips:

1. Right-click the pan control and select **Enable Pan**.

   The pan control is activated; you can now adjust the balance. A check mark is displayed beside the selection indicating that pan has been activated.

2. Drag the pan control to the left or right.

***Tip**: Double-clicking the pan control returns it to the center position*

3. To deactivate the pan control, right-click it and select **Enable Pan**.

If you leave the pan control enabled at the center position, there will be a 3 dB loss in your signal.

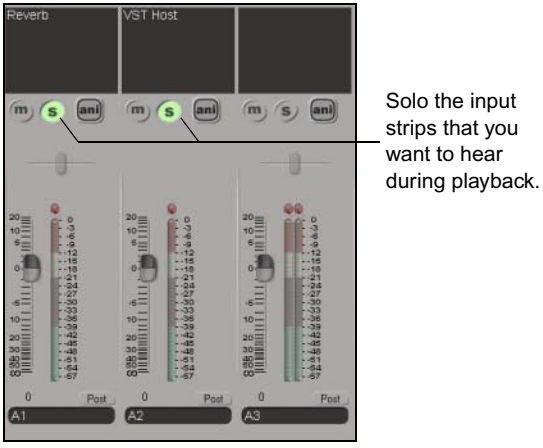
Using the Mute and Solo Buttons

You can listen to individual audio tracks by isolating their signals or muting them. The Solo buttons let you monitor track signals and do not affect the recording. You can also use the Mute buttons on the input strips when listening to tracks, but it actually prevents the signal from being routed to the outputs.

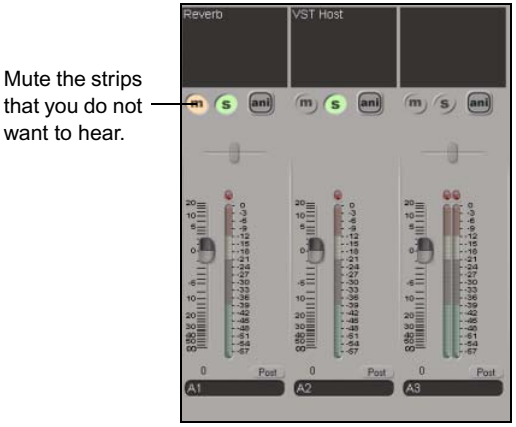
To listen to a single track:

- Click the **Solo** button of a strip.

You can activate the Solo button on more than one input strip at a time.



Also, you can activate both the Mute and Solo buttons at the same time. In this case, mute always overrides solo. For example, first solo the strips you want to hear. During playback, click the Mute button on those same strips to hear the various combinations of the signals.



For example, if you are working on background noise effects for a voice dialogue, solo the voice track and the different background noise tracks. You can then selectively mute the various background tracks to listen to their combined effects against the voice track.

To mute a mixer strip:

- Click the **Mute** button on the strips that you do *not* want to hear.

To mute all of the mixer strips:

- Click the **Master mute** button on the mixer.

To isolate a mixer strip:

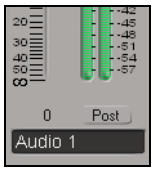
- Click the **Solo** button on the strips that you do want to hear.

Naming a Mixer Input Strip

You can change the default name of any mixer input strip. This name is on its corresponding audio track in the timeline. If you change the audio track name, the mixer input strip name is updated accordingly.

To change the name of an input strip:

- Click in a strip name text box, type a new name, and press Enter.



***Tip**: Since the strip name corresponds to the track name, you can also change the name from the Track property editor.*

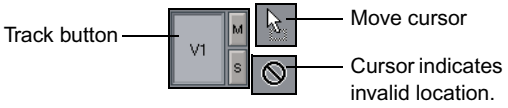
Reordering the Mixer Input Strips

The input strips appear in the order that their corresponding audio tracks appear on the timeline. Therefore, reordering the tracks changes the order of the input strips.

To reorder the input strips:

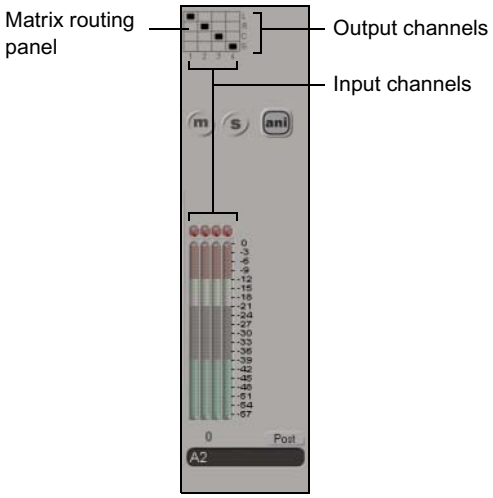
- From the Track selector, drag the audio **Track** button to a new location.

  The track is moved to the new location and the order of the input strips changes to match the tracks.



Assigning a Mixer Input Strip to an Output Channel

You can specify which output channels are used by the audio channels of each input strip during playback and recording using the Matrix Routing panel. The Matrix Routing panel is available in the Routing view of the mixer and is located at the top of each input strip.



The Matrix Routing panel has a tabular format where each column represents an audio channel of the input strip and each row represents one of the output strips or output channels. Using this panel, you can route each input channel to one or more output channels.

If you've enabled the pan on a mono track, the number of input channels on the input strip matches the number of output channels. This is because the mono signal has been split to allow for the positioning of the sound with the pan control.

To assign an input strip to an output channel:

- For each input channel, click each cell that corresponds to the output channel to which you want to assign it.

  A black dot is displayed in the cell to indicate the assignment. You can assign an input channel to more than one output channel.

Using the Output Strips

The results of the refinements on all the input strips are mixed and passed to the output strips. Output strips let you adjust the output volume of the audio signals. The number of output strips on the mixer depends on the mixer configuration selected. The signal from the output strips is then directed to an external device.

If you are working within a container clip, the signal is routed to the parent container clip.

For more information, see “Mixer Output Strips” in the Help.

Muting the Output Strips

The Mute button on the mixer output strip activates or deactivates the sound of a selected output strip. When mute is activated for a mixer output strip that is on the top timeline, it prevents the signal from being directed to the output device.

When mute is activated on a mixer output strip in a container clip, it prevents the signal from being directed to the parent container clip.

To mute an output strip:

- On an output strip, click the **Mute** button.

Using an External Controller

An external controller is a hardware device that's connected to your Avid DS Nitris workstation. It lets you access commands in the software through controls on the device. You can, for example, use the fader on a controller to move the fader in an audio strip or, vice versa, use the position indicator to move the jog wheel.

The only restriction is that specific control types, such as faders, rotary knobs, or switches should be assigned to appropriate commands in Avid DS Nitris. For example, assigning a fader on the external controller to a button in Avid DS Nitris is not possible.

The External Controller Setup view lets you assign the controls on the external controller to any of the hundreds of commands available in Avid DS Nitris.

To access the External Controller Setup view:

- Select **View > Single-Instance Views > External Controller Setup**.

For more information, see "External Controller Setup View" in the Help.

Mapping External Controls to Avid DS Nitris Commands

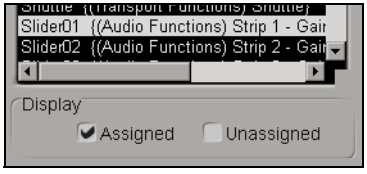
When reassigning a command or control, you should first check for assigned items.

To view the status of controls and commands:

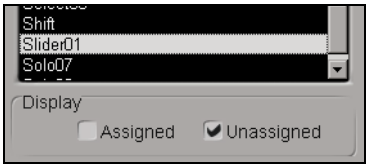
- In the Display box of the External Controller Setup view, use the options to filter the controls and commands.

  When both options are selected, all controls and commands are displayed.

Slider01 is assigned to Gain in Strip 1 (Audio Functions).



Slider01 is unassigned.

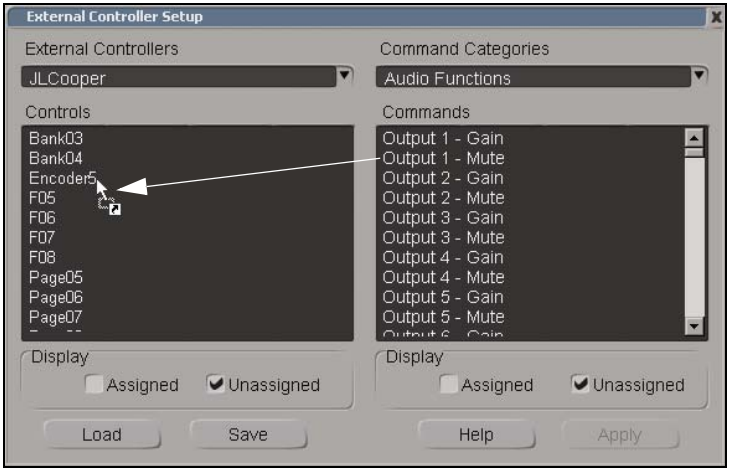


To assign a control to a command:

1. In the External Controller Setup view, select the **Unassigned** option from the Display box to display unassigned controls and commands.

You can only map unassigned controls to unassigned commands.

2. From the Commands list, select a command and drag it to a control in the Controls list on the left.



Audio gain on Output1 is assigned to Encoder5 on the external controller.

3. Continue to drag items from the Commands list to items in the Controls list.
4. When you are satisfied with the new mapping, click the **Apply** button.

To unassign a control or command:

1. In the External Controller Setup view, click an assigned control or command in the Controls or Commands list.

   The name is highlighted.

2. Click **Delete**.

   The item becomes unassigned. If only the Assigned option is selected, this item disappears from the list and appears in the unassigned list.

***Tip**: You can undo a mapping operation by choosing **Undo** from the Edit menu.*

3. When you are satisfied with the mappings, click the **Apply** button.

Creating a Command Mapping Set

You can configure the command mapping of the external controller to suit the type of work you do and your particular work habits.

To create a command mapping preset:

1. In the External Controller Setup view, click the **Save** button.

   The Save Preset dialog box is displayed.

2. Select a folder in which to save the preset, and enter a name in the **File Name** text box. You can also add a comment in the Comments text box.
3. Click **OK**.

Loading a Command Mapping Set

You can load the default command mapping set or one that you created with your personal preferences.

To load a command mapping set:

1. In the External Controller Setup view, click the **Load** button.

   The Load Preset dialog box is displayed.

2. Select a command mapping preset.
3. Click **OK**.

Building an Audio Mix

You can use the Editing layout to create mixes and add audio effects to your clips at different stages. You can start your mixing session by overlapping audio clips on the timeline, and then fine-tune the signal on the mixer by adding audio effects, and adjusting the volume and balance of the signal before output.

Avid DS Nitris supports up to 64 tracks of audio on a timeline. This capability also depends on the overall throughput of your system. For example, the number of video tracks, compression settings, disk fragmentation, or audio effects can all affect the system throughput. Instead of relying solely on the throughput, you can give yourself more flexibility by creating mixes using audio container clips.

Audio container clips let you compress as many as 64 tracks down to one, leaving you more audio tracks to work with. Here are some other reasons to use container clips:

- **Grouping sound tracks**: If you want to edit specific sounds more efficiently, you can group sound tracks and create submixes of common track types in an audio container clip. For example, you can mix hard sound effects like creaking floors and footsteps in one container clip, vocal tracks in another, and instrumentals in yet another container clip. All of these clips can be premixed in their respective container clips, and then played simultaneously on the top timeline.
- **Animating (automating) your mixes**: If you need to boost or lower the signal at different points in time, it's more efficient to animate the necessary controls in a container clip. This way, if you move the container clip, its animation moves with it.
- **Sample accurate editing**: Inside an audio container, the timeline ruler is displayed in terms of audio samples, as opposed to video frames. This lets you have greater control over the placement of your audio clips.

When you close the audio container clip, the tracks are automatically processed and represented as a single clip on the top timeline. You can now play the mix in real time.

Before doing your mixes, make sure you've already edited your sound tracks (music and dialogue).

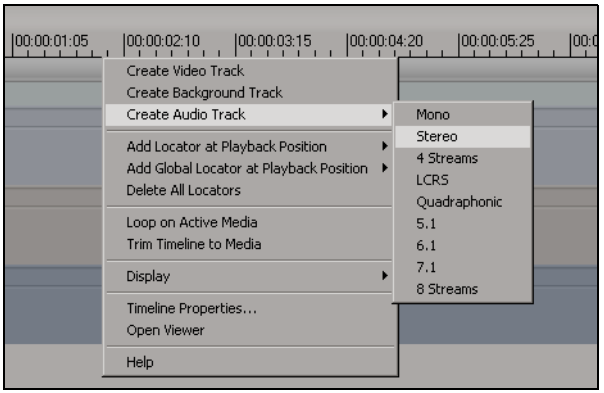
Creating Audio Tracks

Whether you're building a mix in an audio container clip or not, you need to add audio tracks to the timeline. Audio clips and tracks in Avid DS Nitris can have up to eight channels of audio in any of the following formats:

Format	Description
Mono	Single channel of audio
Stereo	Two audio channels: Left and right
Quadraphonic	Four audio channels: Left, right, left rear, right rear
LCRS	Four audio channels: Left, center, right, surround
4 Stream	Four audio channels: Output 1 to 4
5.1	Six audio channels: Left, right, center, Low Frequency Emitter (LFE), left surround, right surround
6.1	Seven audio channels: Left, right, center, Low Frequency Emitter (LFE), surround center, Side left, Side right
7.1	Eight audio channels: Left, right, center, Low Frequency Emitter (LFE), left surround, right surround, left center, right center
8 Stream	Eight audio channels: Output 1 to 8

To create an audio track, do one of the following:

- Right-click in the overview area, and select **Create Audio Track** and a track format.



- Drag an audio clip from the Avid Explorer to the timeline ribbon.

  Tracks created this way adopt the format of the audio clip.

To determine a clip's audio format:

- Right-click a clip on the timeline and select **Properties**.

  The Clip property editor is displayed, and the audio format is shown in the Type box.

To determine a track's audio format:

- Right-click a track and select **Track Properties**.

  The Track property editor is displayed, and the audio format is shown in the Format list box.

To change a track's audio format:

1. Right-click a track and select **Track Properties**.

   The Track property editor is displayed.

2. In the Format list box, select the format you want.

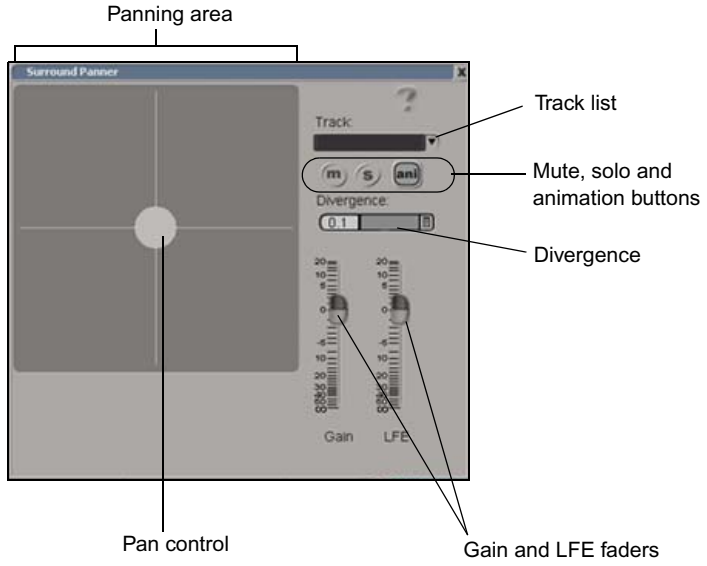
Audio clips appear yellow if their format does not match the audio track format, such as when a stereo clip is placed on a mono track.

Using the Surround Panner

The Surround Panner lets you specify the positioning and movement of the sound elements in your sequence. You can, for example, use it to create the effect of footsteps crossing a room, or simulate the sound of a door closing behind your listening audience.

You can only use the Surround Panner on mono tracks and if the mixer configuration is set to one of the surround output configurations, namely LCRS, Quadrophonic, 5.1, 6.1, or 7.1.

For more information, click the **Help** button or see “Surround Panner” in the Help.



To access the Surround Panner:

- Select **View** > **Single-Instance Views** > **Surround Panner**.

To specify the location of a sound:

- Drag the pan control to the location you want in the panning area.

To specify the size of a sound source:

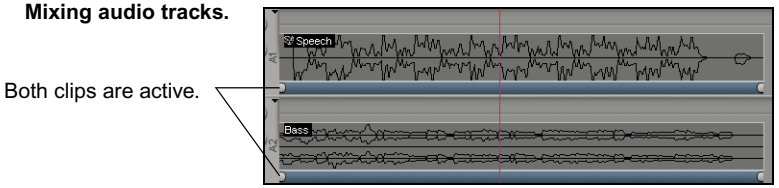
- Adjust the Divergence value.

Mixing Clips

There are several ways of mixing audio on the timeline. You can:

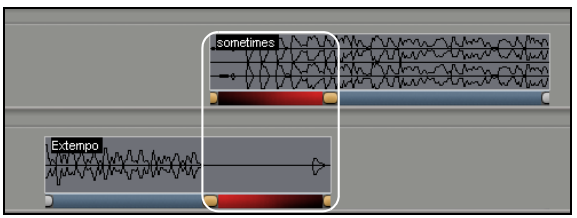
- Place audio clips on different tracks on the timeline, but within the same region. Unlike video clips on background tracks, audio clips do not lose their activeness when placed at the same timecodes as other audio clips. This lets you play several clips simultaneously.

Mixing audio tracks.



- Overlap clips on the timeline to create a crossfade from one audio clip to another. The two audio clips can be on the same track or different tracks. For more information, see “Applying Crossfade Effects” on page 1061.

Crossfade between two audio clips.



Crossfade transition

- Create a submix in an audio container clip. Place multiple audio clips in a container clip and mix them down to a single clip on the top timeline.

Creating a Submix

The mixer can support up to 64 input tracks. If you notice frames skipping during playback (indicated by a red light on the transport controls), you should mix your audio tracks in container clips instead.

In a container clip, you can mix 64 tracks of audio down to one, giving you more tracks to work with. An audio container clip can also contain other container clips, letting you create many more submixes.

For example, create a container clip to hold different dialogue, foley, and background music tracks, and mix them down to a single track in preparation for a scene. When the audio container clip is closed, these tracks appear as a single clip, which you can mix with other audio clips and/or synchronize with corresponding video clips.

Audio container clips also lets you display the timeline ruler in samples, frames, or milliseconds, giving you greater accuracy when editing audio clips.

The initial format of your audio container clip depends on the clip selected. That is, if the audio container is created from a stereo clip, then the container will be stereo. You can, however, change the format of an audio container clip by changing the mixer configuration within the container. For more information, see "Changing the Mixer Configuration" on page 1024.

To create an audio container clip:

1. Place a clip on the track where the container clip will be created.
2. Right-click the clip and select **Create Audio Container Clip**.

You can select more than one clip on a track by holding down the Ctrl key and clicking the clips that you want to select. These clips all become part of the new container clip.

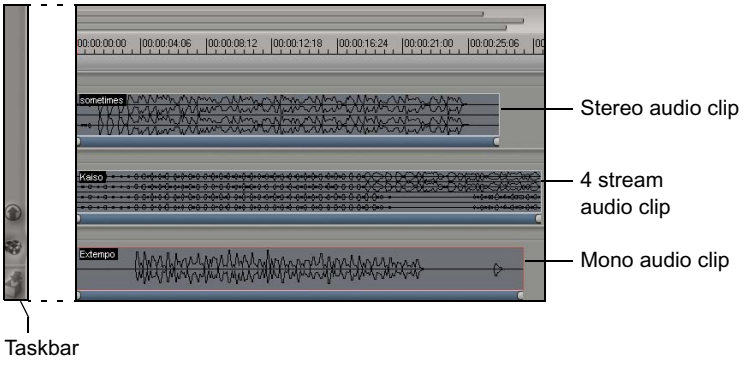
A new timeline is opened, and the selected audio clip is placed on the first track. You can now insert additional audio tracks on which to place other audio clips that form the mix.

Also, notice that a new container clip button is displayed in the taskbar. This button indicates that you're working in an audio container clip.

Audio container clip button

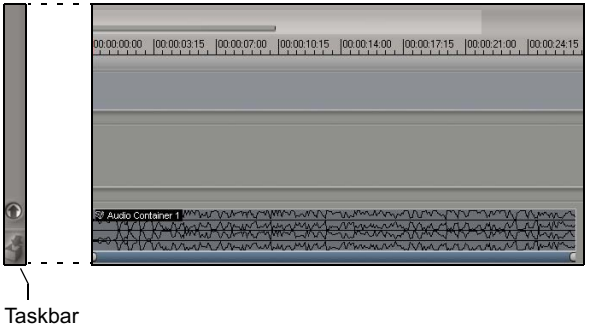
Inside an audio container clip, the ruler time scale is set to samples by default. You can change the time scale by right-clicking on the ruler and choosing a different time scale.

An open audio container clip.



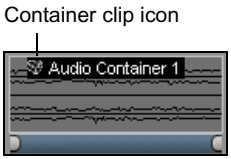
3. When you've finished editing the clips in this container clip, click the **Top Timeline** button in the taskbar to close the audio container clip and return to the top timeline.

A closed audio container clip is represented as a single clip on the timeline



When you close the container clip, Avid DS Nitris automatically processes the mix and displays a single clip on the parent audio track. While processing, a progress bar indicates the status of the process. The number of passes that Avid DS Nitris processes is based on the number of nested container clips in the current container clip.

After processing, you can mix the resulting clip with other audio clips on the timeline. You can reopen the container clip by clicking the icon on the container clip.

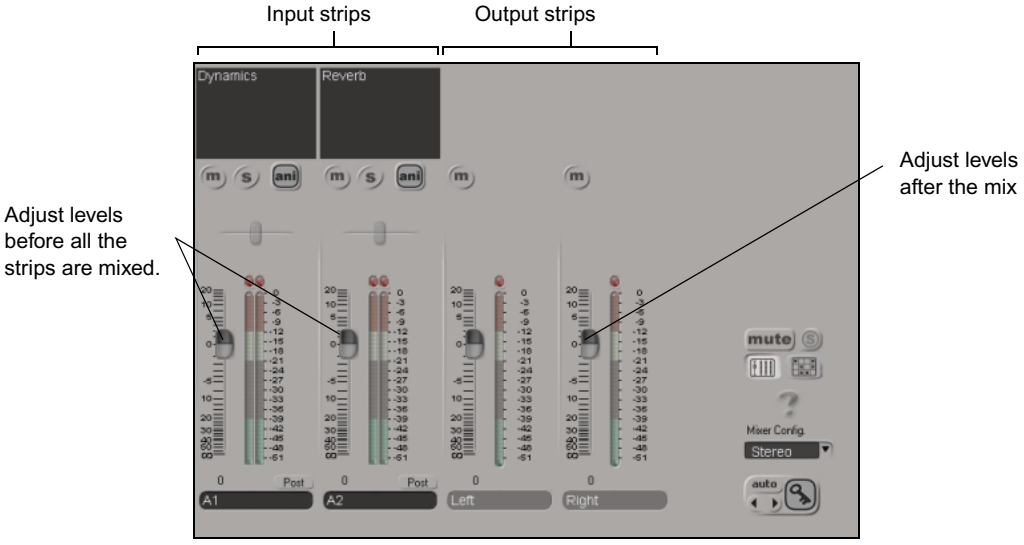


Fine-tuning the Mix

After you've placed and edited your audio clips on the timeline, you can fine-tune the signal using the mixer. Each input strip in the mixer corresponds to an audio track on the timeline. The strip controls let you add effects and adjust the overall volume and balance of each track. The signals from all the strips are then mixed and routed to the output strips.

A strip's volume level is displayed in decibels on the level meter. The level meters resemble a plasma display, which shows the level of energy for an audio signal at a specific point in time. Stereo tracks have a dual level meter to indicate the strengths of each stream. Mono tracks only have a single level meter.

The signal that results from the adjustments on the input strips are then fed into the mixer, where all the audio signals are combined into a single composite signal. The mixed audio signals are then directed to the output strips. Here, again, you have the option to adjust the volume before outputting it to a parent container clip or external device. For more information, see "Understanding the Mixer" on page 1023.



Adjusting the Mixer Inputs

As you add audio tracks to the timeline, the input strips appear on the mixer, which always reflects the appearance of the audio tracks on the timeline. If you reorder the audio tracks on the currently-displayed timeline, the mixer is updated accordingly.

The quality of an audio mix depends on the volume and pan levels on each input strip. You should set the levels, so that the mix is well balanced. The controls on the input strips let you manipulate the signal coming from each audio track on the timeline. You can adjust the volume and pan levels of each strip before the signal is fed into the mixer. You can also use the Mute and Solo buttons to listen to the signals coming from individual tracks.

The Solo buttons are for monitoring purposes only and do not stop the signal from going into the mixer.

The fader is used to control the volume on the mixer strips. It simulates an audio taper fader, except that the scale is more precise between the +5 dB and -5 dB range.

The level meter ranges from 20.0 dB to -∞ dB. On the input strip, the level meter maintains the energy levels even if the volume is adjusted or the strip is muted. This lets you view the signal as it comes from the audio tracks. The volume change is only shown on the output strip level meters.

Click Post on the mixer input strip to have the level meter reflect the volume change.

You can also add effects to the signal before it's processed in the mixer. For more information, see "Fine-tuning the Mix" on page 1043.

To fine-tune the sound on an input strip:

1. Click the **Solo** button on the input strip that you want to tune.

   Only the sound from this input strip can be heard.

2. Move the position indicator to the beginning of the first audio clip on the respective track.
3. On the transport controls, click **Play**.
4. During playback, click the **Solo** button to hear the effect of the track in and out of the mix. Click the **Solo** button again to turn off the effect.
5. As the sequence is played back, drag the fader up or down.

Double-clicking the fader button returns it to the 0 dB position.

6. For mono tracks, you can also activate the pan control if you want to change the routing of the signal. The pan control lets you adjust the balance among the output strips. Moving the pan control determines the distribution of the audio signals among the output strips—see "Adjusting the Audio Balance" on page 1026.
7. After you've completed the fine-tuning for this strip, deselect the **Solo** button, and repeat this procedure for all the other input strips.

Adjusting the Mixer Outputs

The results of the adjustments on all the input strips are mixed and passed to the output strips. Output strips let you adjust the output volume of the audio signals. The number of output strips on the mixer depends on the selected mixer configuration. The signal from the output strips is then directed to an external device.

If you're working in an audio container clip, the signals are directed to the parent container clip.

To adjust the volume on the output strip:

1. On the output strip you want to listen to, click the **Solo** button.

   This lets you focus on the sounds from this strip alone.

2. Move the position indicator to the beginning of the sequence.
3. On the transport controls, click **Play**.
4. As the sequence is playing, monitor the output levels on the level meter and drag the fader up or down to adjust the volume of this strip.
5. Repeat this procedure for the other output strip(s).
6. After you've fine-tuned each output strip, make sure you deselect any **Solo** buttons to listen to the combined results of the output strips.

Animating the Audio Mix

When you want to adjust the volume or balance at different stages of the sequence, you can use the animation capabilities of the mixer to automate the volume and balance of your audio signals.

You can animate the fader, mute, and pan controls on the input strips before the signal is processed in the mixer. You can also choose the strips that you want to animate.

When you animate the pan control, fader, and mute settings during real-time playback, the adjustments are graphed as function curves. You can easily modify these function curves in the animation graph after the recording is complete.

All animation is track-based. Therefore, if you move the audio clips to a different track, you will lose the associated animation. If you want to keep the associated animation, then drag and drop the previously saved sequence on the timeline. New audio tracks will contain the audio animation.

Animating the Input Strip Controls

The Animation button lets you record any adjustments you make to the pan, mute, and fader controls on the mixer strip in real time. The Solo button cannot be animated because it's a tool that lets you listen to the sounds of the different tracks.

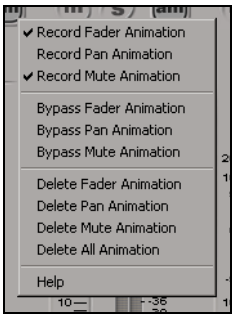
To activate animation on the strips:

Animation button

1. On the strip that you want to animate, click the **Animation** button.

   By default, all the controls on this strip are animated when you begin the keyframing process. You can, however, select the controls that you want to animate.

2. Right-click the **Animation** button and select a command from the menu.



*Pan can only be animated if the pan control is activated. Right-click the pan control and select **Enable Pan**.*

3. Deselect the controls that you do not want to participate in the animation.

To animate the controls:

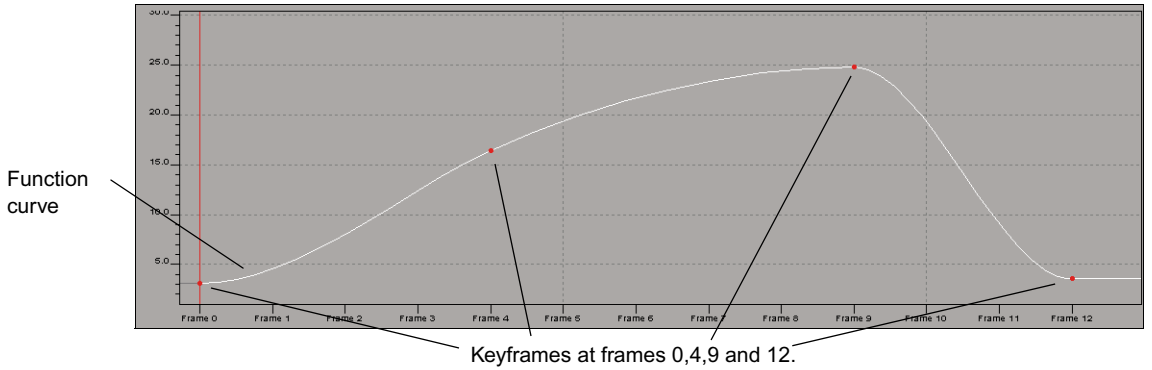
1. Click the **Animation** button on the input strips that will participate in the animation.
2. On the transport controls, click **Play**.
3. Adjust the controls on the input strip as the sequence is playing.

   Any actions that you perform with the previously activated controls are automatically recorded.
4. To stop playing the sequence, click **Play** again.
5. Click the **Animation** button on the input strip to deactivate it.

If you leave the Animation button activated, you can record over the animation simply by replaying the sequence and redoing the control movements at the appropriate times. The previous animation's function curve is overwritten until you stop the recording.

6. Go to the beginning of the sequence and click **Play** to see the results of the recorded animation.

   If you open the animation editor, you can see your animated movements graphed on the function curve.



The animation editor displays the function curve that you generated.

You can also use the Animation Key button to manually animate your controls. For more information, see "Setting Keyframes Manually" on page 965.

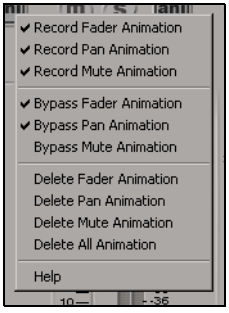
Bypassing the Animation

When you play a sequence that's been animated, all the controls that were animated will automatically play back. If you want to monitor certain sounds, you can bypass the animated movements of some or all of the controls. This lets you fine-tune your audio signal. Any animated controls that are bypassed are still processed and sent to the outputs.

To bypass the animation during playback:

1. On an input strip, right-click the **Animation** button and select a command to bypass from the menu.

   A check mark beside the command indicates that it will be bypassed.



2. Select any other items that you want to bypass during playback.

   When you replay the sequence, the controls that you selected for bypass do not participate in the animation.

Editing the Animation

All animated movements can be modified by adjusting the keyframes that were set for the animated controls.

To edit the animation:

1. Right-click the Animation Key button and select **Animation Editor**.
2. In the animation tree, select the name of the strip on which the animation was created.
3. Click the plus sign (+) to expand the tree, and then select a property or control whose keyframe, values need to be adjusted.

   The corresponding function curve is displayed in the animation graph.
4. Adjust the key points on the function curve at the appropriate timecode settings.

For more information, see “Editing Animation on the Animation Graph” on page 991.

Deleting Animation

You can delete all or part of the animation on the mixer input strips.

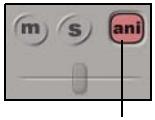
To delete all animation on the mixer:

Animation Key button

- Right-click the Animation Key button and select **Remove Animation Curves**.

  The function curves for the pan, gain, and mute of each input strip in

To delete animation on individual strip controls:



Animation button

- On an input strip, right-click the Animation button and select one of the following:
  - Any of the Delete options from the bottom of the menu.
  - **Delete All Animation** to remove all animation on this input strip.

Audio Media Conversion

You can mix audio clips of different sample rates within a sequence. However, if an audio clip's sample rate doesn't match that of the sequence, or if it is not supported by your audio hardware, you will not be able to hear it when you play the sequence. To hear the clip, you need to convert it to the sample rate of your sequence, and/or a sample rate that is supported by your hardware.

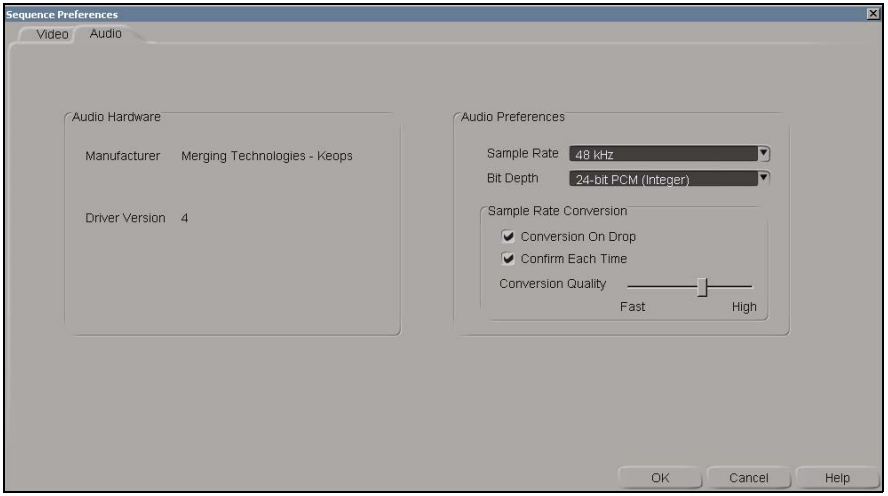
You can also convert audio clips that are already in a sequence to match the sequence video frame rate. For example, if you want to convert a sequence from NTSC to PAL. Any audio clips can be converted so that their sample rate remains the same, except that they will be timed to keep in sync with the sequence's new video frame rate.

Converting the Audio Sample Rate

When you place an audio clip on the timeline, its sample rate is converted according to the settings in the Sequence Preferences dialog box (Audio property page). You can have the sample rate of a clip automatically converted when it is dropped into a sequence of a different frame rate. You can also choose to manually convert it later.

To set up automatic conversion a clip's sample rate:

1. Select **File** > **Sequence Preferences**.
2. In the Sequence Preferences dialog box, select the **Audio** tab.



3. In the Sample Rate Conversion box, select **Conversion on Drop** to automatically convert the sample rate of all audio clips when a sequence is dropped on the timeline.
4. Use the **Conversion Quality** controls to specify a conversion quality.

For more information, click the **Help** button.

To convert a sequence's sample rate:

1. Open a new sequence and set the new sample rate that you want to use.
2. From the Explorer, drag the former sequence onto the timeline.
3. You will be asked if you want to convert the sample rate of all the clips to the new sequence sample rate.
4. Click Yes.

   All audio clips will automatically be converted. A new media file is created for each of these clips.

Converting the Audio Sample Rate Manually

You can place clips on the timeline without having their sample rate automatically converted to match that of the sequence. However, if an audio clip's sample rate doesn't match that of the sequence, you will not be able to hear it when you play the sequence. You can change the sampling rate of clips to conform to the rest of the sequence.

When an audio clip's sample rate does not match the sequence's sample rate, the clip appears red on the timeline.

To manually convert the sample rate of a clip:

- Right-click a clip on the timeline and select **Convert to Current Sample Rate**.

To manually convert the sample rate of a track:

- Right-click an audio track and select **Convert to Current Sample Rate**.

To convert the sample rate of an audio container clip:

1. Right-click the track holding the audio container clip, and select **Convert to Current Sample Rate**.
2. Double-click the container clip to open it.
3. Right-click on each track within the container, and select **Convert to Current Sample Rate.**

   The red highlight will appear on the timeline ribbon to indicate that the clips need processing.
4. Process the clips to generate new media at the current sequence frame rate.

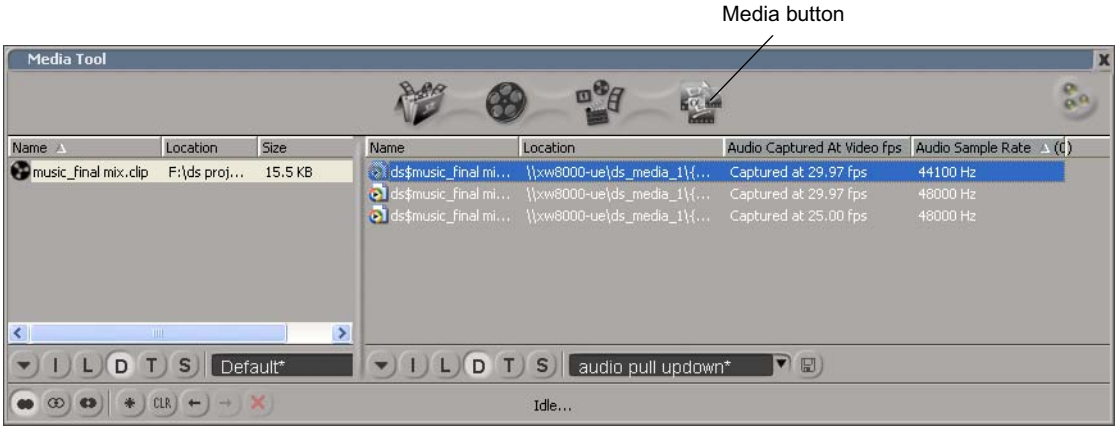
Converting the Reference Frame Rate of Audio Clips

If you are changing the frame rate of a sequence, you will need to adjust the audio clips accordingly, so that they remain in sync with the video. To change the reference frame rate in the audio clips, you can do an audio pull up/down using the Media Tool or Tape Tool. The sample rate of the audio clips remains the same but they become slightly longer or shorter to remain in sync with the video.

The audio must already be captured from tape or file, and exist as media in Avid DS Nitris. The pull up/down can also be performed on .wav or .mxf files.

To convert the reference frame rate of audio clips:

1. Select **Data Management > Media Tool**.
2. Drag the audio clip from the Explorer over the Media button in the Media Tool.



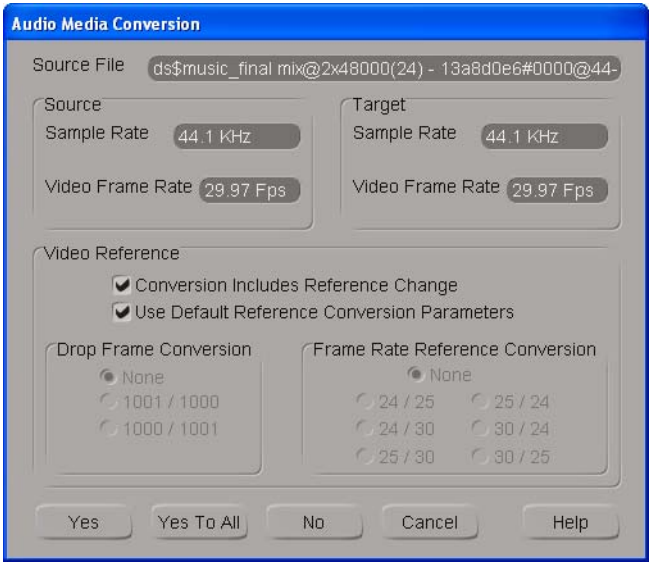
All media that exists for that clip is displayed in the view.

3. To view the captured video frame rate and sample rate:
   a. Right-click the view and select **Settings > Add/remove Columns**.
   b. Select **Avid DS Audio Captured at Video fps** and **Avid DS Audio Sample Rate**.
   c. Click Apply.

   This adds two columns to the Media Tool that let you view the sample rate and frame rate of the media.
4. Right-click the media file that you want to convert and select **up/down convert audio**.

You can also access the Audio Media Conversion dialog box from the Tape Tool. Select an audio clip in the Tape Tool timeline. Then right-click the clip and select Audio Up/Down Convert. For more information about the Tape Tool, see "Tape Tool" in the Help.

The Audio Media Conversion dialog box shows you the frame rate conversion settings.



For more information, click the **Help** button.

5. In the Video Reference box, select **Conversion Includes Reference Change**.

   In most cases, keep the **Use Default Reference Conversion Parameters** option selected. Avid DS Nitris will use the most appropriate drop frame conversion for your media. If you are converting more than one clip, such as batch conversion, you must use the default parameters.

   If you want to manually select the conversion parameters, de-select **Use Default Reference Conversion Parameters** and select the desired conversion parameters. For Drop Frame Conversion, 1001/1000 is drop-frame to non-drop frame, and 1000/1001 is non-drop frame to drop-frame.

6. Click **Yes**, or **Yes to All (**if you are converting more than one clip).

   The conversion will take a few seconds to complete.

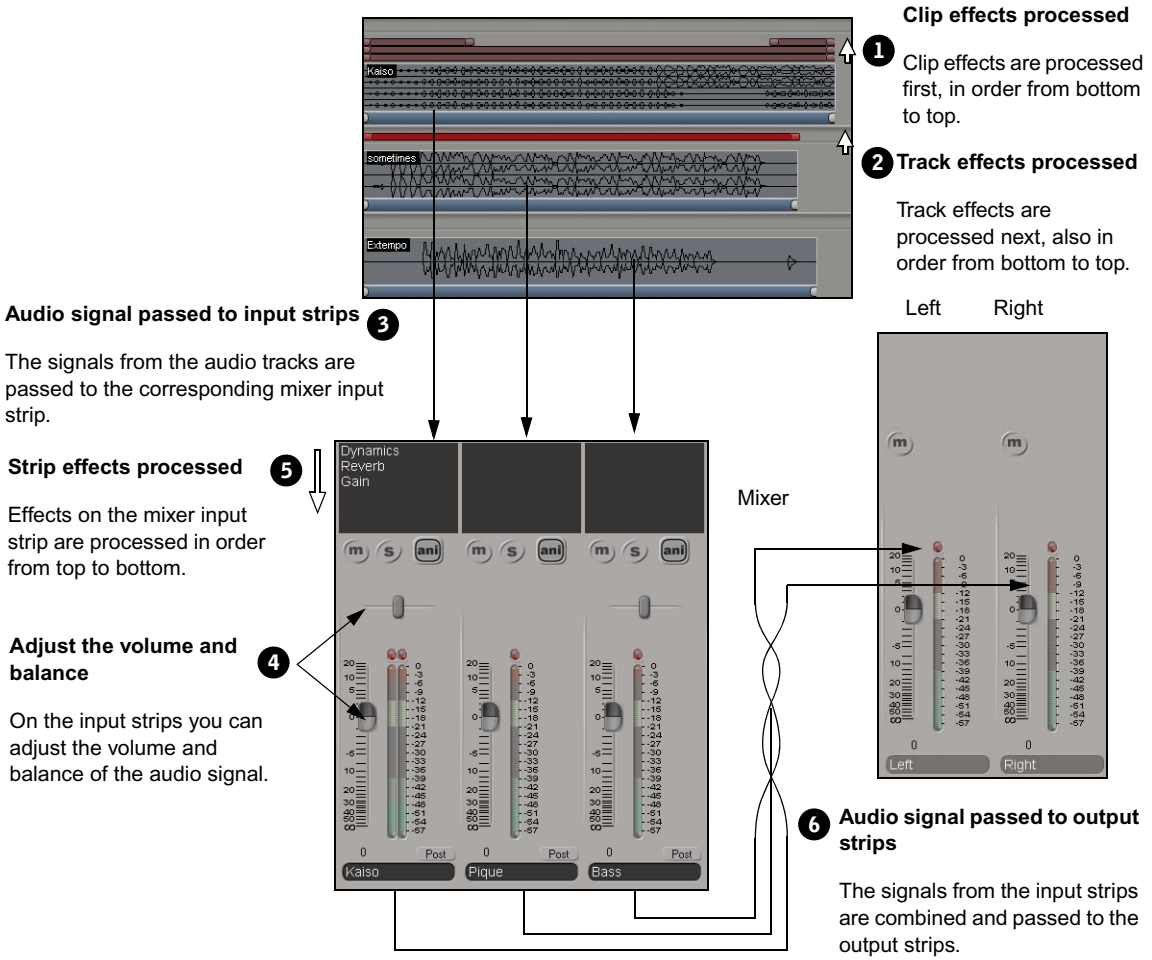
   New media is created for your current sequence frame rate, and displayed in the Media Tool.

Processing the Mix

Unlike video clips, all audio clip, track, and strip effects (as well as any animation) are processed in real time, so that no caches need to be created. The only exception is when you create audio container clips. These container clips are processed automatically when you close them.

You can process clip-based audio effects to reduce your workstation's memory usage. For more information, see "Processing Clip-based Audio Effects" on page 1058.

The following illustration shows how audio effects are processed from the tracks on the timeline to the strips on the mixer.



Audio clip effects are processed before track effects. If the effects are stacked, then they're processed from bottom to top. The signal from the audio track is then passed to the corresponding mixer input strip, where you can adjust the volume and balance of the incoming signal. If you're still not satisfied with the results, you can add more effects to the strip. These strip effects are processed from top to bottom.

The signals from all the input strips are then mixed together and distributed to the output strips based on the pan levels set on the input strips. On the output strips, you can make the final adjustments to the volume level using the fader.

The resulting signal is recorded on your external device. If you're currently working in a container clip, then the resulting signal is sent to the parent container clip.

When you close an audio container clip, Avid DS Nitris automatically processes the mix and displays a single clip on the parent audio track. While processing, it will indicate the progress. The number of passes that Avid DS Nitris processes are based on the number of nested container clips in the current container clip.

If you haven't made any changes to the clips in the container clip, then processing is not necessary.

Processing Clip-based Audio Effects

All audio clip, track, and strip effects (as well as any animation) are processed in real time. However, you might want to process clip-based audio effects to reduce your workstation's memory usage.

To process a specific audio clip effect on the timeline:

1. Right-click the audio clip and select **Clip Cache**.
2. Apply an audio effect to the audio clip.

   The clip area on the timeline changes to yellow, indicating the effect is real-time but can also be processed.
3. Click the **Process** button.
4. In the Processing Options dialog box, select the following options:
   - Selected **Object**
   - Include Real-time Effect to force processing and create a cache on disk for the real-time effects

*You can process several audio clip effects by selecting **Current Timeline** on the Processing Options dialog box.*

Chapter 11
Working with Audio Effects

This chapter describes the audio effects and how to apply them:

- Understanding Audio Effects
- Applying Crossfade Effects
- Applying Dynamics Effects
- Working with Equalizer (EQ) Effects
- Applying Fade Effects
- Applying a Gain Effect
- Applying Reverb Effect
- Applying a VST Host Effect

Understanding Audio Effects

The audio effects are used to adjust the output signal of your audio clip. You can apply audio effects to clips, tracks, or mixer input strips. For information, see "Working with Effects and Transitions" on page 905.

Since all of the audio effects are real-time effects, except for the Timewarp effect, you can hear the results upon playback without having to first process the effect. For information about Timewarp effects, see "Applying an Audio Timewarp Effect" on page 941.

In some cases, real-time effects may require processing to ensure that no frames are skipped. For more information, see "Playing Real-Time Effects" on page 900.

If you are adjusting parameters in an audio property editor during playback, you may notice a slight time lapse before you hear the results of the change. This will not affect the quality of the final output to tape or file.

Applying Crossfade Effects

A crossfade is an audio transition between two clips over a specified number of frames. The sound of the outgoing clip gradually becomes less audible as the incoming sound increases to the desired volume.

To create a crossfade between two clips:

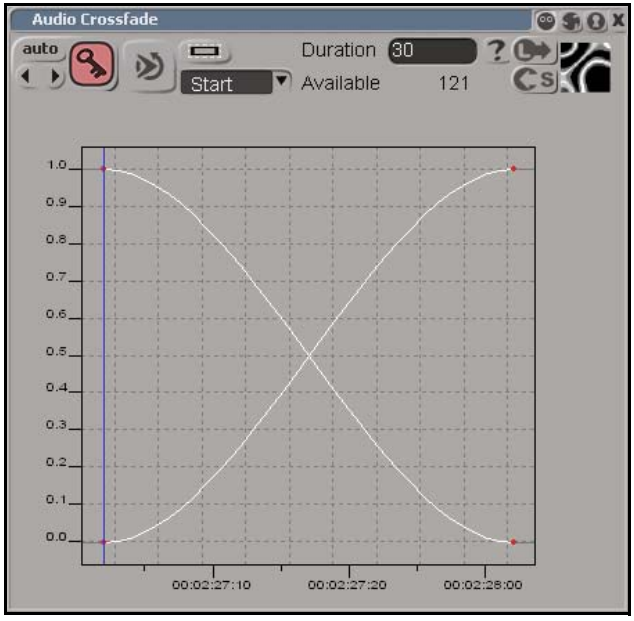
1. On the timeline, overlap the clips that you want to work with.

   They can be placed on the same or different tracks. Make sure that the clips to receive the crossfade have extra material.

2. Select the edit point between the two audio clips on which you want to apply the crossfade.

3. From the toolbar, click **Transition Effects** > **Dissolve/Crossfade**.

   The transition area is displayed as a gradient on the activeness bar.



4. In the Crossfade property editor, adjust the amount of the crossfade and specify the start point and duration of the transition.

For more information, click the **Help** button.

Applying Dynamics Effects

The Dynamics effects let you control the dynamic range of the audio signal. You can apply audio effects to clips or tracks, or on the mixer input strips.

There are five dynamics processes available in the Dynamics property editor: Gate, Expander, Compressor 1, Compressor 2, and Limiter.

For a list of the Dynamics effects, see “Dynamics Effects” in the Help.

To apply a dynamics effect:

1. Apply a dynamics effect to a clip, track, or mixer input strip.

   The Dynamics property editor is displayed.
2. On the General property page, set the **Attack** and **Release** times.
3. On the Threshold property page, set the ratios.
4. Adjust the thresholds for the required processes.

For more information, click the **Help** button.

Working with Equalizer (EQ) Effects

The Equalizer (EQ) effects let you boost or cut the output signal at certain frequencies. You can apply audio effects to clips or tracks, or on the mixer input strips.

Applying the 3 Band Tone Control Effect

The 3 Band Tone Control effect lets you adjust the decibel level of the bass, middle, and treble frequencies, and the overall audio signal. You can boost or cut the signal in a decibel range of -15 dB to +15 dB.

To boost or cut the frequency ranges of the audio signal:

1. Apply the 3 Band Tone Control effect to a clip, track, or mixer input strip.
2. In the 3 Band Tone Control property editor, specify the amount of gain (in decibels) to be added to or cut from each of the frequency ranges.

To boost or cut the overall gain of the input signal:

- In the Input Gain text box, specify the amount of gain (in decibels) to be added to or cut from the whole signal.

For more information, click the **Help** button.

Applying the 4 Band Parametric EQ Effect

The 4 Band Parametric EQ effect lets you boost or cut the audio signal at four different frequencies. You can boost or cut the signal in a decibel range of -24 dB to +24 dB. You can also boost the overall gain of the audio clip's input signal.

To boost or cut the overall gain of the input signal:

1. Apply the 4 Band Parametric EQ effect to a clip, track, or mixer input strip.

   The 4 Band Parametric EQ property editor is displayed.
2. On the Band 1 property page, specify the amount of gain (in decibels) to be added to or cut from the whole signal.

To boost or cut the frequency ranges of the audio signal:

1. In the Frequency text box, enter the frequency at which you want the effect to be applied.
2. In the Gain text box, enter the amount of gain (in decibels) to be added to or cut from the audio signal at the selected frequency.
3. In the Q text box, enter the Q factor (resonance).
4. Specify the curve type: Peaking, LF (low frequency) Shelving, or HF (high frequency) Shelving.

For more information, click the **Help** button.

Applying the 10 Band Graphic EQ Effect

The 10 Band Graphic EQ effect lets you boost or cut the audio signal at preset frequencies ranging from 31 Hz to 16 kHz. The bands are separated by exactly one octave, and each band has a bandwidth of one octave.

You can also boost or cut the overall gain of the audio clip's input signal.

To boost or cut the overall gain of the input signal:

1. Apply the 10 Band Graphic EQ effect to a clip, track, or mixer input strip.

   The 10 Band Graphic EQ property editor is displayed.
2. On the Bands 1 - 5 property page, specify the amount of gain (in decibels) to be added to or cut from the whole signal in the **Input Gain** text box.

To boost or cut the frequency ranges of the signal:

- Specify the amount of gain (in decibels) to be added to or cut from each of the frequency ranges.

For more information, click the **Help** button or see "10 Band Graphic EQ Property Editor" in the Help.

Applying Fade Effects

The fade effects let you animate the volume of your audio clip over time. You can apply audio effects to clips or tracks, or on the mixer input strips.

To apply the Fade effect:

- Apply a fade effect to a clip, track, or mixer input strip.

  The Fade property editor is displayed. It consists of a single property page which contains a function curve to control the volume of your audio clip. Adjust the curve to set an increase or decrease in volume.

For more information, click the **Help** button.

Applying a Gain Effect

The Gain effect lets you boost or cut the output gain of an audio signal. This is done by increasing or decreasing the decibel level.

You can apply audio effects to clips or tracks, or on the mixer input strips.

To adjust the output gain of an audio clip:

1. Apply the Gain effect to a clip, track, or mixer input strip.

   The Gain property editor is displayed.

2. In the Level text box, enter the desired decibel level of the audio clip.

To invert the output signal:

- Select the **Invert phase** option.

To reset the decibel level to the default value (0):

- Click **Unity**.

For more information, click the **Help** button.

Applying Reverb Effect

The Reverb property editor lets you apply a reverberation effect to your clip. The reverberation effect simulates the many reflections of sound that can occur within a room and can be used to add depth to a sound.

You can apply audio effects to clips, tracks, or mixer input strips.

To apply the Reverb effect:

- Apply the Reverb effect to a clip, track, or mixer input strip.

  The Reverb property editor is displayed.

For more information, click the **Help** button.

Applying a VST Host Effect

The VST Host effect lets you load and use VST plug-in effects in Avid DS Nitris. You must have VST plug-in effects installed before you can use them in Avid DS Nitris.

Avid DS Nitris implements version 1.0 of the VST Host and works with any VST plug-in effects that support this version of the VST Host.

During the installation of Avid DS Nitris, a \VSTPlugIns folder is created in the Avid DS Nitris installation folder. In a default installation the full path to the folder would be: C:\Program Files\Avid\DS_v7.x\VSTPlugins.

Avid DS Nitris recognizes any VST plug-ins installed in the \VSTPlugIns folder and any of its subfolders or installed with Cubase VST.

You can apply audio effects to clips or tracks, or on the mixer input strips.

Consult the vendor's documentation on how to install and uninstall a VST plug-in effect.

To apply a VST plug-in effect:

1. Install a VST plug-in effect on your system.
2. Apply the VST Host effect to a clip, track, or mixer input strip.

   The VST Host property editor is displayed.
3. From the Effect list, select the plug-in effect you want to use.

To use a VST plug-in effect bank or program:

1. Apply the VST Host effect to a clip, track, or mixer input strip.

   The VST Host property editor is displayed.
2. From the Effect list, select the plug-in effect you want to use.
3. Click **Load** and navigate to the folder where the VST effect bank (.fxb files) or program (.fxp files) are installed.

   By default, Avid DS Nitris looks in the folder in which the VST plug-in is located.
4. Select the file you want and click **OK**.
5. From the Program list, select the effect preset you want to use.

For more information, click the **Help** button.

Chapter 12
Media Management

This chapter describes how to manage your project files and media in Avid DS Nitris and how to use your disk space efficiently by purging, deleting, and archiving. This chapter includes the following sections:

- Understanding Media
- Managing Media
- Archiving Projects
- Restoring Projects
- Moving Projects to Another Workstation
- Deleting Projects
- Deleting Clips
- Viewing Information about Storage Devices

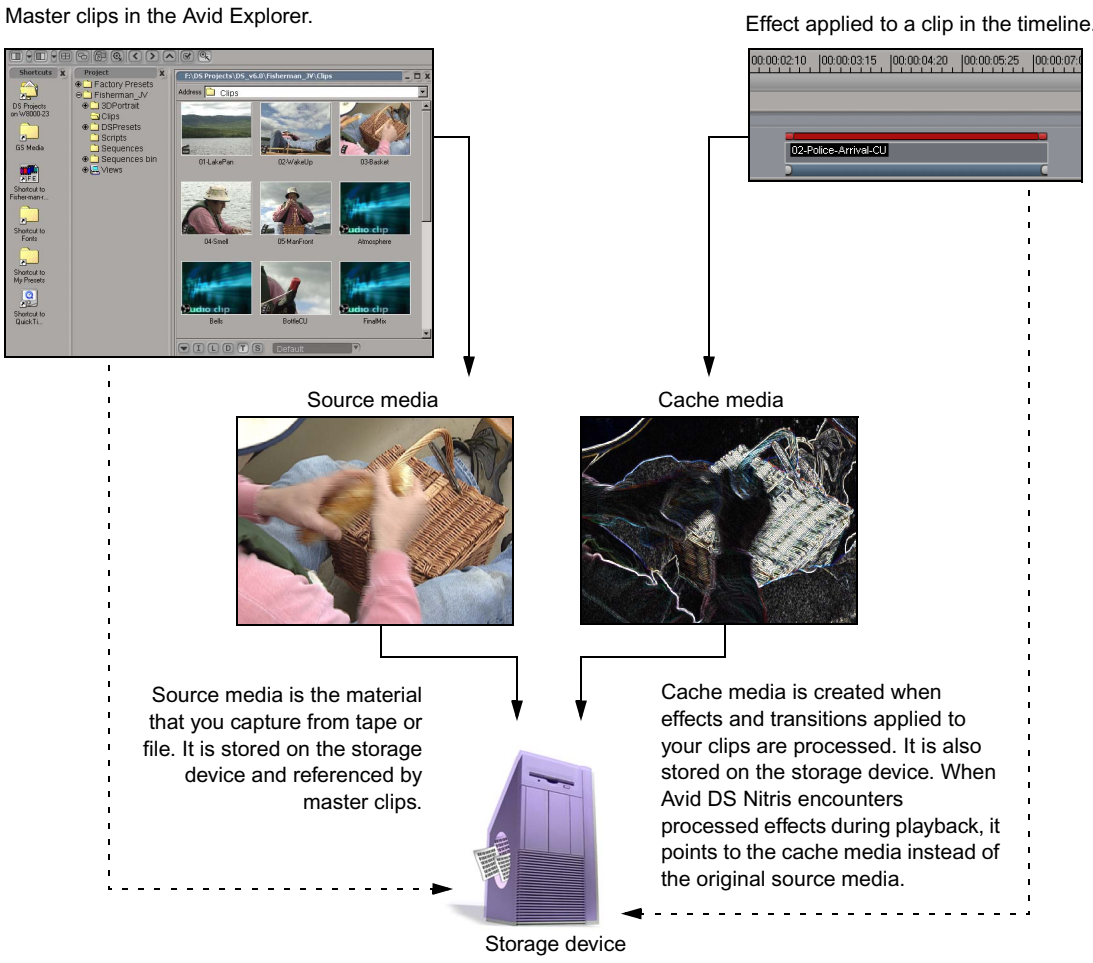
For details on setting up your storage areas, see “Planning your Storage Locations” in the *Avid DS Nitris Installation and Administration Guide* or the Help.

Understanding Media

Media in Avid DS Nitris exists in one of two forms: source media or caches. Media is the digitized form of source material after it has been captured or imported from tape or file into Avid DS Nitris.

A cache is a media file that is generated when you process an effect, transition, or composite created in your sequence. During playback, Avid DS Nitris refers to this cache file instead of the source media.

Both source media and cache media are stored on high-performance storage devices. The following illustration shows the relationship between source and cache media.


Master clips in the Avid Explorer.
Effect applied to a clip in the timeline.
02-Police-Arrival-CU
Source media
Cache media
Source media is the material that you capture from tape or file. It is stored on the storage device and referenced by master clips.
Cache media is created when effects and transitions applied to your clips are processed. It is also stored on the storage device. When Avid DS Nitris encounters processed effects during playback, it points to the cache media instead of the original source media.
Storage device

Like captured media, you can process your clips at different resolutions and compression ratios. Each time you change your working qualities (resolution, compression ratio, or bit depth), and process your clips, a separate cache file is created.

To keep track of different media qualities and avoid data redundancy, the time, quality, and channel information is used to store the coordinates of the media.

- **Time**: The source timecode or timeline timecode of your media.
- **Quality**: The quality aspects of an image (resolution, compression, format).
- **Channel**: The number of video and/or audio components in the media file.

To handle caches even more efficiently, the Media Indexer uses information or metadata to create a unique reference for each cache file. If this same clip and effect are reused anywhere else in your sequence or project, then the Media Indexer reuses the same cache. This lets you automatically view the results of an effect as soon as it is placed on the timeline. For this same reason, however, you may notice that purging caches does not necessarily free up storage space. If a cache is used by another part of the sequence or project, it will not be purged.

Changing the duration of the clip, or its properties, or stacking another effect on the clip, will require a new cache. However, the Media Indexer still tries to use any existing caches for the parts of the clip that have not changed.

The Media Indexer also manages the creation of caches at different stages in your sequence to ease the reprocessing and purging of caches. For more information, see “Creating Caches at Any Level” on page 887.

Managing Media

When working on big projects, you can easily accumulate large amounts of media captured from different sources in different formats, resolutions, and compression ratios. To organize your work and use disk space efficiently, you need to find, purge, move, and delete media. When you are working with projects and sequences that share media, you need to determine how the media is shared.

Using the Media Tool

The Media Tool lets you view media files and the clips, sequences, or projects with which they are associated. It provides a comprehensive way of looking at your assets (projects, sequences, clips, and media) and how they relate to each other.

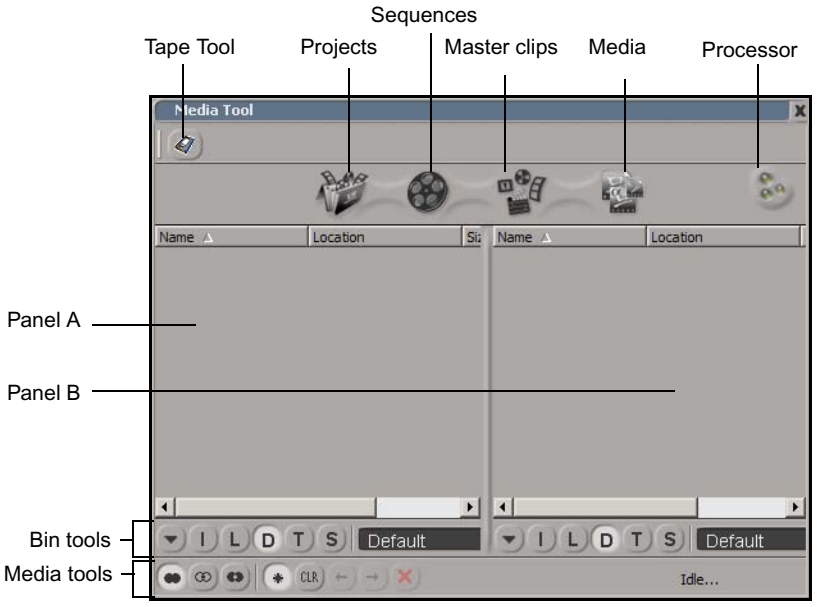
You can use the Media Tool to display your files in a variety of combinations. For example, you can display the media associated with a single clip or the media associated with all clips in a project. You can display all media contained in two projects, display only the media that is shared, and then display only the media that is not shared.

The Media Tool lets you view more than just media files: you can also view associations between projects, sequences, and master clips. You can display all projects in your workgroup, and then all sequences in those projects. Then select two of these sequences and display all master clips in these sequences. And you can perform various media management tasks on the files that are displayed, such as recapturing, purging, defragmenting, copying, moving, and deleting. You can also edit from the Media Tool by opening clips and sequences in a viewer or by dragging them to the timeline.

To access the Media Tool, do one of the following:

- Select **Data Management > Media Tool**.

  The Media Tool opens with two empty panels.



The two panels of the Media Tool represent the association between the files in the panels. For example, if master clips are displayed in the left panel (panel A), all media files for the clips are displayed in the right panel (panel B). Also, if you select objects in one panel, the related objects in the other panel are also selected.

Displaying Project and Media Files

The Media Tool icons, at the top of the view, let you display project and media files. After the files are displayed, you can rearrange them to display their associations.

To display project and media files by using the Media Tool icons:

- Drag an icon from the top part of the Media Tool to one of the panels.

  The results are described in the following table:

Drag this to a panel	To display
Projects icon	All projects defined in your project root.
Sequences icon	All sequences in the current project.
Clips icon	All master clips in the current project.
Media icon	All media in the current project.

Displaying Tapes Associated with a Project

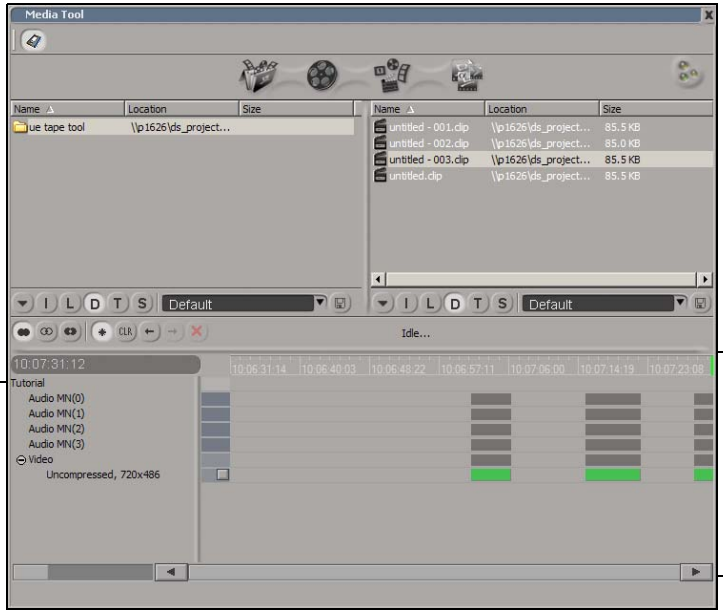
You can display a list of the tapes associated with a project using the Tape Tool. For information about the Tape Tool, see ”Tape Tool” in the Help.

To display the tape(s) associated with a project:

1. Click the **Tape Tool** button at the top-left corner.
2. Drag the Projects icon to panel A to display your projects.
3. Select a project from the list and drag it to the Clips icon.

   A list of master clips associated with this project displays.
4. Select a master clip.

   A list appears on the left side of the Tape Tool view. At the top of the tree is the name of the tape from which the master clips were digitized. On the right side is a timeline that displays the digitized media available on the tape and the portions of the media that is used and unused in the project.



Displaying Associations between Files

There are several ways to display the associations between projects, sequences, master clips, and media files.

To display associations by dragging to a panel, do one of the following:

- Drag one or more project folders, sequences, master clips, or media files from an open bin to one of the panels.
- Drag one or more items from one panel to another.

The results of these actions are described in the following table:

Drag this	To	To display
Project	Panel A	All sequences in the project in panel B.
Sequence	Panel A	All master clips in the sequence in panel B.
	Panel B	All projects using that sequence in panel A.
Master clip	Panel A	Media used by the master clip in panel B.
	Panel B	All sequences that use the master clip in panel A.
Media file	Panel B	All master clips that use the media file in panel A.

To display associations by dragging within a panel:

- From a list of items, select one or more items and drag them to an empty part of the same panel.

  For example, if you drop the Media Tool sequence icon to panel A, all sequences in the current project are displayed. Select a sequence, drag it to an empty part of panel A, and panel B displays all master clips in the selected sequence.

To display associations by dragging to a Media Tool icon:

- Drag an object from one panel to an icon in the top part of the dialog box.

  Use this action if you want to “hop” to a different association. For example, if a sequence is listed in panel A, by default its master clips are listed in panel B. To view media for the sequence, drag the sequence from panel A to the Media icon.

Modifying the Media Tool Display

After you have displayed your choice of objects, you can use the Media Tool tools to modify the display. Some of these tools let you show additional associations between project files and media.

To modify the Media Tool display:

- Click one of the following Media Tool tools:

Click this	To
Union	Display all items contained in the contents of Panel A in Panel B (default).
Intersection	Display only the items shared by the contents of Panel A in Panel B
Intersection Complement	Display only the items not shared by the contents of Panel A.
Include Cache Files	Display cache media as well as source media. After you click the button, reprocess the sequence to display the media.
Clear All	Remove objects from both panels.
History Back	Show the previous display in the Media Tool history list.
History Forward	Show the next display in the Media Tool history list.
Cancel	Cancel Media Tool processing.

You can also use the standard bin tools and procedures to modify the display:

- **Bin tools**: Click a bin tool button to change the way the files are displayed—see “Bin Tools (Bottom)” in the Help.
- **Bin views**: Select a bin view to change the information displayed in Details and Script views—see “Saving or Deleting a Bin View” on page 656. The Video Management and Audio Management views are designed especially for media files.

You can edit the bin display and create a customized view by clicking the Fast Menu button and selecting **Settings > Add/Remove Columns**.

- **Sorting**: You can sort by using the information in any column or combination of columns—see "Sorting Files" on page 656. For example, to sort your media files by storage, click the Location column.
- **Sifting**: Select a Custom Sift to display only files that meet specific criteria—see "Sifting Files" on page 658.

Tip: *If you don't see any files or media in the Media Tool, make sure the Union button is selected.*

Viewing Media Files

You can view media files as thumbnails, making it easier to identify and locate particular media. You can also step through the media files by changing the frame that's displayed on the thumbnail. This gives you a basic idea of what is included in each media file.

To change the frame displayed on the thumbnail:

1. In the Media Tool or in a storage folder, click the **Thumbnail** button.
2. Right-click a media file and select **View Frame** and one of the following:
   - **First Frame** to display the first frame of the media file.
   - **Middle Frame** to display the middle frame of the media file.
   - **Last Frame** to display the last frame of the media file.
   - **Advanced** to open a dialog box that lets you enter a particular frame number to be displayed.

   The thumbnail displays the frame number you chose. The setting is used for all media files in the bin or the Media Tool. This setting does not affect master clips or sequences.

Defragmenting Media

The more you capture, delete, and purge media from your system, the more likely that your media files will become fragmented on your storage device. A certain level of fragmentation is normal, because files need to be spread across multiple drives in order to play efficiently. However, excessively fragmented media may slow down your system or cause playback problems, such as skipped frames. If playback problems become serious, you can use the Windows Disk Defragmenter or other defragmenting application. This can be very lengthy process. In many cases it is more efficient to defragment individual files.

To defragment media files:

1. In a bin, right-click a clip or clips that you think might be fragmented and select **Show Media**.

   The Media Tool opens with the associated media files in the right panel.

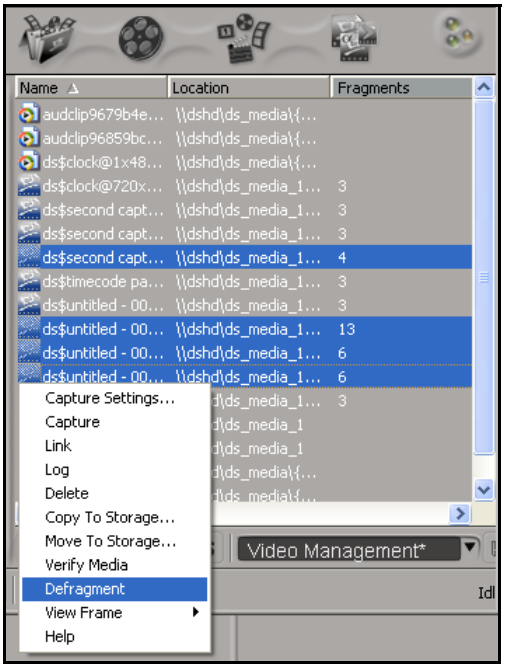
   If you select Audio Management or Video Management from the Bin View list, you can view a column headed Fragments.This column lists the number of fragments into which the media file is divided.

2. Right-click one of the selected files and select **Defragment**.

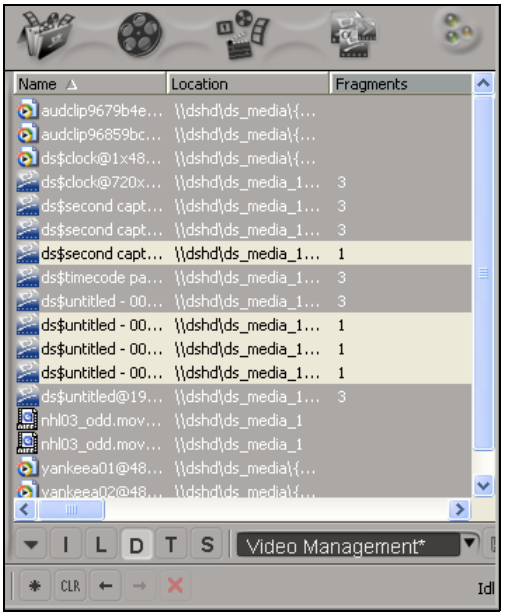
   A progress bar appears, and the selected media files are defragmented.

   The following illustrations show media files before and after defragmenting.

Media files before defragmenting



Media files after defragmenting



Verifying Media

If you encounter problems while playing back your sequences, there may be corrupted media on your storage device. Verifying your media will ensure that you sequence plays properly. Also, you might want to verify your media before archiving.

To verify your media:

1. In a bin, right-click a clip or sequence and select **Show Media**.

   The Media Tool opens with the associated media files in the right panel.

2. Select one or more files, right-click, and select **Verify Media** and one of the following:

   - **Verify only last frame or sample**
   - **Verify every frame or sample**

If you have any corrupted files, you are prompted to delete them. Media that you delete must be recaptured or reprocessed.

Copying Media

You can copy media from one storage area to another. You can copy one file at a time, a selection of files, or an entire folder of media files.

Do not copy or move media files by dragging and dropping. Use the Copy to Storage and Move to Storage commands instead.

To copy a media file:

1. In the Media Tool or in a storage folder, right-click one or more media files and select **Copy to Storage**.

   To copy more than one file, hold down the Ctrl key while selecting files, and then right-click one of the selected files to select the Copy option.

2. In the Copy Media dialog box, select the video or audio storage area to which you want to copy your media.

Any projects using this media are automatically linked to your local drive. This is because, by default, the Media Indexer is configured to look at your local storage area first. You can verify this by opening the Media Indexer and verifying that your local storage is the first one in your list. For more information, see "Managing Your Storage Areas" in the *Avid DS Nitris Installation and Administration Guide*.

Moving Media

If you add or remove a storage device from your system, you may have to move some media files from one storage area to another. You can move one file at a time, a selection of files, or an entire folder of media files.

Do not copy or move media files by dragging and dropping. Use the "Copy to Storage" and "Move to Storage" commands instead.

To move a media file:

1. In the Media Tool or in a storage folder, right-click one or more media files and select **Move to Storage**.

   To move more than one file, hold down the Ctrl key and click the necessary files, and then right-click one of the selected files to display the menu.

2. In the Move Media dialog box, select the video and audio storage area to which you want to move your media.

Deleting Media

If you're sure that you no longer need certain media files, you can manually delete them from your storage area. When media is deleted, the clips that refer to that media are maintained, but indicate that no media is attached to them. Since the master clips are not deleted, it is possible to recapture this media later.

The Purge dialog box provides additional features that make it easier to determine which media files to delete. For more information, see "Purging Media" on page 1087.

To delete media files:

1. In the Media Tool or in a storage folder, right-click a media file and select **Delete**.

   You are prompted to confirm your decision.

2. Click **Yes** to delete the media.

To delete entire projects and their associated media files, see “Deleting Projects” on page 1115, “Viewing Information about Storage Devices” on page 1119, and “Deleting Clips” on page 1117.

Purging Media

Media files often contain large amounts of information that can quickly use up your system storage space. It is good practice to purge unused media, especially if you have captured different qualities of media from the same source.

There are two types of media generated in Avid DS Nitris:

- Source media is created when you capture or import files.
- Processed media (cache) is generated when you process effects, graphics, or composites in your sequence.

You can purge your source media and cache files without losing vital information about the edits you made. Since a clip is a representation of the digitized media stored on your storage device, you can delete your media without deleting the clip and sequence files. This is called *purging your media*. You can later use the clip or sequence files to recapture the source material or reprocess the effects. Purging source media requires you to recapture the original media, while purging caches requires you to reprocess the sequence before it can be played back in real time.

When a clip's source media is deleted, the clip icon in the Avid Explorer turns red. When caches are purged, the icon does not change color, but areas of the timeline that rely on this processed media are highlighted in red.

*To check what type of media is associated with a clip, right-click the clip and select **Properties**. For more information, see "Displaying File Properties" on page 651.*

It is possible to purge only the video or audio portion of a clip. In this case, the icon in the Avid Explorer does not turn red, as there is still media associated with the clip. You can only purge media from the current project. If you want to purge media in another project, you must open that project and then purge the media.

There are several ways to purge source media or cache files in Avid DS Nitris.

Purge from	To do this
Avid Explorer bin	Delete media of selected clips and sequences.
Cache bar menu	Delete the caches associated with the cache bar, the cache files below the cache bar, or both.
Tape Tool	Delete media of the selected channel in the Tape Tool timeline. Right-click a channel and select Purge.
Toolbar	Delete all cache files from the current sequence, all interactive memory caches, or a cache file associated with a particular clip, effect, or area on the timeline.
Purge dialog box	Delete source and cache media of specific clips, sequences, or projects. This option gives you more control over what types of media are deleted and from what source they will be deleted.

Purging Source Media

Source media is the digitized form of source material after it has been captured and imported from tape or file into Avid DS Nitris. You can select the type of media you want to delete.

You can purge media at the clip, sequence, or folder level:

- Purging a clip deletes media that was captured for that clip.
- Purging a sequence deletes media for all clips in the sequence.
- Purging a folder deletes media of the master clips contained in that folder.

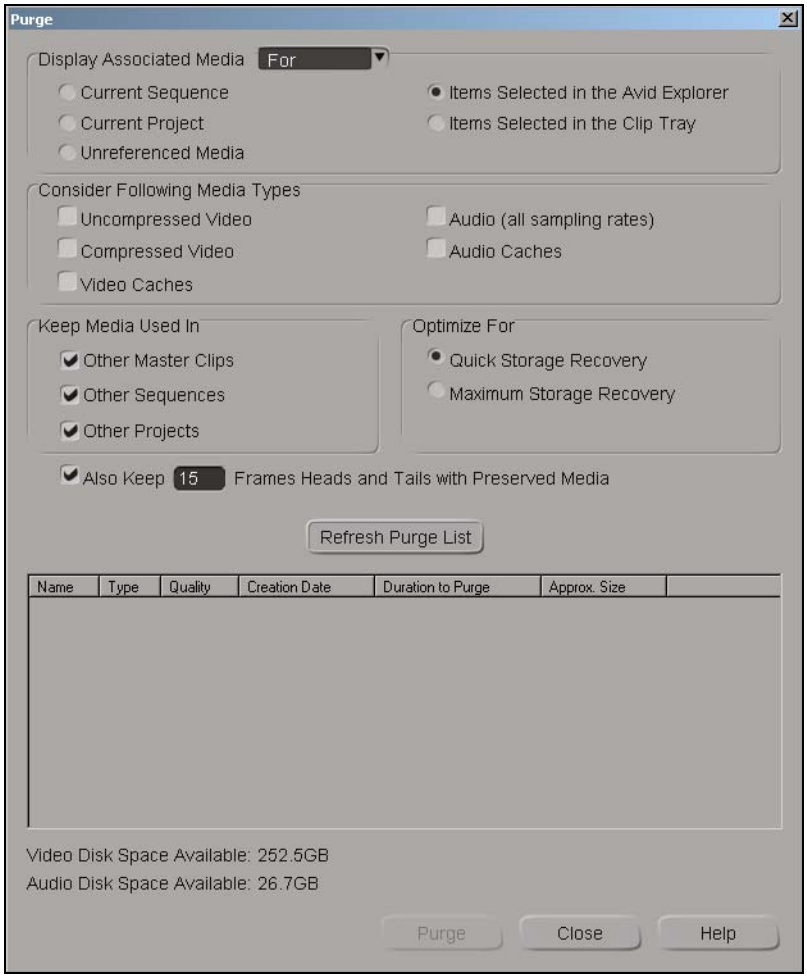
To purge a file or folder from the Avid Explorer:

1. In the Avid Explorer, right-click a clip, sequence, or folder, and select **Purge Media**.

   The Purge dialog box is displayed.

   The media for your selection will be purged unless you change the option under the Display Associated Media For list.

*To purge everything but the clips selected in the Avid Explorer, select the **Except For** option in the Display Associated Media list.*



2. Select the other options as necessary.

   For detailed information on the options in the Purge dialog box, click the **Help** button .

To remove the largest number of unused media files and gain storage space, select the Unreferenced Media option and the Optimize For Maximum Storage Space Recovery option. Note that this is a time-consuming process.

You should keep media used in other project files unless you are absolutely sure that they are not required.

You can delete cache media and reprocess it later. For more information, see "Purging Caches" on page 1090.

3. Click the **Refresh Purge List** button.

   A list of media that meets all the criteria that you selected is displayed in the Purge list. By default, all the files in the list are selected, but you can select any number of media files from the list to purge.

4. Click the **Purge** button to begin deleting the media.

After you purge source media and it is deleted from your storage device, the clips that reference this media have a red icon beside them in the Avid Explorer. Clips on the timeline that have no associated media, display the "Media Not Available" message in the viewer when you play back the sequence.

Purging Caches

When you process effects, graphics, or a composite in your sequence, a cache file is generated on your storage device, so that you can play back the newly-created media.

If you need storage space, you can delete this cache media and reprocess it at a later time. When you delete a sequence's caches, the Process button on the timeline turns red, and the unprocessed regions are highlighted on the timeline ribbon.

If you're using cache bars to generate caches, you can purge the caches at the different levels at which they were created. The cache bar's color indicates if playable media exists for the entire region covered by the cache bar. If any part under the cache bar is unprocessed, the cache bar will be yellow. If the entire region has been processed and playable media exists, the cache bar is green. For more information, see "Understanding Processing" on page 872.

To purge the cache of selected objects on the timeline:

1. Select one or more clips, effect bars, container clips, or tracks.
2. From the NLE Tools toolbar, select **Purge > Purge Cache**.

To purge caches for all objects on the current timeline:

- From the NLE Tools toolbar, select **Purge > Purge All Caches.**

To purge caches generated with cache bars:

- Right-click a cache bar and select one of the following:
  - **Purge Selected** to purge only the cache media associated with the selected cache bar.
  - **Purge Below** to purge any unnecessary cache media that lies below the cache bar, while keeping the cache real time playable. (This option is useful if you processed using the Complete option and no longer need the caches at each level anymore.)
  - **Purge** to purge the cache media associated with the cache bar, as well as any cache media that lies below it.

Example: Purging versus Deleting Media

Purge master clip from sequence A.

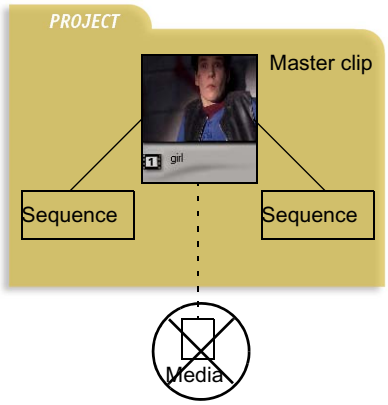
Result: The master clip is never deleted.

If the Keep Media Used in Other Sequences option is selected, and the master clip is used in another sequence, then the media is not deleted.

If the Keep Media Used in Other Sequences option is not selected, then the media is deleted.

Once the media is deleted, when you play back a sequence that uses this master clip, the “Media Not Available” message is displayed in the viewer whenever it encounters this clip.

Because the master clip was not removed, it’s easy to recapture the media from the Avid Explorer or timeline.

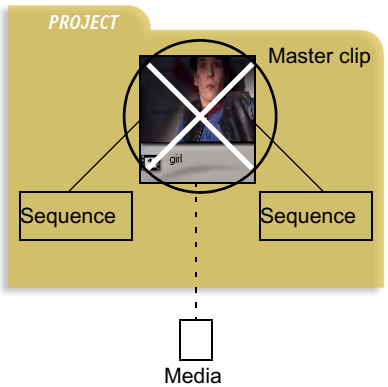


Delete Clip and Unused Media for master clip from sequence A.

Result: Deletes the master clip in the Avid Explorer.

Avid DS Nitris checks to see if this clips media is used elsewhere. If it is, then the media is not removed.

Although the master clip is deleted, the clips remain on the timeline in sequence A and B, and still refer to the original media.



Delete Clip and All Media for master clip from sequence A.

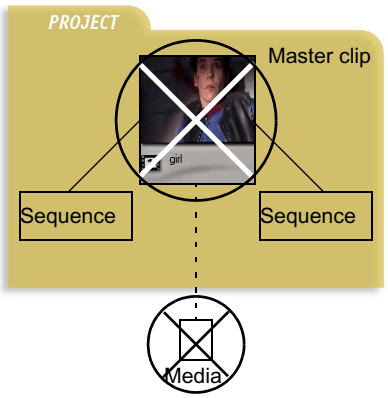
Result: Deletes the master clip in the Avid Explorer, as well as its associated media regardless of whether this clip is used in another sequence.

Although the master clip is deleted, the clips on sequence A and B remain on the timeline. When you play back either of your sequences, the “Media Not Available” message is displayed in the viewer whenever it encounters this clip in your sequence.

General Note

Purge always keeps the master clip; it removes the media depending on the setting.

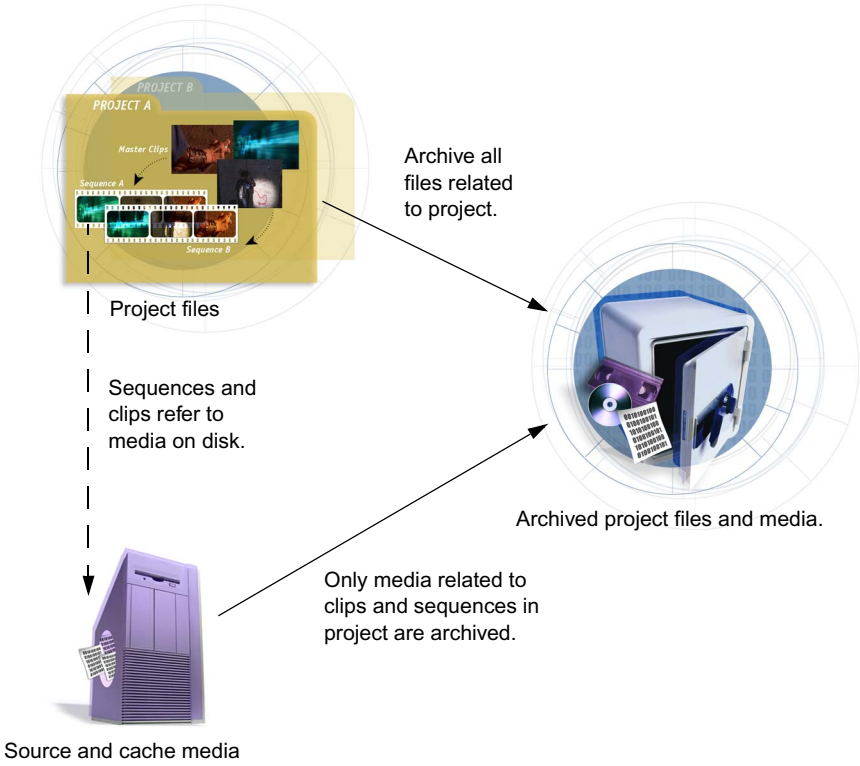
Delete always *removes* the master clip; it removes the media depending on the command selected.



Archiving Projects

Archiving is a way to create backups of your project, move a project to another workstation, or free up space on your local disk. You can restore archived projects later, if necessary. You might need to archive and restore a project when you upgrade to a new version of Avid DS Nitris; check the release notes for more information.

You can archive both the project files and their related media. If you choose to archive only the project files, you can recapture the media easily once the project is restored.



You can archive or restore media only if its format (frame rate, resolution, or quality) is compatible with the current sequence format. For example, you cannot restore an NTSC archive while you are working in a PAL sequence. Similarly, you cannot restore an HD archive in an NTSC sequence.

A complete Avid DS Nitris archive consists of two parts:

- **Project archive**: A single folder that is created on a disk. This folder contains complete information about recreating a product (bins, clips, sequences, presets, and so on). It includes any folders and files stored in the project root, such as source images for linked files or documents with notes about the project. The archive also includes audio media and audio caches, if you decide to include them (currently, audio media can only be archived to disk, not to tape).
- **Media archive**: A videotape on which video media and video caches are recorded. You can save video media on a single tape or, if necessary, on multiple tapes.

A video archive is limited to one tape for video media and one tape for video caches, unless you are archiving more than one video compression or resolution. For more information, see "Creating a Complete Archive on Multiple Tapes" on page 1099.

Archiving caches is optional, because you can reprocess them after you restore the project. Also, you might need to reprocess caches after restoring a project in an upgraded version of Avid DS Nitris. Check the release notes for the upgrade.

Creating a Project Archive Only

The following procedure describes how to archive the project information only. If you need to, you can restore the project and then recapture the media.

To create a project archive:

1. Select **Data Management** > **Project Manager**.
2. Select the **Archive** tab.
3. Select a project to archive by selecting it from the list of displayed projects.

   You can archive projects from anywhere on the network. Click the **Refresh** button to get an up-to-date list of the projects you can access.
4. By default, all projects are archived in the \DS Archives folder. You can select a different destination folder for the project files by doing one of the following:

   ▶ Type the path in the **Project Archive Destination** text box.

- Click the **Browse** button to search for the appropriate folder.

Avid DS Nitris does not let you archive a project at the root of a drive, such as F:\. The archive must be within a folder. For example, F:\DS Archives\ is a valid location for a project archive.

5. Click the **Archive** button.

After you've archived your project, make sure that there is an archivetape.log file in the archive folder. Without this log file, you cannot restore your media.

Creating a Device Preset Before Archiving

If you are going to archive media to tape, create an external device preset, so that it is available from the Device list when you start to create the archive.

To create a device preset:

1. Connect the external device to your Avid DS Nitris system.
2. Select **View > Multi-Instance Views > Deck Configuration.**
3. Set the **Edit Mode** to **Assemble** in your preset to avoid having to stripe the entire tape before archiving your media to tape.

   Even when outputting in Assemble mode, you must stripe the first few seconds of the tape.

   For more information on creating an external device preset, see "Configuring the External Device" in the Help.

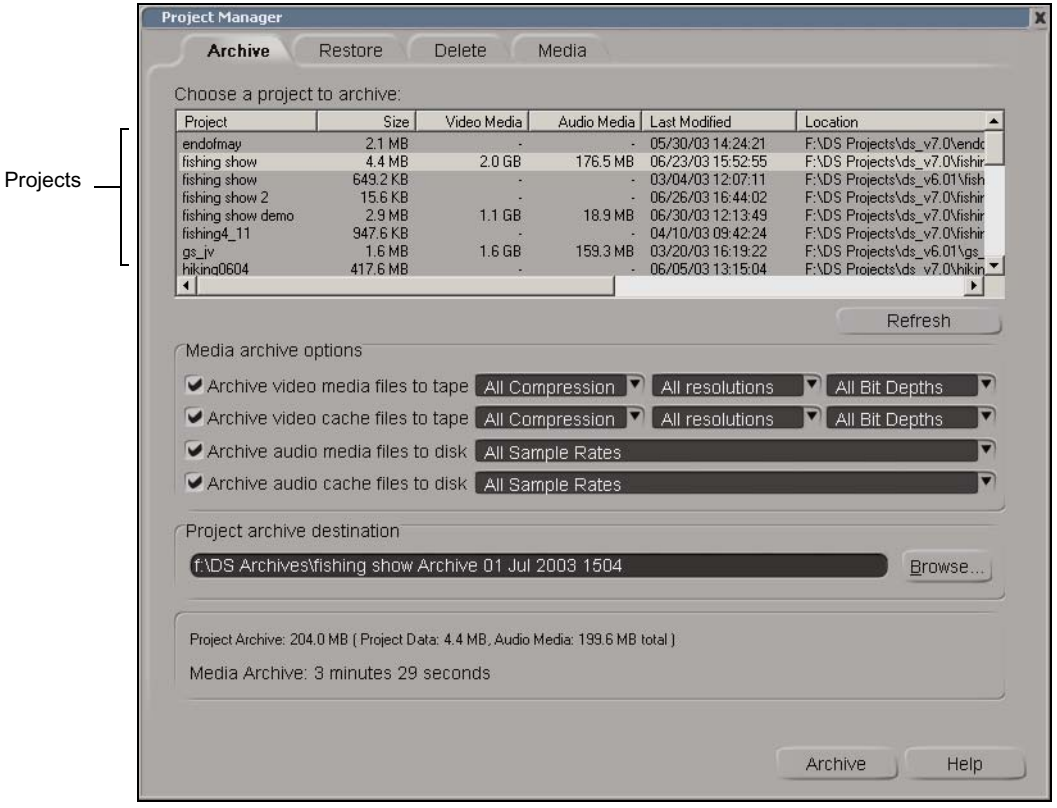
***Tip**: Test the external device by outputting a segment of a sequence before creating an archive.*

Creating a Complete Archive for a Project

The following procedure describes how to archive a project and all its media to a single tape. If your project is too large to fit on a single tape, see "Creating a Complete Archive on Multiple Tapes" on page 1099.

To archive a project:

1. Check the device that you want to use to create the archive—see "Creating a Device Preset Before Archiving" on page 1095.
2. Select **Data Management** > **Project Manager**.
3. Select the **Archive** tab.



4. Select a project to archive by selecting it from the list of displayed projects.

   You can archive projects from anywhere on the network. Click the **Refresh** button to get an up-to-date list of the projects you can access.

5. If you want to archive the media associated with your project, select the type of media you want to archive from the **Media Archive** Options box.

For video media and video cache media, you must specify a compression rate, resolution, and bit depth for the media you want to archive. For audio media and audio cache media, you must specify a sample rate.

If you want to archive cache media, you must also archive the master media. You cannot archive only cache media.

If you archive a project with media that is shared between projects, the media will be archived with both projects. When it is restored, Avid DS Nitris checks to see if the media is still in its original location. If it is, the link is recreated. If not, the media is restored to its original location.

Video is always archived to tape, and audio is always archived to the specified media location on disk.

The status area displays the amount of time required on tape to archive your video media. It also displays the amount of disk space that the project files, including the audio media (if any) will consume. If the media archive is longer than the length of your tape, you need to split the media onto two tapes. For more information, see "Creating a Complete Archive on Multiple Tapes" on page 1099.

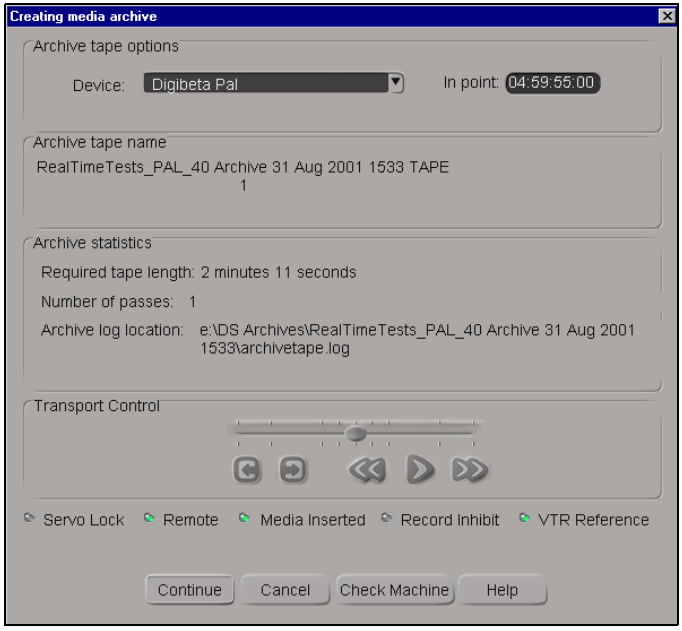
6. By default, all projects are archived in the \DS Archives folder. You can select a different destination folder for the project files by doing one of the following:
   - Type the path in the **Project Archive Destination** text box.
   - Click the **Browse** button to search for the appropriate folder.

Avid DS Nitris does not let you archive a project at the root of a drive, such as F:\. The archive must be within a folder. For example, F:\DS Archives\ is a valid location for a project archive.

7. Click the **Archive** button to begin archiving your project.

   If your project contains linked clips that are not stored in the project folder, a message is displayed, warning you that linked clips cannot be archived as the media does not reside within the current project. You should back up these files separately.

   If you are archiving video media to tape, after the project archive is created (and the audio is archived), the Creating Media Archive dialog box opens.



8. In the Archive Tape Options box, select a device to which you want to archive the media files.
9. In the Archive Tape Options box, type a value in the In-point timecode box to set the starting timecode of the archive on the tape. By default, the in-point timecode is set to 00:00:00:00.
10. Click the **Continue** button.

    Your media files are archived to tape.

For detailed information on the Creating Media Archive dialog box, click the **Help** button.

After you've archived your project, make sure that there is an archivetape.log file in the archive folder. Without this log file, you cannot restore your media. It is also a good idea to compare the timecodes in the archivetape.log file with those on the archive tape. If they're the same, you shouldn't have any problems restoring your project. If they're different, however, archive the project again.

The archive.log file contains the Avid DS Nitris version number, so you know which version you were using when the archive was created.

Once the archive is complete and you have checked the log file, you can delete your project to make space on your disk. For more information, see "Deleting Projects" on page 1115.

If you want to archive a project with a non-standard video format, you can create an archive of the project files only (do not include the media), and then back up the folder that contains the media for your project on another medium, such as CD-ROM or DLT. When restoring this project, all you have to do is make sure you copy the folder containing the media files back to its original location. All the media will be linked back to the original master clips inside the project. See "Archiving on Other Media" on page 1104.

Creating a Complete Archive on Multiple Tapes

If you archive a large project and its media, you may find that one tape is not enough to hold all your media.

You can create an archive with two tapes, with each one containing different types of media, such as:

Archive	Contents
Project	Project data, audio media, audio cache
Tape 1	Project data and video media
Tape 2	Project data and video cache

It's very important that the project data for both archives are identical for you to be able to restore the project accurately at a later date. It's also important that you archive video caches on tape 2. Then when you restore the project, make sure to restore tape 1 before tape 2, so that the video caches link to the master clips.

If you want to archive video media at more than one compression or resolution, you can create additional tapes for the media and its caches. However, for a single media type, an archive is limited to one tape for video media and one tape for video caches.

Be sure to keep track of which projects were archived using the multiple archive method as Avid DS Nitris does not remind you when it comes time to restore the project. It is also important to name your tapes appropriately, so that you can easily distinguish the media on the tapes.

To create multiple archives of the same project:

1. Check the device that you want to use to create the archive—see "Creating a Device Preset Before Archiving" on page 1095.
2. Select **Data Management** > **Project Manager**.
3. From the Project Manager, select the **Archive** tab.
4. Select a project to archive.
5. Select the following media archive options:
   - Archive video media files to tape
   - Archive audio media files to disk
   - Archive audio cache media to disk
6. For the video media, select a compression rate, resolution, and bit depth of the media you want archived. For the audio media and audio cache media, select a sample rate.
7. Type a path in the **Project Archive Destination** text box where you want the project archive to reside.
8. Click the **Archive** button to begin archiving the first part of your project.

   The project files and audio media are archived to disk and the Creating Media Archive dialog box is displayed before it starts to archive any video media.
9. In the **Archive Tape Options** box, select the device to which you want to archive the media files.
10. Type a value in the **In point timecode** box to set the starting timecode of the archive on the tape. By default, the in-point timecode is set to 00:00:00:00.
11. Click the **Continue** button.

    Avid DS Nitris archives your video media to tape.
12. Without making any changes to your project folder, select the same project to archive by selecting it from the list of displayed projects.
13. From the Media Archive Options box, select the **Archive video cache files to tape** option.

14. Select the compression rate, resolution, and bit depth of the media you want to archive.
15. Click the **Archive** button to begin archiving the cache media.

    The project data is archived to disk again and the Creating Media Archive dialog box is displayed.
16. From the Archive Tape Options box, select the device to which you want to archive the media files.
17. Type a value in the **In point timecode** box to set the starting timecode of the archive on the tape. By default, the in-point timecode is set to 00:00:00:00.
18. Click the **Continue** button.

    Avid DS Nitris archives your cache media to tape.

After you've archived your project, make sure that there is an archivetape.log file in the archive folder. Without this log file, you cannot restore your media. It's also a good idea to compare the timecodes in the archivetape.log file with those on the archive tape.

Archiving a Project with Different Frame Rates

If you have project that contains sequence of different frame rates, such as NTSC and PAL, you can archive the video and audio media of both sequences. When archiving a project with different frame rates, the project that you're archiving must be open.

To archive a project with different frame rates:

1. Open the project to archive and open an NTSC sequence.
2. Connect Avid DS Nitris to an NTSC deck and insert a tape in it.
3. Open the Project manager and select the **Archive** tab.
4. Select the following media archive options:
   - Archive video media files to tape
   - Archive video cache files to tape
   - Archive audio media files to disk
   - Archive audio cache media to disk

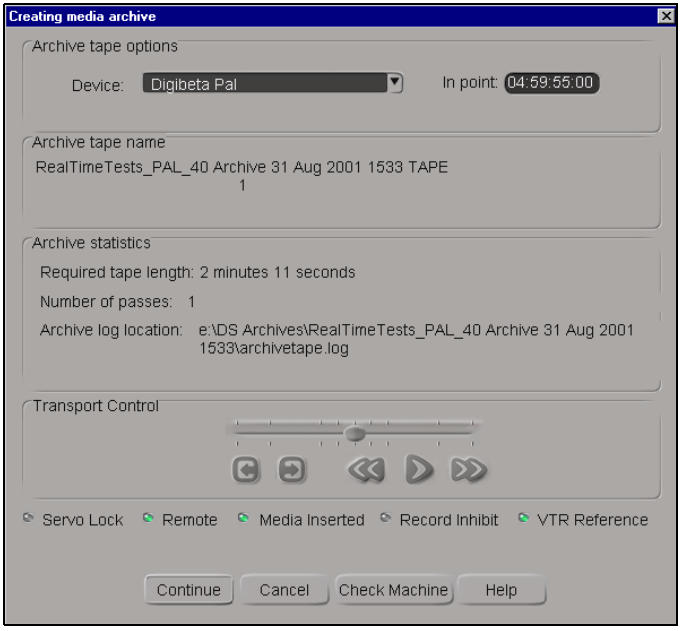
5. For the video media, select a compression rate, resolution, and bit depth of the media you want archived. For the audio media and audio cache media, select a sample rate.
6. By default, all projects are archived in the \DS Archives folder. You can select a different destination folder for the project files by doing one of the following:
   - Type the path in the **Project Archive Destination** text box.
   - Click the **Browse** button to search for the appropriate folder.

Avid DS Nitris does not let you archive a project at the root of a drive, such as F:\. The archive must be within a folder. For example, F:\DS Archives\ is a valid location for a project archive.

7. Click the **Archive** button to begin archiving your project.

   If your project contains linked clips that are not stored in the project folder, a message is displayed, warning you that linked clips cannot be archived as the media does not reside within the current project. You should back up these files separately.

   If you are archiving video media to tape, after the project archive is created (and the audio is archived), the Creating Media Archive dialog box opens.



8. In the Archive Tape Options box, select a device to which you want to archive the media files.
9. In the Archive Tape Options box, type a value in the In-point timecode box to set the starting timecode of the archive on the tape. By default, the in-point timecode is set to 00:00:00:00.
10. Click the **Continue** button.

    Your NTSC media files are archived to tape and the audio media is archived to disc.
11. When the archive is finished, do not modify anything in the project.
12. Open a PAL sequence.
13. Connect Avid DS Nitris to a PAL deck and insert a tape in it.
14. Open the Project manager and select the **Archive** tab.
15. Repeat steps 5 to 10, archiving only the PAL video media and video caches of the project. The audio media was already archived and does not need to be done again.

After you've archived your project, make sure that there is an archivetape.log file in the archive folder. Without this log file, you cannot restore your media. It is also a good idea to compare the timecodes in the archivetape.log file with

those on the archive tape. If they're the same, you shouldn't have any problems restoring your project. If they're different, however, archive the project again.

The archive.log file contains the Avid DS Nitris version number, so you know which version you were using when the archive was created.

Once the archive is complete and you have checked the log file, you can delete your project to make space on your disk. For more information, see "Deleting Projects" on page 1115.

If you want to archive a project with a non-standard video format, you can create an archive of the project files only (do not include the media), and then back up the folder that contains the media for your project on another medium, such as CD-ROM or DLT. When restoring this project, all you have to do is make sure you copy the folder containing the media files back to its original location. All the media will be linked back to the original master clips inside the project. See "Archiving on Other Media" on page 1104.

For detailed information on the Creating Media Archive dialog box, click the **Help** button.

Archiving on Other Media

You cannot create archives directly on removable media (aside from videotape). However, you can back up an archive and its media in the following ways:

- Compress a project archive and copy it to another medium. For example, create a Zip archive and copy it to a CD-ROM, CD-RW, or DLT.
- Directly copy media files from a media files folder to a folder on another medium. When restoring this project, make sure you copy the folder containing the media files back to its original location. All the media will be linked back to the original master clips inside the project. Refer to the archive.log file in the archive folder for the alphanumerical folder name and path in which to restore the project media location.

For information about restoring projects, see the next section.

Restoring Projects

Projects are archived when a job is completed, to create backups of your project files, or to move a project to another workstation. If you need to work on the project again, you simply have to restore it. You can restore the project files, as well as any video and/or audio media that was archived with it.

If you only want to work on a small portion of an archived project, you can select the parts of the project you want to restore.

Information about archived files can be found in text files in the project's archive folder. The archive.log file records the dates of all archive and restore operations for a selected archive, and the archivetape.log file keeps a list of all its archived media files. You can use this file to determine the compression ratios and resolutions at which the media was archived.

Note the following:

- You can restore media only if its frame rate and video format are compatible with the current sequence format. For example, you cannot restore an NTSC archive while you are working in a PAL sequence. Similarly, you cannot restore an HD archive in an NTSC sequence.
- Avid DS Nitris restores video media in the first video storage that is defined in the Installed Media Storages list, and restores audio media in the first audio storage defined. If there is not enough room on the first storage, Avid DS Nitris restores the remaining media on the next appropriate storage (video or audio). If you want the media created in a particular storage, use the Move Up button to move the storage to the top of the list. For more information, see "Maintaining your Storage Locations" in the Help.
- If you restore a project that contains third-party plug-in effects onto a machine that does not have the plug-ins installed, the effects will appear over the clips they were applied to, but they will be empty. They will be editable after you install the plug-ins.
- Video and audio cache files cannot be restored from archives created in a version earlier than Avid|DS 6.0. When restoring this type of archive, a message is displayed, and the options for restoring cache files are not available.

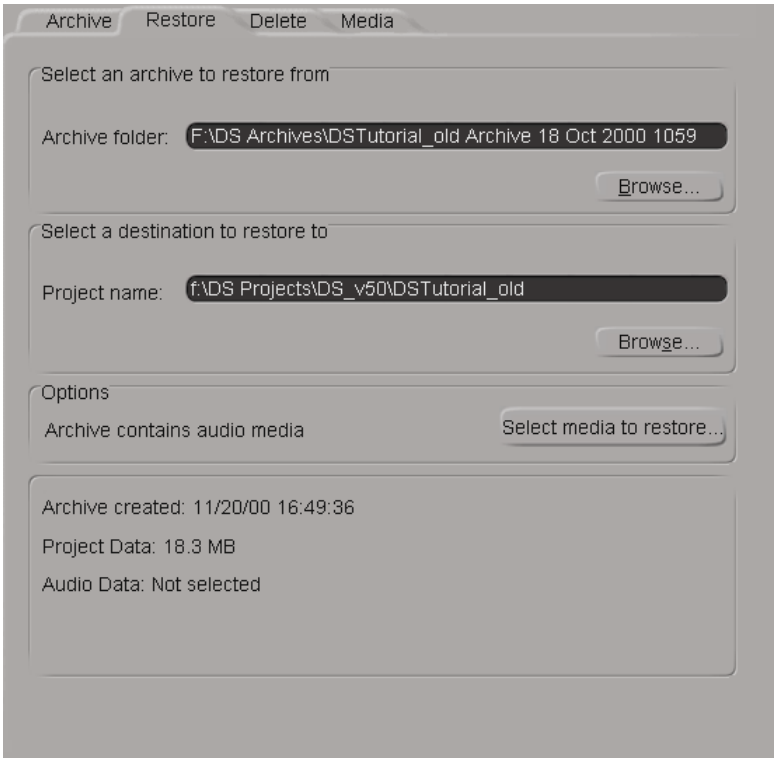
- Video and audio media archives from versions earlier than Avid|DS 6.0 can only be restored to GEN storages. They cannot be restored to an MXF storage.
- If you are restoring from an archive in which one or more video compressions (codecs) are no longer supported, a dialog box is displayed. Use this dialog box to substitute a supported codec.
- You can restore an archive only from a drive or device that supports both read and write operations. For example, you cannot restore an archive directly from a read-only CD-ROM. To restore from a CD-ROM, copy the archive to a local drive and clear the read-only option on the main folder and all subfolders.
- When restoring a project and opening sequences of that project, missing Graphics titling fonts are logged in the Avid Event Log. By checking the log, you'll see exactly which fonts are missing on your system.

Restoring a Complete Project

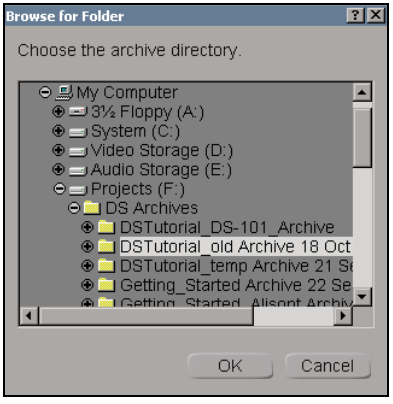
From the Project Manager, you can restore the project files and corresponding media. If you're restoring a project whose media was archived on more than one tape, see "Restoring a Project Archived on Multiple Tapes" on page 1111.

To restore a complete project:

1. Select **Data Management** > **Project Manager**.
2. Select the **Restore** tab.

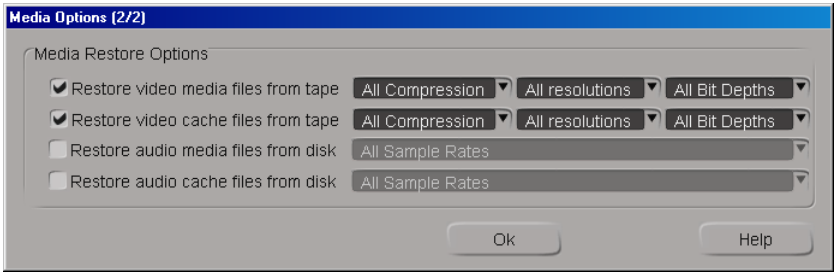


3. In the Archive Folder text box, type the location of the archived project file that you want to restore, or click the **Browse** button to search for the file.



4. In the Project Name text box, specify the folder in which you want to place the restored files.
5. If you want to restore the project's media, select the **Select media to restore** option from the Options box.

   The Media Options (1/2) dialog box lets you select specific clips or sequences for which you want the media to be restored.
6. Since you want to restore the complete project, leave this dialog box inactive and click **OK**.The Media Options (2/2) dialog box is displayed.



7. Select the type of media you want to restore and its corresponding compression ratio, resolution, bit depth, or sample rate, and click **OK**.

   If you have video material archived on tape, you will be prompted to insert the tape into the deck. If you have audio material on disk, it will automatically be restored from your archive.
8. Click the **Restore** button.

   If you're restoring material from videotape, Avid DS Nitris controls the deck, searches for the appropriate footage on the tape, and then captures it.

If you encounter problems restoring material from tape, you should disable the viewer using the Viewer button in the status bar and try capturing again. When restoring full resolution HD material at 29.97 and 30 frames per second, the viewer is automatically disabled.

Avid DS Nitris usually stops the deck, rewinds, and then pre-rolls before capturing material. With an archive, however, the media should be stored on tape one right after the other. As a result, the pre-roll is skipped and all the media is captured in one pass. This feature, known as *streaming capture*, greatly reduces the time to restore an archive.

*If the restoration is not entirely successful, that is, some clips were not restored, click **Restore** to recapture the missing clips.*

9. After a project is restored, open the project through the Open Project dialog box or by selecting **File > Open Project**.
10. To complete the restore, save the project and its sequences.

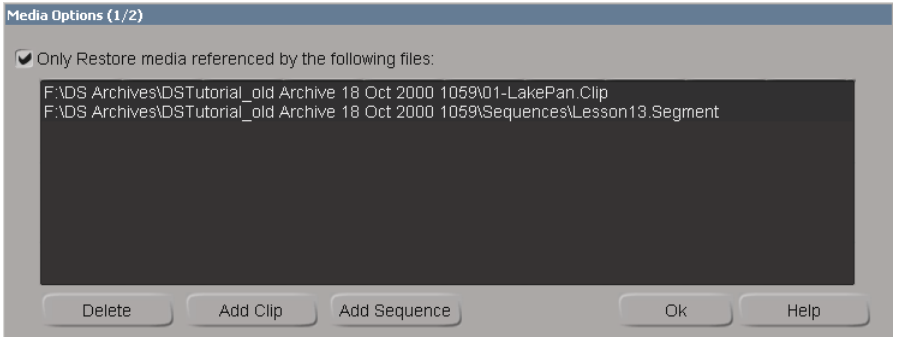
Restoring Parts of a Project Archive

At times, you may only want to restore part of a project, some of its clips, or one particular sequence. Avid DS Nitris lets you select the project files and associated media files to restore.

To restore parts of a project archive:

1. Select **Data Management** > **Project Manager**.
2. Select the **Restore** tab.
3. In the Archive Folder text box, type the location of the archived project file that you want to restore, or click the **Browse** button to search for the file.
4. In the Project Name text box, specify the folder in which you want to place the restored files.
5. To restore the media of a selected part of your project archive, click **Select Media to Restore** from the Options box.

   The Media Options (1/2) dialog box lets you select specific clips or sequences for which you want the media to be restored.



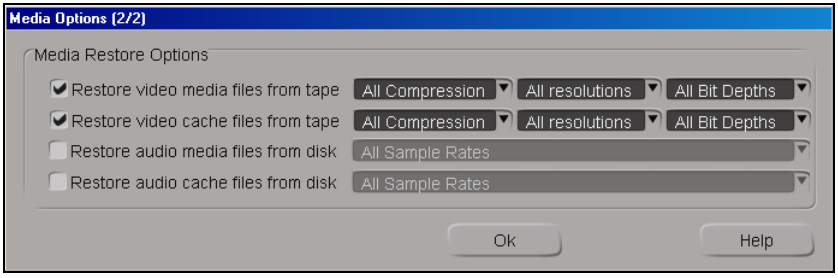
6. Select the **Only Restore media referenced by the following files** option to activate the selective restore function.
7. Click one of the following:
   - **Add Clip** to select individual clips for which you want the media to be restored.
   - **Add Sequence** to select individual clips for which you want the media to be restored.
8. In the Avid Explorer, select the clips or sequences for which you want media to be restored and click **OK**.

   The selected clips or sequences are displayed in the Media Options (1/2) dialog box.

*To remove items from the list, select the items and click **Delete**.*

9. When you have all the clips and/or sequences you want, click **OK**.

   The Media Options (2/2) dialog box is displayed.



10. Select the type of media you want to restore and its corresponding compression ratio, resolution, bit depth, or sample rate, and click **OK**.

    If you have video material archived on tape, you are prompted to insert the tape into the deck. If you have audio material on disk, it is automatically restored from your archive.
11. Click **Restore**.

    If you're restoring material from videotape, Avid DS Nitris controls the deck, searches for the appropriate footage on the tape, and then digitizes it.

Restoring a Project Archived on Multiple Tapes

You can restore a project whose media was archived on multiple tapes. As the project files are archived with each tape, you must be careful not to overwrite your project files.

In order for cache media to be recognized, master clip media must be present. Thus, to make sure the video caches link properly, restore tape 1 (master clip media) before you restore tape 2 (video caches). For information about archiving a project on multiple tapes, see *"Creating a Complete Archive on Multiple Tapes" on page 1099.*

To restore a project archived on multiple tapes:

1. Select **Data Management** > **Project Manager**.
2. Select the **Restore** tab.
3. In the Archive Folder text box, type the location of the archived project file that you want to restore, or click **Browse** to search for the file.
4. In the Project Name text box, specify the folder in which you want to place the restored files.
5. From the Options box, select the **Select media to restore** option to restore the audio media files.

   The Media Options (1/2) dialog box is displayed.
6. Since you want to restore the complete project, leave this dialog box inactive and click **OK**.

   The Media Options (2/2) dialog box is displayed.
7. Select the audio media and audio cache file options, and then click **OK**.
8. Click the **Restore** button.

   After the project data and audio media files are restored, you can begin restoring the video and cache files.
9. Repeat steps 2 to 8, but this time restore your video media files. When Avid DS Nitris asks you if you would like to skip the restoration of the project information, click **Yes**.

   By choosing Yes, you are only restoring the video media files and not overwriting the project data.

10. Repeat steps 1 to 7 again, but this time restore the video cache files.

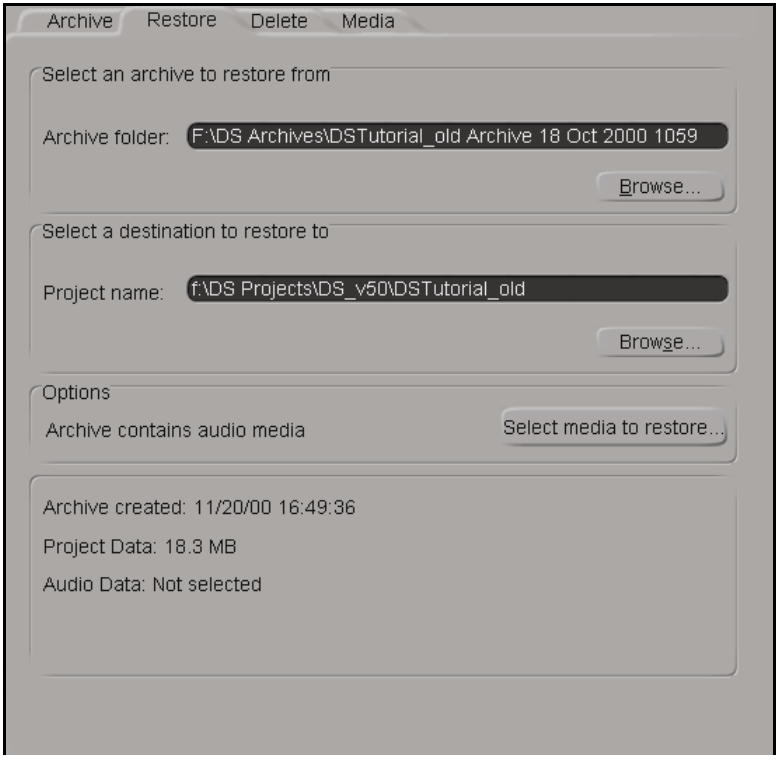
    Your entire project with media and cache files are now restored. You can open the project from the Project Manager and work with your sequences.

Restoring a Project with Different Frame Rates

You can restore projects that contain sequences of different frame rates, such as NTSC and PAL.

To restore a project with different frame rates:

1. Open a new NTSC sequence.
2. Connect Avid DS Nitris to an NTSC deck.
3. Insert the tape with the project you want to restore.
4. Open the Project manager and select the **Restore** tab.



5. In the Archive Folder text box, type the location of the archived project file that you want to restore, or click the **Browse** button to search for the file.
6. Click the **Select media to restore** button.
7. In the dialog box that opens, select the options for restoring the video media and video caches, as well as the audio media and audio caches.
8. Click the **Restore** button.

   The NTSC media is restored.
9. To restore the PAL sequences in your project, start a new PAL sequence.
10. Connect Avid DS Nitris to a PAL deck.
11. Repeat steps 3 to 8.

    The restoration is complete. All PAL and NTSC media and caches should be present in the project.

Moving Projects to Another Workstation

You can easily move your project files to another Avid DS Nitris workstation. Simply archive your files with or without the associated media, copy them to a folder on the new workstation, configure the media storages so that they match those of the machine on which the project was archived, and then restore the project.

You cannot restore a project if it already exists in an Avid DS Nitris workgroup. You restore the project only on a system that belongs to a different workgroup or if the original project was deleted after archiving.

If you want to move individual media files, see "Moving Media" on page 1084.

To move a project to another workstation:

1. Archive your project to a location on the network—see "Archiving Projects" on page 1093.

Make a note of your current storage paths, so that you can easily configure the storages on the new workstation where you will be restoring your project.

2. On the new workstation, make sure that you've configured the same storage areas as the machine on which you archived your project—see the "Maintaining your Storage Locations" of the *Avid DS Nitris Installation and Administration Guide*.
3. Restore your project from the network location—see "Restoring Projects" on page 1105.

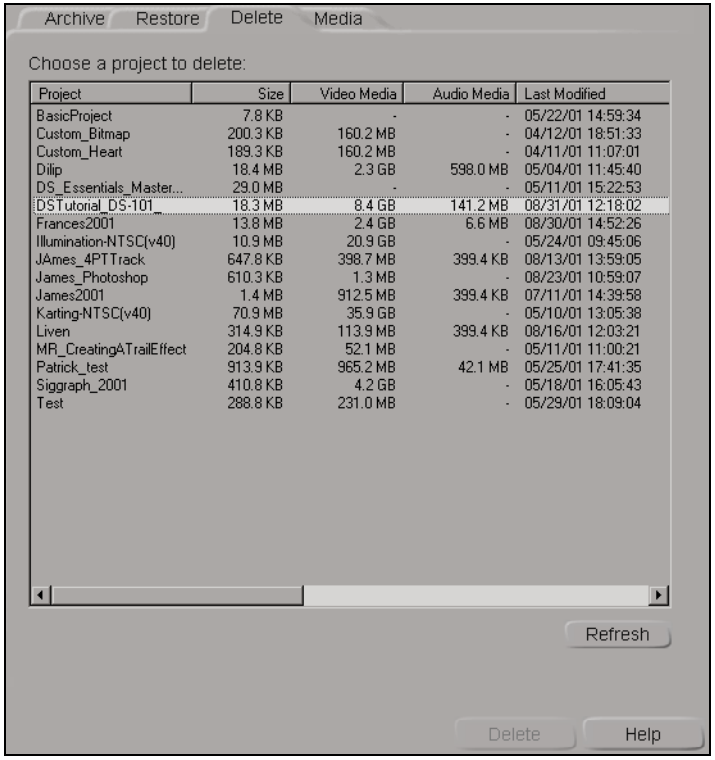
Deleting Projects

When you no longer need a project, archive it first and then delete it from your system. For more information, see “Archiving Projects” on page 1093.

When you delete a project, the project folder, project files, and all media associated with the project are deleted.

To delete a project:

1. Close the project that you want to delete.
2. Select **Data Management** > **Project Manager**.
3. From the Project Manager, select the **Delete** tab.



4. Select a project to delete by selecting it from the list of displayed projects.
5. Click **Delete**.

You are prompted to confirm your decision.

6. Click **Yes** to delete the project and its media.

Deleting Clips

When you first capture media into Avid DS Nitris, a master clip is created in a bin in the Avid Explorer to represent the digitized media on your storage device. If you no longer require the master clip, you can delete the clip from the project.

Be careful when you delete a master clip, because deleting a clip can also delete its associated media, depending on the option that you choose.

Since master clips and their media are stored separately, you can delete the media, but keep the clip so that you can later recapture the media. For more information, see "Purging Media" on page 1087. For a comparison of deleting and purging, see "Example: Purging versus Deleting Media" on page 1092.

You delete subclips the same way you delete master clips.

For information on deleting a sequence, see "Deleting Sequences" on page 702.

To delete a clip from a bin:

1. In an Avid Explorer bin, select the clip or clips that you want to delete.

   You cannot delete a clip while it is displayed in the Source viewer

2. Right-click a selected clip, and select one of the following:

   - **Delete Clip & Unused Media**: Deletes the clip. Also deletes the media for the clip if the media is not used in a sequence or in another master clip in the current project. If the media is being used, then only the clip is deleted and not the media.
   - **Delete Clip & All Media**: Deletes the clip and associated media even if this clip or its media is used elsewhere. Although this is a quick way to create more disk space on your drive, it can be risky. You should only do this when you're absolutely sure that you no longer need the media associated with this clip.

     A dialog box asks you to confirm the deletion. Click **Yes**.

Selecting the Delete option under the Windows section of the menu or pressing the Delete key deletes the selected master clips, but does not delete the associated media.

A progress bar is displayed, showing that the delete is in progress. You can click Cancel to stop the delete process.

You can also delete clips by using the Media Tool—see "Using the Media Tool" on page 1075.

Viewing Information about Storage Devices

The Media property page of the Project Manager gives you detailed information on your storage devices. You can find out the exact location and size of your storage, the free disk space available, and the percentage that is full. It provides information on which projects have associated media on the device and lets you delete media folders.

To view information about storage devices:

1. Select **Data Management** > **Project Manager**.
2. From the Project Manager, select the **Media** tab.

Compositing and Graphics

This book provides information about compositing and effects.

For links to specific sections, see the following topics:

- Compositing
- Using Effects Trees
- Keying
- Color Correcting Images
- Transforming Images
- Tracking
- Paint Effects
- Workflow: Painting and 2D Titling
- 3D DVE and 3D Titling
- Image Effects

Related Topics

Compositing Reference

Color Correction Reference

Image Effects Reference

Paint & Titling Reference

Chapter 1
Compositing

The Compositing chapter of the *Avid DS Nitris Getting Started Guide* introduces you to the basics of compositing, compositing methods, and the compositing layout. It also covers basic compositing concepts such as the composite container clip and layer effects. It is important that you read and understand the Compositing chapter of the *Avid DS Nitris Getting Started Guide* and complete the provided tutorials before working on the procedures in this chapter.

This chapter introduces the Effects Tree as a compositing method and covers advanced compositing topics such as premultiplication, working with Photoshop files, and processing.

Quick Recap: Compositing

Here is a quick recapitulation of the Compositing chapter of the *Avid DS Nitris Getting Started Guide*. Below are answers to basic questions, which you should know by now, that will help you understand the material presented in this chapter.

Question	Answer
What is Compositing?	The layering of two or more images together to form one new integrated image.
What is a matte?	A grayscale image that defines the transparency of an image when it is composited over another. It lets you isolate and protect specific parts of the image while compositing.
What is the difference between an internal matte and an external matte?	An internal matte is part of the image that is stored in the alpha channel. An external matte can either be created from scratch by using an effect such as the keyer, provided as a separate clip, or come from another image. For more information, see "Working with Mattes" on page 1136.
What is a composite container clip?	A clip on the timeline that lets you layer video clips. An opened container clip displays the video clips on multiple tracks and the result is a single clip on the top timeline of the Editing layout. You can apply effects on individual clips inside the container or on the entire composite container clip. Remember that when compositing with layers, you are working within a composite container clip as soon as you switch to the Compositing layout.
What is the Layers view?	The Layers view is part of the Compositing layout. It displays the content of the composite container clip in a layer format and lets you reorder layers, animate, add effects, and apply blending operations. For more information, see "Working with the Layers View" on page 1129.
What are the 4 effects that you can apply to a layer?	• Color Correction • DV • Graphics • Keyer
What is the result area?	The result area is the part of the Layers view that displays the final composite of all layers both for RGB and alpha channels.

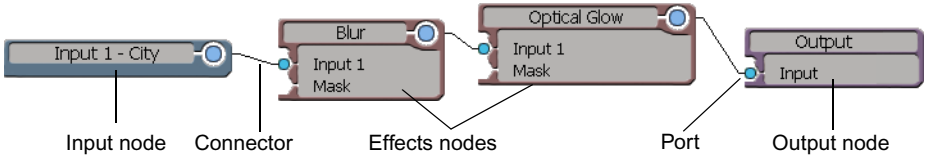
Using the Effects Tree to Composite

In the *Avid DS Nitris Getting Started Guide* you learned about two methods of compositing.

- **Simple track compositing** which lets you composite in the Editing layout by adding video tracks to the timeline and placing clips on the video tracks. An advantage of using this method is that when compositing you can see your clips in context of the timeline.
- **Compositing using layers** which lets you work in the Compositing layout with composite container clips and the Layers view. The Layers view has a great advantage in that it provides a visual interface when layering your clips. It is also useful when importing Photoshop files as each "Photoshop" layer occupies its own layer in the Layers view as a linked image file in Avid DS Nitris. For more information, see "Working with Layered Photoshop Images" on page 1163 and "Working with the Layers View" on page 1129.

The third method is compositing with the Effects Tree. The Effects Tree in the Compositing layout is a powerful tool that lets you create and manage complex multi-layered effects and composites.

It shows the relationship between effects and images in a pictorial format. It is made up of nodes: the graphical representation of the input images, and the resulting output. Nodes are joined by connectors, which connect input and output ports.



- **Input nodes** represent the source image from a track in the Layers view or from a clip and its effects on the timeline.
- **Effects nodes** represent each effect applied or added to the Effects Tree. Each effect node reads an input image, processes the image, and gives a specific output image as the result.
- **Output nodes** represent the output image of the Effects Tree. The result of all the nodes is fed to the output node which is displayed in the viewer.

You can build and apply an Effects Tree to a clip, track, layer, or as a transition. Each method has its advantages. For more information. see "Using Effects Trees" on page 1171.

There are a number of advantages for using the Effects Tree:

- You can have complex interactions between layers
- Ability to add multi-input effects. You can apply any combination of image effects in the Effects Tree.
- You can reuse the treatment of an element repeatedly within a composite
- You can apply blending operations by using the Composite node—see "Applying Blending Operations in the Effects Tree" on page 1211.

***Tip**: To work more quickly in the Effects Tree, use the keyboard shortcuts. Select **Help > Keyboard Shortcuts**. You can also set the default preferences for your Effects Tree in the User Preferences dialog box. Select **File** > **User Preferences** (Effects Tree property page).*

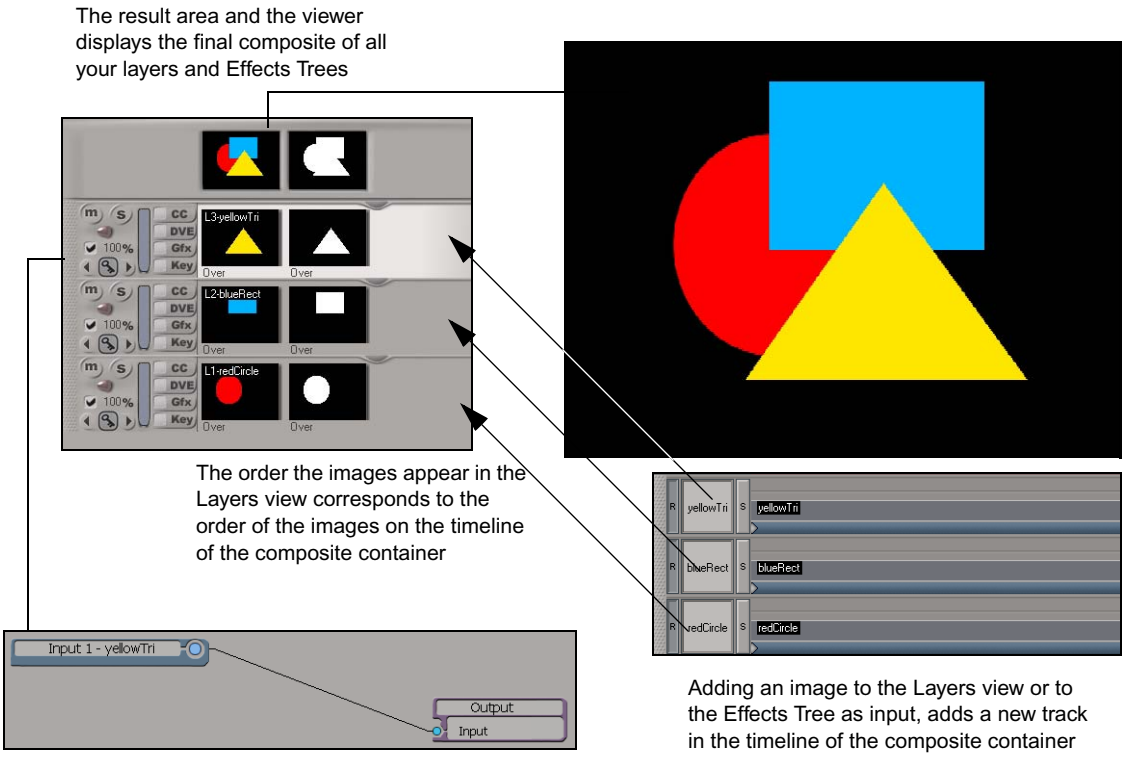
For more information, see "Using Effects Trees" on page 1171.

Relationship within the Compositing Layout

It is important that you understand the relationship between the different elements of the Compositing layout in order to work efficiently without getting lost within the layout.

It is made up of 3 significant parts that interact with each other:

- The composite container timeline
- The Layers view
- The Effects Tree



Adding layers to the Layers view adds a new track on the timeline, but not in the Effects Tree and vice versa. Similarly, adding an image as input in the Effects tree adds a new track on the timeline. For more information, see "Adding Layers" on page 1129 and "Adding or Removing Inputs To and From an Effect Node" on page 1179.

Working with the Layers View

In the Layers view, you can work with video images independently of each other. For example, you can animate, track, apply effects, or apply opacity per layer.

For more information on the Effects Tree, see "Working with the Effects Tree" on page 1178.

Adding Layers

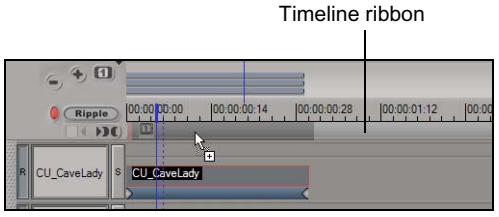
When you create a composite container clip for compositing, the clips that you select are automatically added as layers in the Layers view. You can create additional layers by placing clips on new tracks on the timeline.

To add layers, do one of the following:

- Drag a clip from a bin to the Layers view.

  The clip forms a new layer in the composite and is placed on a track. Any other clips that you add to this track on the timeline are also part of that layer.

- From a bin, drag a clip to the timeline ribbon of the timeline.



  The track forms a new layer in the composite. Any other clips that you add to this track on the timeline are also part of that layer.

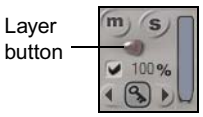
If you don't want to immediately add a clip to a layer, right-click while dragging a clip from a bin to the timeline ribbon. This will create a track on the timeline. This is especially useful if you want to create mattes on the timeline and assign them later as external mattes to layers in the Layers view.

Reordering Layers

Layers are composited from the bottom to the top. You can change the order of the layers at any time during the compositing session. You can also change the resulting matte by reordering the external mattes of a layer.

To reorder layers, do one of the following:

- Drag the **Layer** button to a new position on the Layers view.



- Right-click a layer and select one of the following:
  - **First** to move the matte to the left most position.
  - **Left** to move the matte one position to the left.
  - **Right** to move the matte one position to the right.
  - **Last** to move the matte to the right most position.

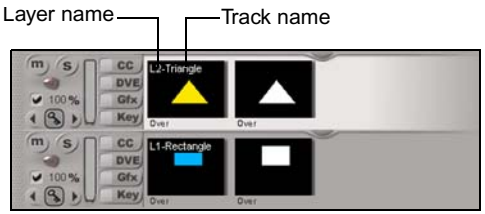
*If you don't want to animate layers when you reorder them, deselect the **Autokey** button before changing the order of your layers.*

Renaming Layers

Layers and tracks are named according to the name of the first clip on the track. Layers are also named consecutively as you add them, beginning with L1 (layer). Each layer RGB thumbnail contains the name of the layer, as well as the name of its corresponding track on the timeline.

As you add tracks or layers, you can rename them. If you rename a track, its new name will also be updated in the Layer RGB thumbnail.

Although the track name is displayed in the Layer RGB thumbnail, you can only rename it from the Track or Layer Name property editors. For more information, see "Changing Track Properties" on page 730 of the Avid DS Nitris Editing Guide.

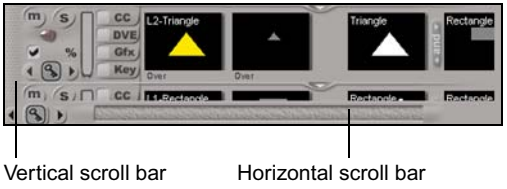


To rename a layer:

1. Right-click an empty area of a layer and select **Layer Name**.
2. In the Layer Name dialog box, type a new name, and click **OK**.

Scrolling Layers

As you add more layers to your composite, the layers at the bottom of the timeline scroll off the bottom of the Layers view. Similarly, as you add more matte functions to a layer, they scroll to the right or left of the screen. You can scroll the layers vertically and horizontally to display any layers or mattes that may be hidden from view.



To scroll layers vertically:

1. Click the textured gray area (vertical scroll bar) to the left of the layer controls.
2. When the hand button appears, drag up or down to view additional layers.

To scroll layers horizontally:

1. Click the textured gray area (horizontal scroll bar) above the view switcher.
2. When the hand button appears, drag left or right to view additional mattes on the layer.

Navigating Through Layers

When working with multiple layers in the Layers view, you can navigate through the layers. This is handy when you have an Effects Tree per layer that you want to edit.

To navigate through layers:

1. Click a layer in the Layers view.
2. Do one of the following:
   - Shift + Right Arrow (>) to move to the next layer.
   - Shift + Left Arrow (<) to move to the previous layer.

Loading a Layer Effect in the Layers View

When working in the Layers view, you can replace the Key effect by loading an effect from the Keyer property editor.

To load a new layer effect:

1. Click a layer in the Layers view.
2. Click the Key effect.

3. In the Blue-Green Keyer property editor, click the **Load Preset** button.
4. In the Load Preset dialog box, select an effect and click OK.

   The Key effect in the Layers view is replaced with the loaded effect. The **Key** button is also replaced with an **Fx** button.

5. Click the layer effect button to edit the properties of the effect.

Animating Layers

When compositing clips in a container clip, you can animate the order of the layers in the composite, as well as the transparency of each layer. Once the animation is created, you can process the clip to view the animated frames in real time.

You can adjust the animated properties or remove the animation at any time, and animate the process of creating animation using the Autokey button. For more information, see "Editing Animation" on page 989 and "Setting Keyframes Automatically" on page 964 of the *Avid DS Nitris Editing Guide*.

Animating the Order of Layers

The Autokey button at the bottom of the Layers view lets you change the order of the layers over time. When the layer ordering has been animated, this button turns red.

To animate the order or appearance of the layers:

1. Use the transport controls to advance the clip to a frame in which you want the animation to begin.
2. Reorder your layers by dragging the track button of a layer to a new position.
3.
   Click the **Autokey** button at the bottom of the Layers view to set a keyframe.

   When a keyframe is set, the Autokey button turns red. If the position indicator is on a frame that is not a keyframe, the button turns green.
4. Advance to the next frame in which you want to change the layer order and change the layer's order.

   Once an initial keyframe has been set, you no longer need to click the Autokey button as keyframes are created automatically when you change the layer's order (simulating Autokey behavior).
5. Continue adding as many keyframes as needed.

Adjusting the Opacity of a Layer

There are two ways available for adjusting the opacity of a layer: **Opacity,** the default, which is applied before a composite and **Mix,** which is applied after the composite. Right-click the Layer menu and select either option. For more information, see “Layer Menu” in the Help.

Use the opacity controls to decrease or increase the opacity of a layer to make it more or less transparent when composited over other layers.

To adjust the opacity:

1. Do one of the following:
   - Drag the opacity slider up or down.
   - Click in the Opacity Level indicator, type a value and press Enter.

2. Select the check box to the left of the Opacity Level indicator to apply the opacity to a layer.

Animating the Transparency of a Layer

The Autokey button at the bottom of the Layers view lets you animate the transparency levels of a matte over time. When a layer has been animated, this button turns red.

To animate the transparency of a layer:

1. Use the transport controls to advance the clip to a frame in which you want the animation to begin.

2. Click the **Autokey** button at the bottom of the Layers view to set a keyframe.

   When a keyframe is set, the Autokey button turns red. If the position indicator is on a frame that is not a keyframe, the button turns green.

3. Adjust the opacity control on one or more of the layers by moving the slider or entering a value in the Opacity text box.

4. Click the **Autokey** button again.

   Depending on the accuracy you need, you can move frame by frame or set larger intervals between animated points.

You can also adjust the opacity of a layer in the Effects Tree using the Composite effect node. For more information, see "Compositing Two Layers" on page 1198.

Removing Layers and External Mattes

If you want to remove a layer from the composite, you can easily delete it from the Layers view without deleting the clips on the tracks. You can also remove any external mattes that you no longer want, but you cannot remove the original matte.

To remove a layer from the composite:

- On the Layers view, right-click a layer and select **Remove Layer**.

To remove external mattes:

- Right-click the external matte of a layer and select **Delete**.

  The external matte is removed from the layer.

Working with Mattes

The information in each pixel of an image is comprised of four channels (or components): R, G, B, and A (the alpha channel). When compositing, the alpha channel is very important. It specifies the transparency of each pixel, allowing portions of the foreground image to reveal or block out the background image when two images are overlaid.

There are three instances:

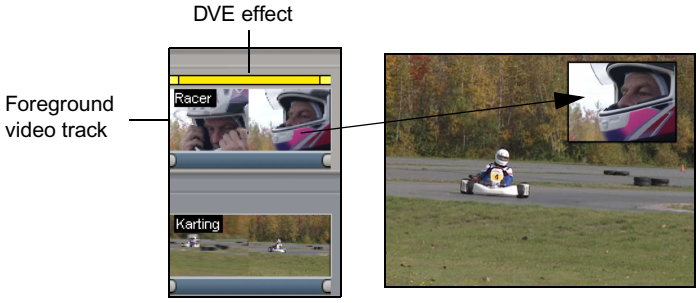
- The clip already has a matte in its alpha channel which is preserved when capturing.
- The clip does not have a matte and in order to use it for compositing you are required to create one in its alpha channel.
- You are provided with a matte clip to use for compositing. This clip is known as an external matte.

Using Clips with Internal Mattes

When you capture material, you can preserve the clip's matte in the alpha channel and immediately use it for compositing.

In the example shown here, the simple compositing method has been used to layer two video tracks in the Editing layout. The video track that is being used as the foreground in the composite has a clip with an internal matte.

When compositing using the video tracks in the Editing layout (simple track compositing) and you apply a DVE or Picture-in-Picture effect to a clip, a matte is automatically created using the parameters you specify in the DVE property editor.



Once you create the composite, you can enhance it by adding effects, such as color correction, blurs, graphics, and so on.

On video tracks, you cannot apply a Matte Composite operation with external mattes nor can you adjust the transparency or animate the order of the layers. If you need to perform any of these tasks, build your composite within a composite container clip. For more information, see "Using Composite Container Clips" on page 287 of the Avid DS Nitris Getting Started.

Using Clips without Mattes in the Alpha Channel

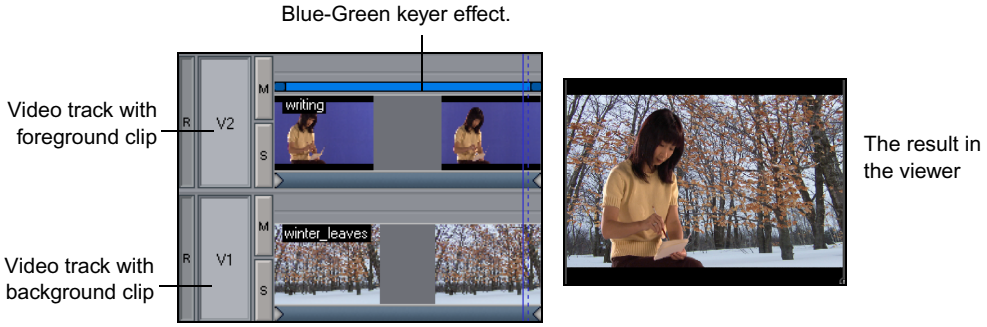
Every foreground clip must have a matte in its alpha channel to form a composite. When you import or capture clips in Avid DS Nitris, each clip will have an alpha channel. If the captured clip does not have a matte in its alpha channel, you must create one using a number of effects such as the keyer, matte, or graphics effect, in order to use it in a composite.

Clips that do not have a matte will have a full (white) alpha channel when you view the alpha channel. For more information, see "Viewing Mattes" on page 1140.

You can create a matte on the timeline or the Layers view.

Creating a Matte by Using a Keyer

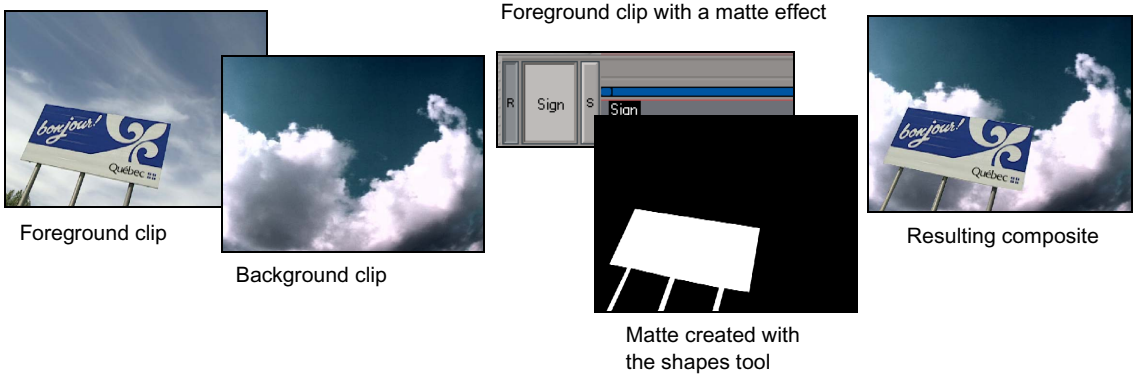
Keying creates a matte by keying a matte on the foreground clip based on the RGB, HSL, or YCbCr color values. You can then composite the foreground clip over a background clip, as shown here:



For more information, see “Keying” on page 1217.

Using the Shapes Tools

By using the shapes tools in the Matte effect property editor, you can create mattes on material that do not have mattes. You can also further use it to clean-up the alpha channel of a matte.



To use the shapes tool to create a matte:

1. Apply a matte effect to the clip.
2. Select the Shapes tab.
3. In the Shapes Creations, select a tool.
4. Draw the shape.
5. To view the matte that you created, right-click the viewer and select **Alpha Component > Matte**.

   The layer's matte is displayed as a grayscale image.

For more information, see "Creating Mattes" on page 1467.

Creating a Matte on the Timeline

When you want to composite an image on a video track and the image does not have a matte in its alpha channel, you can create one using a keyer, matte, or graphics effect.

To create a matte on the timeline:

1. Right-click a clip and select **Add Clip Effect**.
2. From the Load Preset dialog box, select a keyer, the Matte effect, or the Graphics effect.
   - Keyer effects such as the Luminance or Chroma keyers extract the alpha component based on the luminance or color thresholds in an image—see "About Keying" on page 1218.
   - The Matte effect lets you touch up an existing matte, or create one from scratch—see "Matte Effect" in the Help.
   - The Graphics effect lets you create your own matte—see "Painting and 2D Titling" on page 1383.
3. To view the matte that you created, right-click the viewer and select **Alpha Component > Matte**.

   The layer's matte is displayed as a grayscale image.

Creating a Matte on a Layer

You can create use the Layers view to create mattes on each layer which are combine to produce a final composite. You can further use the matte blending operations, see "Applying Blending Operations in the Layers View" on page 1150.

To create a matte on a layer:

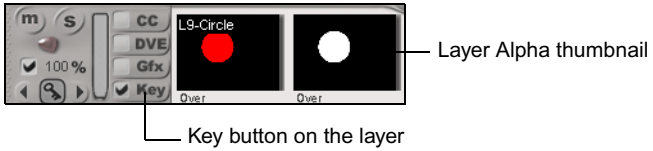
1. On a layer in the Layers view, click the **Key** button.

   The Blue-Green Keyer property editor is displayed by default.

***Tip**: To load a different keyer, click the **Load Preset** button and select a different keyer from the \Keyer folder.*

2. Create your matte by keying out specific luminance or chrominance values.

   The matte is displayed in the Layer Alpha thumbnail.



   A checkmark beside the **Key** button indicates that the key is activated. When the key is deselected, it is not used in the overall composite until you select it again.

Viewing Mattes

While creating your matte, it is a good idea to view the matte from time to time.

To view the matte, do one of the following:

- In the Viewer tools, click the **Viewer Alpha (Full)** button.
- Right-click the viewer and select **Alpha Component > Matte**.
- When using any keyer effect, go to the Key property page and select the **Output Matte** option.

  The layer's matte is displayed as a grayscale image.

***Tip**: You can also combine mattes and change how layers are composited using blend and matte operations. For more information, see"Applying Blending Operations in the Layers View" on page 1150*

Using External Mattes in the Timeline and Layers View

An external matte is a matte taken from one clip and applied to another.

External mattes may already exist with a clip or you can create one by adding a keyer effect on the clip. You can also use the alpha or RGB component of another clip as the external matte. In the example for "Using the Shapes Tools" on page 1138, the matte created can be applied to another clip as an external matte. Sometimes, you may be provided with a matte clip that you use for compositing.

There are three methods for adding external mattes: using matte containers, using the Layers view, and using the Effects Tree. For the Effects Tree method, see "Using External Mattes in the Effects Tree" on page 1197.

Using Matte Containers on the Timeline

The greatest advantage of using this method is that you can work entirely in the Editing layout.

The matte container lets you layer video clips on two fixed tracks: the Fill and Matte tracks. It allows you to combine separate RGB channels of an image with an alpha channel that was created from channels of another image.

It has the following properties:

- The two tracks labeled Fill and Matte are fixed
- Tracks cannot be added or deleted
- Although the tracks can be renamed and recorded, they way they are connected cannot be changed
- Matte containers are real-time and hardware real-time
- Like the composite container, when it is closed, the result is displayed as a single clip on the top timeline.

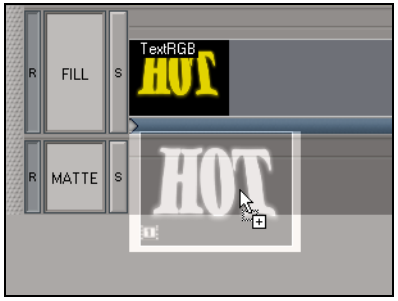
To add an external matte using the matte container:

1. Right-click a clip in the Avid Explorer that you want to use as the background and drag it to a video track in the timeline.
2. Create another video track.
3. Right-click the clip without a matte in its alpha channel that you want use as the foreground to the second video track.
4. Create a matte composite using one of the following methods:
   - Right-click the clip that you want to use in the matte container and select **Create Matte Container**.
   - Click the **Container** button in the Toolbar and select **Matte Container**

You can only create a matte container from a single clip selection.

5. Click the **Viewer Alpha (Full)** button to see the alpha channel of the clip.

   Notice that there is not matte on the alpha.
6. Right-click the external matte clip in the Avid Explorer and drag it to the **Matte** track of the matte container.



7. Click the **Viewer Alpha (Full)** button to see the alpha channel of the clip.

   Notice that there is a matte on the alpha channel which has been derived from the external matte clip.

8. Step out of the container to return to the Editing layout and to see the final composite.

***Tip**: From inside the matte container, use the **Reconnect Viewer** button in the Viewer Tools to connect to the top timeline. For more information, see "Reconnect Viewer Menu" in the Help.*

9. To set matte's properties, right-click the matte container and select **Matte Properties**. This option is also available when working inside the matte container. select this option when inside the container.

If you get a halo or black outline after compositing, you should check the premultiplication settings. For more information, see "Compositing with Premultiplied Images" on page 1153.

Using External Mattes on Layers

You can add as many external mattes as you wish to each layer in the composite. You can also combine or blend them using matte blending operations to produce the desire effect. The mattes are blended in the order in which the appear. For more information, see "Applying Blending Operations in the Layers View" on page 1150.

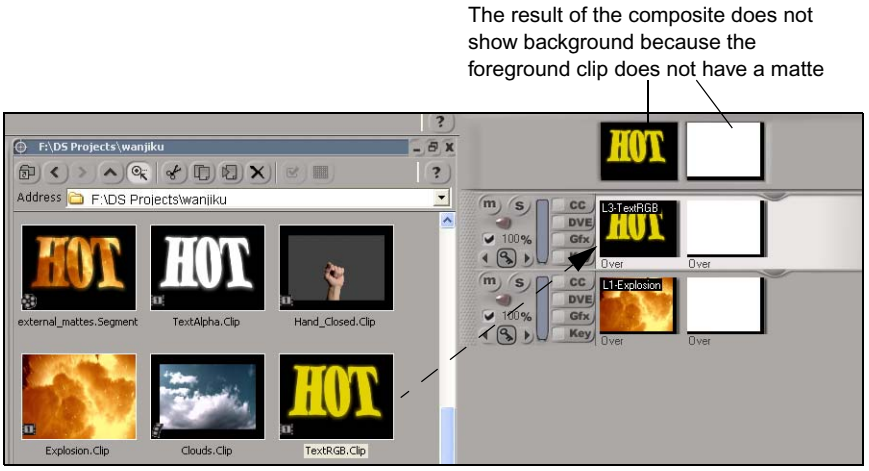
***Tip**: You can also combine mattes in an Effects Tree by using the Matte Composite or Key Combiner effect. For more information, see "Compositing Multiple Mattes" on page 1209 and "Key Combiner (Alpha or Luma)".*

To add an external matte to a layer:

1. If you are in the Editing layout, make sure that the background clip on the timeline is selected and switch to the Compositing layout.

   This clips forms a layer in the Layers view.

2. From the Avid Explorer, drag the clip without a matte in its alpha that you want to use as the foreground to the Layers view.

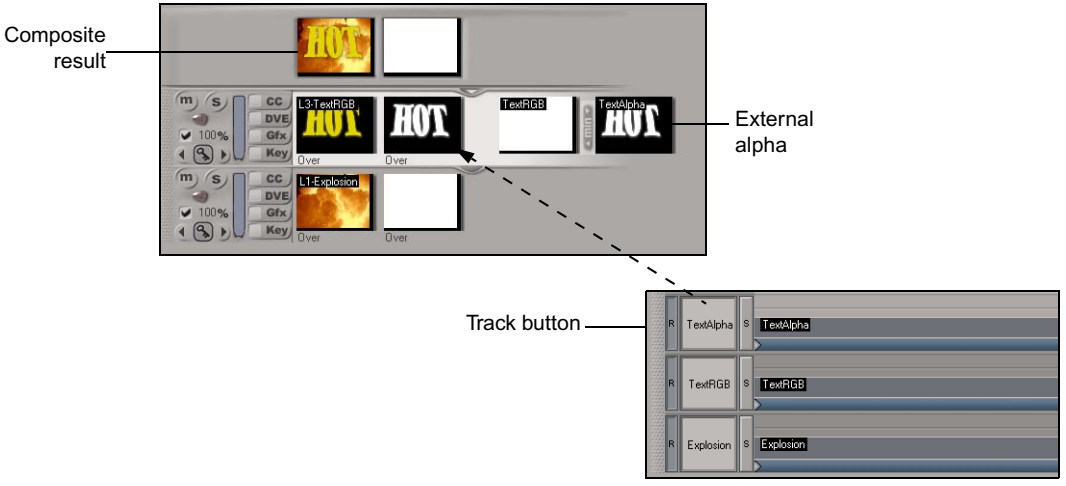


A new layer is formed in the Layers view and a new track is created with the clip in the timeline.

3. Right-click the external matte clip in the Avid Explorer and drag it to the timeline ribbon of the timeline. When you see a shadow over the timeline ribbon, release the clip.

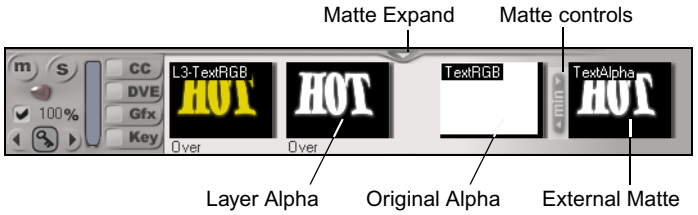
   The clip is automatically placed on a new track on the timeline, but does not form a layer in the Layers view.

4. Click the track button of the external matte and drag it to the Layer Alpha thumbnail.



The clip's matte is added to the right of the layer's existing matte. The two mattes are combined with the default matte composite operation (Min.) and the results are displayed in the Layer Alpha thumbnail.

A layer with an external matte



5. To change the matte operation between the mattes, right-click the Matte control and select an operation—see "Applying Blending Operations in the Layers View" on page 1150.

***Tip**: If the mattes are partially obscured by the viewer, use the horizontal scroll bar at the bottom of the Layers view to see the external mattes.*

6. Right-click the External Matte thumbnail (of this newly added matte) and select one of the following:
   - **Alpha** to use the external clip's alpha component as a matte.
   - **RGB** to create a matte based on the RGB components of the external clip.

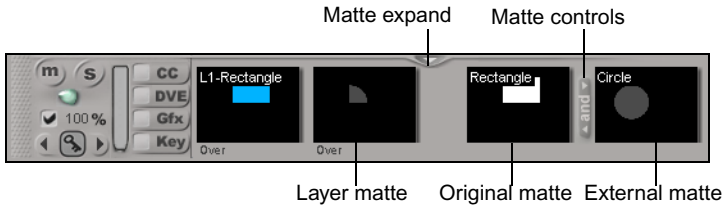
Combining Mattes

You can add an unlimited number of external mattes to a layer, and then combine them to produce the desired result. When you add several mattes to a layer, the mattes are combined using Boolean logic.

To combine mattes on the same layer:

1. On the layer, make sure the two mattes to be combined are arranged next to each other.
2. Right-click the **Matte Controls** button between the two mattes and select a blend operation.

   The combined matte appears in the Layer Matte thumbnail.



For more information, see “Matte Controls Menu” in the Help.

Working with Masks

A powerful feature when compositing is the ability to apply an effect to certain channels (channel masking) or to certain pixels using a mask (pixel masking).

Masks are an image, portion, or component of an image that defines where an effect will be applied. They can come from the current image's alpha channel, or from an external clip's R,G,B, luma, or alpha channel.

For example, on the Masking property page of an effect, if you select the red channel in the Process box, and the alpha channel in the Mask box, then the effect will only be applied to the red channel using the alpha channel of the input clip as a mask.

Applying Channel or Pixel Masking

When using channel or pixel masking when 8-bit precision is used, SuperBlack and SuperWhite information (full YCbCr range) is not preserved:

Effects are set to 8-bit precision when:

- In the Options property page, the Precision has been set to Auto with the sequence's preference Precision set to 8-bit
- In the Options property page, the Precision has been set to 8-bit
- Using some DS effects that do not support 16-bit or 32-bit/Float precision (such as Impressionist or Painterly effects).
- Using some third-party effects that do not support 16-bit or 32-bit/Float precision.

The following example shows you the results using a combination of channel and pixel masking:

Original image

Blur applied to RGB channels (channel masking)

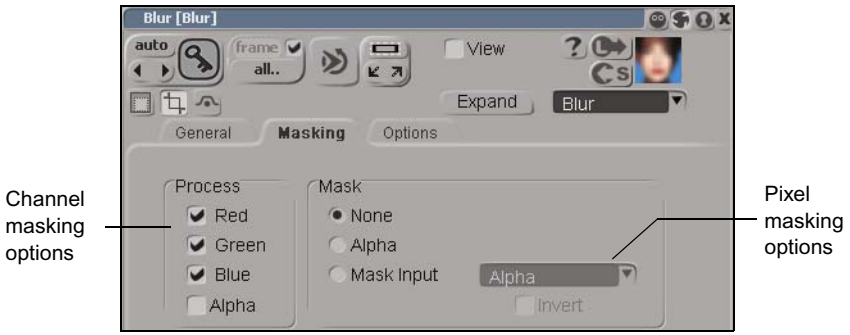
Blur applied to red channel only (channel masking)

Blur applied to RGB channels, using alpha as a mask (channel & pixel masking)

Image's alpha channel

To apply channel or pixel masking:

1. On the Masking property page of an effect, select the channels on which you want the effect to be applied from the Process box.



2. From the Mask box, select one of the following:
   - **None** to apply the effect to the entire image.
   - **Alpha** to apply the effect using the clip's alpha channel as a mask.
   - **Mask Input** to apply the effect using a matte from another image or effect in an Effects Tree only.
3. From the Process box, select the channels on which to apply the effect.

Using Alpha and Luma as Mask

When compositing images in the Layers view or the Effects tree, you can apply a number of blending operations. For more information, see "Applying Blending Operations in the Layers View" on page 1150. You can use the alpha or luma in the foreground image to mask the blending operation against the background.

To use the Alpha or Luma as Mask:

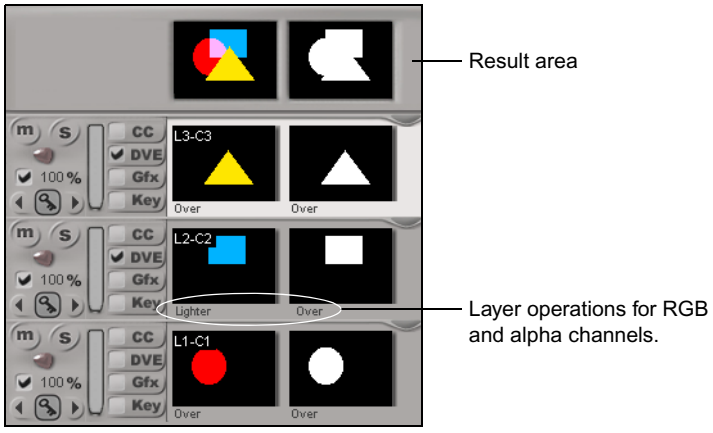
1. In the Layers view, right-click the blending operation under the Layer RGB thumbnail.
2. Select **Use Alpha as Mask** or **Use Luma as Mask**.

If you are working with a Composite effect node in the Effects Tree, use the alpha or luma as a mask options by right-clicking the blending operation.

Applying Blending Operations in the Layers View

When compositing clips using the Layers view or the Effects Tree, you can apply blending operations between the RGB and alpha components of the image or the matte. You can also apply blending operations to external mattes on a layer.

The operations differ between the RGB and alpha channels. Most RGB operations that you select are automatically applied to the alpha channel. You can, however, change the alpha operation separately. On a layer, the two images or mattes are combined with the default operation (Over) and displayed in the result area. For more information, see “Interlayer Alpha Menu and Interlayer RGB Menu” in the Help.

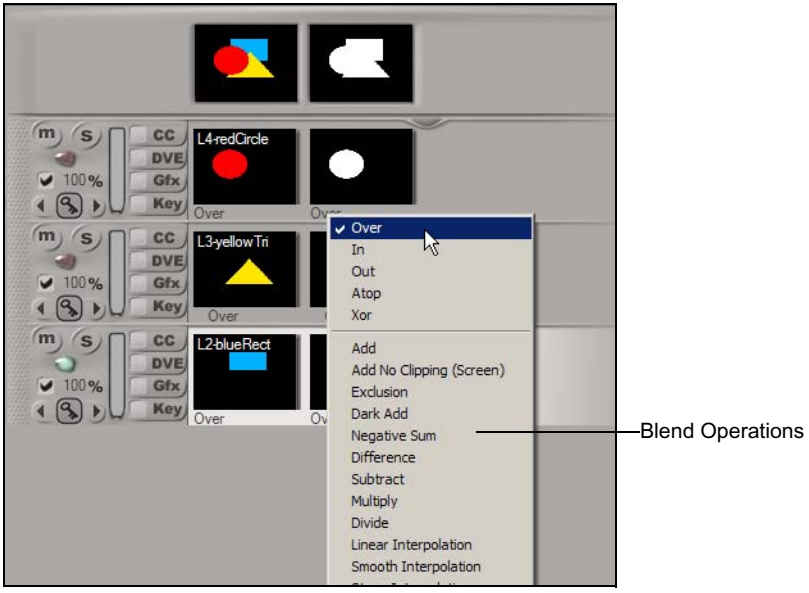


In the Effects Tree, the blending operations are available in the Composite node. To combine multiple mattes in an Effects Tree, use the Matte Composite effect. For more information see “Compositing Multiple Mattes” on page 1209.

To apply blend operations on a layer:

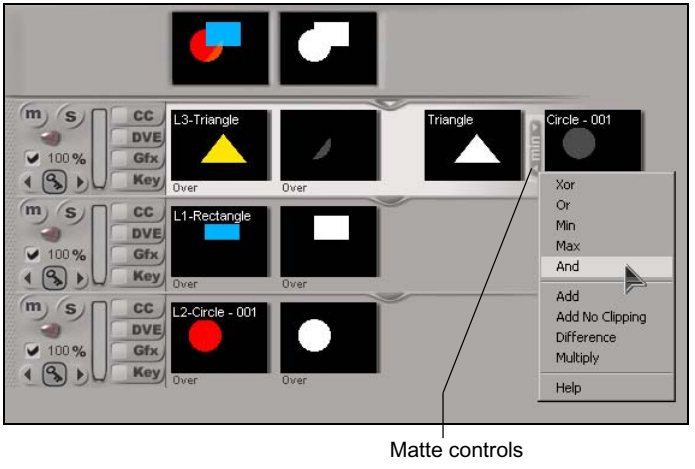
- Right-click the RGB or alpha operator between the two layers on which you want to apply the operation, and select an operator from the menu.

  The results of the composite appear in the result area at the top of the Layers view.

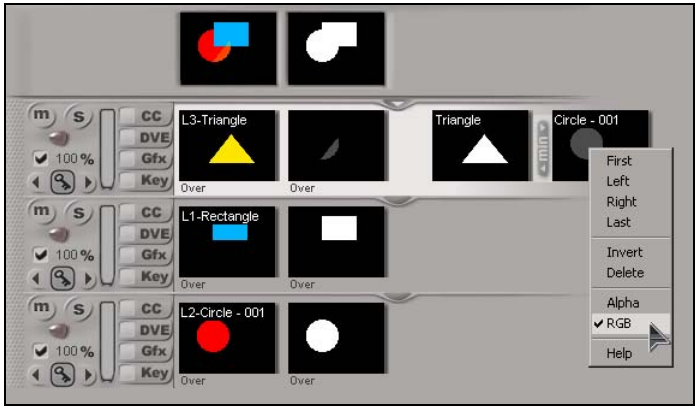


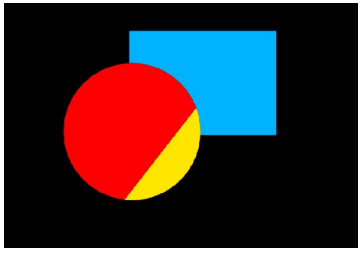
To apply external matte operations on a layer:

1. Right-click the matte controls between the mattes and select an operator.

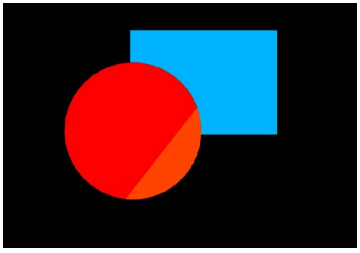


2. Right-click the External Matte thumbnail and select **RGB** or **Alpha**.





External matte set to Alpha



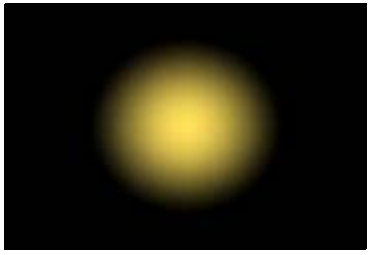
External matte set to RGB

Compositing with Premultiplied Images

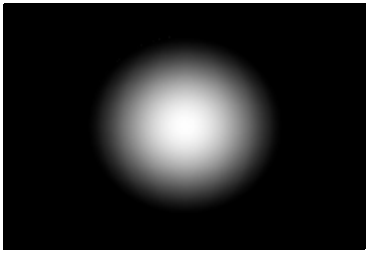
Images that contain an alpha channel could be either premultiplied or not. Premultiplication is a mathematical process where the RGB channels of an image are multiplied with their corresponding alpha channel values.

How can you tell if an image has already been premultiplied? It's best to check with the artist if the image was premultiplied or not. But if you cannot do this, you may be able to tell by looking at the RGB and alpha channels of the image, or the results after the image is composited with another.

A premultiplied source is one which the RGB channels have been multiplied by the alpha channel. If both the RGB and alpha channels contain black in the same areas, it's a good indication that the image is premultiplied.

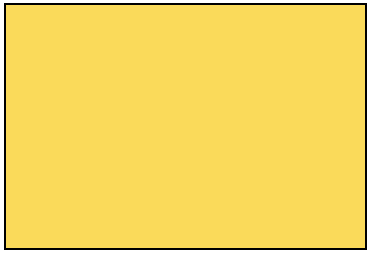


RGB channels

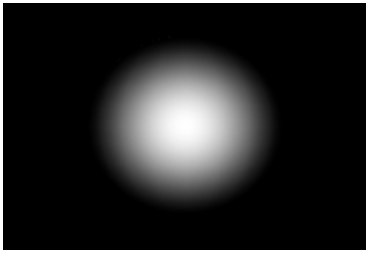


Alpha channel

A non-premultiplied source is one which the RGB channels are independent from the alpha channel. If the black areas of the alpha channel and the same areas of the RGB channel are different, it's a good indication that the image is not premultiplied.



RGB channels



Alpha channel

The Science behind Premultiplication

Having premultiplied images simplifies the compositing process as it avoids the additional operation of multiplying the RGB channels with the alpha channel. If Avid DS Nitris is given the correct indication about a premultiplied image, then the proper result is obtained when it is placed over the background. The soft edges blend well with the background and there are no noticeable artifacts.

If the incorrect indication is given, then Avid DS Nitris either applies the premultiplication operation again on an image that is already premultiplied, or does not apply it at all on an image that should be premultiplied.

The following table shows the results of composited images with different premultiplication settings. Keep in mind that the actual compositing operation, called Over, is as follows:

(RGB *Foreground* × α) + (1 -α) × RGB *Background* = Result

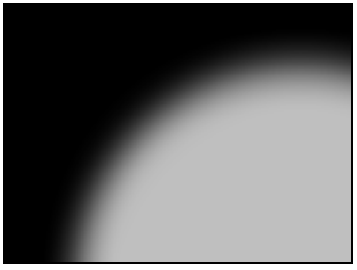
Type of material	Set to	Result
Premultiplied	Premultiplied	Correct. Since you informed Avid DS Nitris that the RGB channel has been multiplied with the alpha channel, it will not perform the premultiplication. **Operation**: [Foreground x α] + (1 -α) × Background
Premultiplied	Not premultiplied	Incorrect. These results may cause a black line to appear around the edge of your image where it should be transparent and antialiased. **Operation**: [Foreground × α] × α + (1 - α) × Background The alpha channel is multiplied twice.
Not premultiplied	Not premultiplied	Correct. Since you informed Avid DS Nitris that the RGB channel has not been multiplied with the alpha channel, Avid DS Nitris will do the premultiplication. **Operation**: [Foreground] × α + (1 - α) × Background

Type of material	Set to	Result
Not premultiplied	Premultiplied	Incorrect. These results can cause transparent areas of the foreground to be displayed much brighter than they should. This happens because you informed Avid DS Nitris that the image is already premultiplied when in fact it is not, causing the entire foreground to be added to the background rather than just areas specified by the alpha channel. **Operation**: [Foreground] + (1 - α) × Background The RGB channel is not multiplied by alpha channel. Therefore the foreground gets “ADDed” to the background.

*You can force a multiplication between alpha and RGB channels for those effects or clips that have an unpremultiplied alpha on video tracks. You must select the **Force Premultiplication Output** option in the Sequence Preferences dialog box. If you select this option, all effects will no longer be real-time playable. For more information see “Video Property Page (Sequence Preferences)” in the Help.*

Importing Source Files with an Alpha Channel

When using computer-generated images or sequences in your composites, it's important to indicate if the source has been premultiplied or not when you import the source file into Avid DS Nitris. You can set and change the premultiplication



The alpha channel of the circle has a matte that has softness around the edges (transparency).

If the premultiplication setting is incorrect, dark areas appear around the edges of the circle when composited over a background image.

If the premultiplication setting is correct, there is no dark halo.

Setting the Premultiplication Option

You can always set the option before importing to avoid getting unexpected results or artifacts in your composite.

To set the appropriate premultiplied option:

1. Select **View > Multi-Instance Views > Capture Settings**.
2. In the Media Capture panel, select the **Keep Alpha** option.
3. If the source is premultiplied, select the **Premultiplied Alpha** option.
4. If the source is *not* premultiplied, *deselect* Premultiplied Alpha.

Changing the Premultiplication Setting

If you get unexpected results after compositing an imported image, such as a halo or black outline, it may be because the premultiplication setting is incorrect. You can change the premultiplication setting after you import the file.

To check the premultiplication setting:

1. In the Avid Explorer, right-click the clip and select **Properties** from the **Avid DS Nitris** menu.
2. On the File Info tab, check if the **Premultiplied Alpha** option is selected.

To change the premultiplication setting in the Layers view:

1. If you are compositing in the Layers view, right-click the layer that contains the image whose premultiplication setting you want to change.

   By default Auto is selected. This indicates that the material will be composited according to the clip's premultiplication setting.
2. Select **Premultiplied** or **Not Premultiplied** from the menu.

***Tip**: If you are compositing directly on the top timeline, you can apply the Premultiplication effect on the clip to change the setting. In the Premultiplication effect, the Modify Image option will change the outgoing image's RGB pixels by premultiplying or unpremultiplying the image as necessary. For more information, see "Applying the Premultiplication Effect" on page 1157.*

To change the premultiplication setting in an Effects Tree:

1. If you are using the Composite node in an Effect Tree, select the **Premultiply** tab.
2. Select the input that corresponds to the source file that you want to change and change the **Premultiplication** setting.

Applying the Premultiplication Effect

The Premultiplication effect lets you change a clip's premultiplication setting. When you import material into Avid DS Nitris, you should specify whether the material is premultiplied or not. However, if you didn't set the premultiplication when you imported the material or a clip's premultiplication was incorrectly set, you can use the Premultiplication effect to change the clip's setting.

It also lets you change a clip's premultiplication without having to first create a composite container clip. You can use this effect to change an outgoing image's RGB pixels by premultiplying or undoing the premultiply in the image as necessary.

You can apply the Premultiplication effect to clips, tracks, or trees.

To apply the Premultiplication effect:

1. Apply the **Premultiplication** effect to a clip, track, or tree.
2. From the effect's property editor, select one of the following:
   - **Premultiplied** to flag the clip as premultiplied.
   - **Not Premultiplied** to flag the clip as not premultiplied.
   - **Auto** to maintain the clip's current premultiplication state.

Original image (note line around balloon)

Premultiplication effect

3. Select the **Modify Image** option if you want to change the outgoing image's RGB pixels by premultiplying or unpremultiplying the image as necessary.

   For example, if you choose Premultiplied in the Premultiplication State box, as well as the Modify Image option, then the RGB channel values will be multiplied by the alpha channel values to produce a premultiplied outgoing image. This option is useful when you work with unpremultiplied images and you need to add premultiplied information, such as antialiased text.

   When undoing the premultiplication, Avid DS Nitris attempts to remove the influence of the alpha channel from the RGB channels. This option is useful when working with a premultiplied image and you need to modify the alpha channel information separately from the RGB channels.
4. On the Masking property page, indicate whether or not you are using a mask for the effect. By default, the effect is applied to the RGB channels. You can derive masks from the alpha of the input clip or an external matte from another clip.
5. On the Options property page, select the appropriate options.

Click the **Help** button for detailed information on the Premultiplication properties.

Automatic Changes to the Premultiplication Setting

An image is no longer premultiplied after you modify the RGB or alpha channels separately. When dealing with a premultiplied source, you may have to perform the operations specified in the following table:

Scenario	Solution
Applying an effect to a clip that modifies the alpha channel only (by selecting the Process Alpha option and deselecting the Process RGB options on the Masking property page)	• Make sure the effect processed the RGBA channels by checking Masking property page • "Unpremultiply" the image using the procedure below
Applying a graphics effect to a clip or layer, and apply strokes only to the alpha or only to the RGB channels	"Unpremultiply" the image before applying the Graphics effect
Applying a key (with the **Keep Original Alpha** option on) or matte effect to a clip	Select the **Force Premultiplication** option from the Key property editor (Matte property page)
Applying an external matte to a premultiplied source in the Layers view	Before you apply the external matte, change the Premultiplication setting to Non-premultiplied

To "unpremultiply" an image:

1. Apply the **Premultiplication** effect to the source clip—see "Applying the Premultiplication Effect" on page 1157.
2. On the General property page, select the **Not Premultiplied** option.
3. Click the **Modify Image** button.

Compositing Clips over a Black Background

You can composite a single layer or several layers over a black background. Whether you are using one or several layers, the bottommost layer will always be composited over black when the Force Premultiplied Output option is selected. Avid DS Nitris provides a simple method in which you can achieve this without having to first create a black background clip.

***Tip**: If you want to composite against black in the video track, select the **Force Premultiplied Output** option in the Sequence Preferences dialog box. If you want to composite against black using the Composite effect node, double-click the node and in the Composite property editor, select the **Force Premultiplied Output** option.*

To composite clips over a black background using layers:

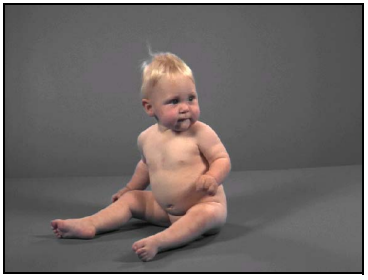
1. From the timeline, select a clip.

2. From the taskbar, click the **Compositing** button.

   A composite container clip is created and the Compositing layout is displayed. A layer is also created from the clip.

3. If the clip doesn't have a matte, create one using a keyer, DVE, matte, or graphics effect.
4. Add more clips and layers to your composite.
5. Right-click an empty area of the Layers view deselect the **Force Premultiplied Output** option, if it's not already deselected.

   The bottommost layer is composited over a black background.



Force Premultiplied Output is deselected.

Force Premultiplied Output is selected.

Unpremultiplying with Color

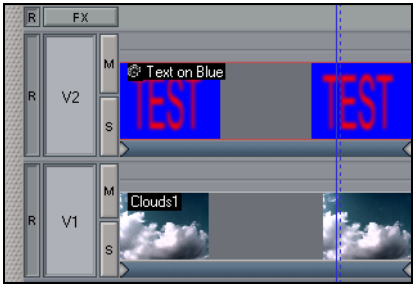
Often you will use clips that have been created in other applications such as Adobe Photoshop or Adobe After Effects. If the captured clip consists of a foreground image (and its matte in the alpha channel), which has been composited and premultiplied with a color background, you can apply the Unpremultiply with Color effect. It recovers the original foreground image

colors, especially in the semi-transparent and motion blur regions, keys out the background color and premultiplies it with a black background color, so you can use the clip for other compositing operations.

This effect can also be applied to the Effects Tree. For more information, see “Unpremultiplying with Color in the Effects Tree” on page 1206.

To unpremultiply with color on the timeline:

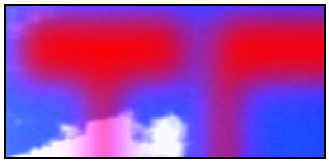
1. Using the simple track compositing method, composite the background and foreground clip on the timeline.



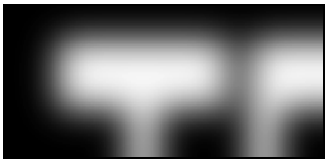
The foreground image with a matte in its alpha channel

Background image

The composited result is displayed in the viewer.You’ll notice that dark areas appear around the edges of the text. When you view the matte, you will notice the softness around its edges.

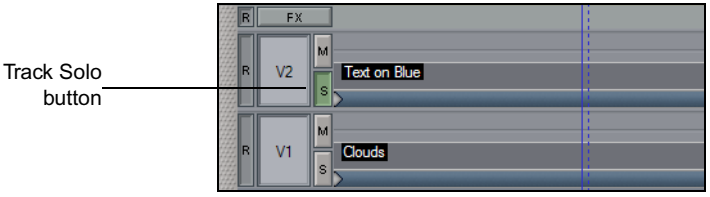


A halo around the text indicates unwanted artifact



The alpha channel of the text has a matte that has softness around the edges.

2. Click the track's **Solo** button to only view the foreground image.



3. Apply an **Unpremultiply with Color** effect to the foreground image.

   The Unpremultiply with Color property editor is displayed.

4. From the Effects List, select **Original Color**.

   The Original Color property editor is displayed.

5. Click the **Color Picker** button.

   The cursor changes to the eyedropper cursor.

6. In the viewer, select the color that you want to remove and replace with black.

7. Click the track's **Solo** button off to see the result in the viewer.

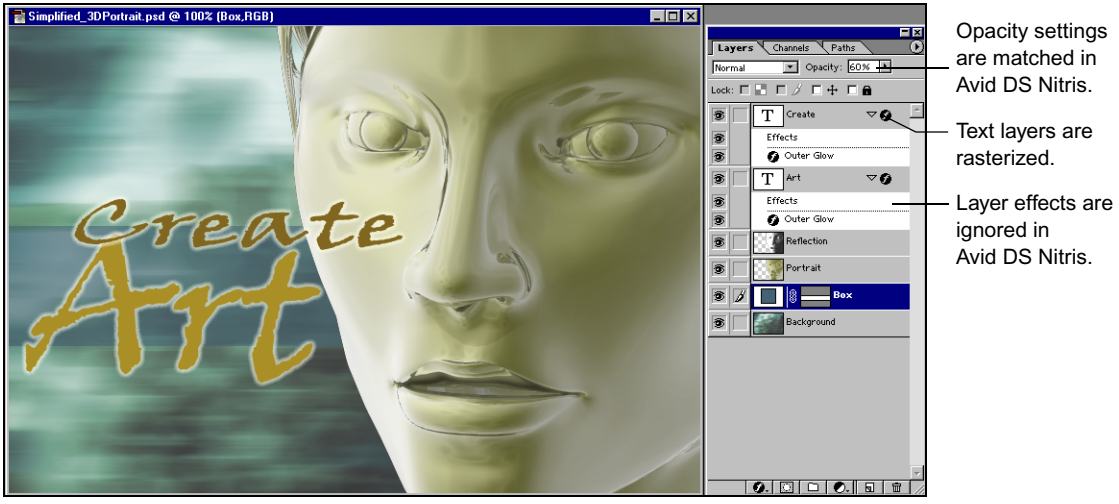
Working with Layered Photoshop Images

When you capture a layered Photoshop image into Avid DS Nitris, each layer is an individual linked image file, and the layered result is imported as a sequence in the Avid Explorer. All applied blending or layer operations in Photoshop are maintained in the new Avid DS Nitris sequence. For more information, see "Capturing from Layered Adobe Photoshop Files" on page 477 of the *Avid DS Nitris Capture and Output Guide*.

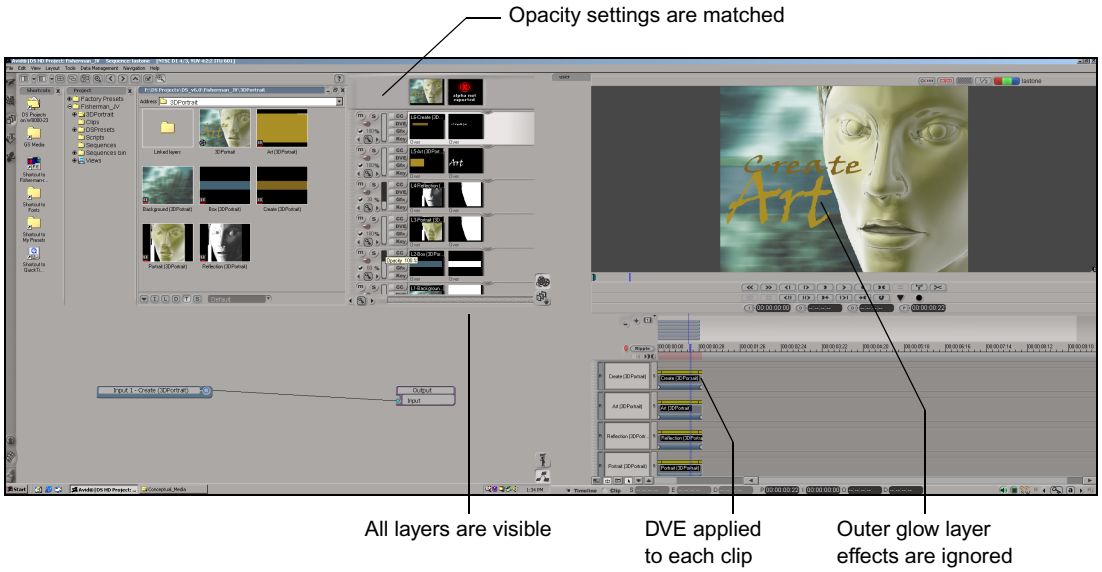
When you place a Photoshop sequence on the timeline, the composite is recreated in a composite container clip. When you open the container clip, layers are displayed in the Layers view and on the timeline. DVEs are applied to each clip to position them according to the original Photoshop image, and the opacity of each layer is adjusted to match the opacity levels in the original Photoshop image.

***Tip**: Layers that were hidden in the original Photoshop file will be displayed as part of the composite in Avid DS Nitris. After importing the file, you can mute the layers that you don't want to use in the composite.*

Layers in Photoshop



Photoshop layers in Avid DS Nitris



In Avid DS Nitris, the following Photoshop features are supported:

Feature	Support in Avid DS Nitris
Color spaces	RGBA 8, 16-bit and grayscale (converted to RGBA 8-bit images)
Text layers	Text is rasterized on import
Shape layers	Shapes are rasterized on import
Blending modes	Normal only

Photoshop Layer Notes and Tips

When you work with Photoshop layers in Avid DS Nitris, there may be times when you don't get the same results as those in Photoshop. Try the following:

- Import only RGB or grayscale images.
- In Avid DS Nitris, try unmuting the background if it contains transparent areas and/or export the alpha channel.
- In Photoshop, apply layer masks to the layer before you import them into Avid DS Nitris.

Here are some points to consider when working with Photoshop layers.

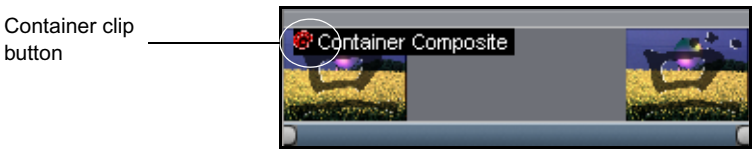
- Remember that text or shape layers are rasterized when you import them into Avid DS Nitris.
- When the layered Photoshop file is recreated in Avid DS Nitris, the Output Frame Size option for each DVE is turned off by default to minimize the size of the sequence. This may create some hard edges on blur and drop shadow effects. To remove these hard edges, open the DVE property editor for that clip and select the **Output Frame Size** option.
- Remember that effects are applied in a specific order. The order will affect the outcome of your shot. For layered Photoshop images, you should always apply effects after the DVE if you don't want your material to suffer from hard edge cropping. For more information, see "Processing Composites" on page 1167.

Using Photoshop Images

Once you have imported the layered photoshop images, you can apply effects to each layer.

To start using the Photoshop image:

1. Drag the Photoshop sequence to the timeline, and click the **Container Clip** button.



The composite container clip is displayed in the Compositing layout. On each clip, a DVE is applied, positioning them according to their position in the Photoshop file.

2. Mute the layers that you don't want to appear in the composite.
3. You can blend operations between layers and create effects on each layer.

Deleting Imported Photoshop Files

If you no longer need the sequence and master clips associated with the Photoshop file, you can delete them along with the corresponding media at any time.

To delete the imported Photoshop file:

1. Select the folder that was created when you imported the file.
2. Right-click the folder and select **Delete Clip & Unused Media**.

   A message box is displayed, prompting you to confirm deletion of the Targa files in the \Linked Layers folder.
3. Click **Yes** to free up the maximum amount of disk space.

   The sequence, master clips, and Targa files are deleted.

Processing Composites

Most of the composites, effects, and effect nodes that you apply must be processed to see the results during a real-time playback.

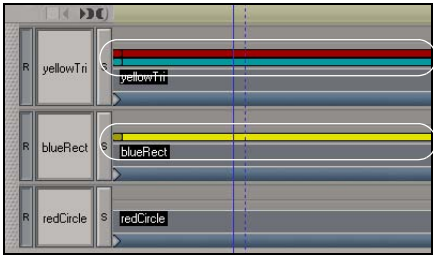
Avid DS Nitris processes each layer independently. It then combines the results from all layers to process the final composited image for each frame in your sequence.

Processing is done by selection. You can process the entire sequence or a specific object in the sequence. Processing can also occur at different stages in your sequence. When you process a sequence with complex effects, Avid DS Nitris creates caches at incremental levels. This allows you to make changes to your effects at any level without having to reprocess the entire sequence.

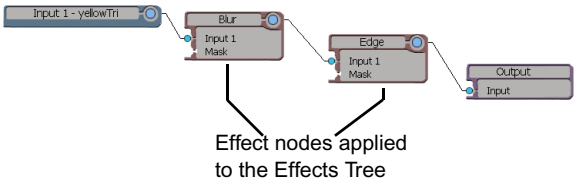
When processing the DVE effect, you may notice a slight difference in the quality of the realtime and the processed DVE. The difference may be more pronounced for DVEs that are partially processed (part of the clip is realtime, part is processed). In these cases, it is strongly recommended that you process the entire effect in order to remove the boundary between the realtime portion and the processed portion of the effect.

The operations in the Compositing layout are processed in the following order:

1. An effect applied to a clip inside the container clip.

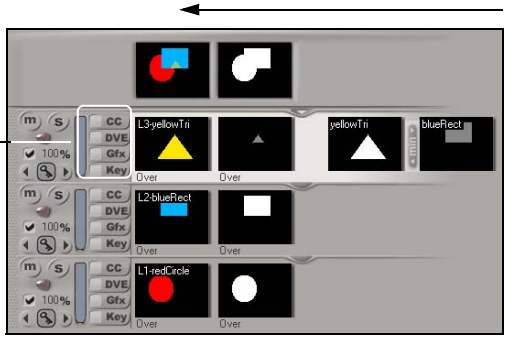


2. Effects Tree

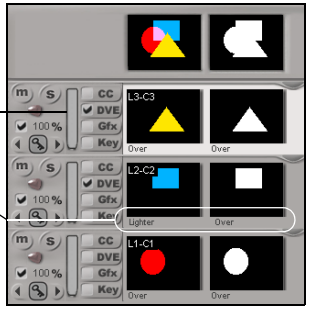


3. External mattes are processed from right to left.

4. Layer effects are processed from bottom to top



5. Composite and blend operations are processed between layers from bottom to top. The opacity of the matte is factored into the process.



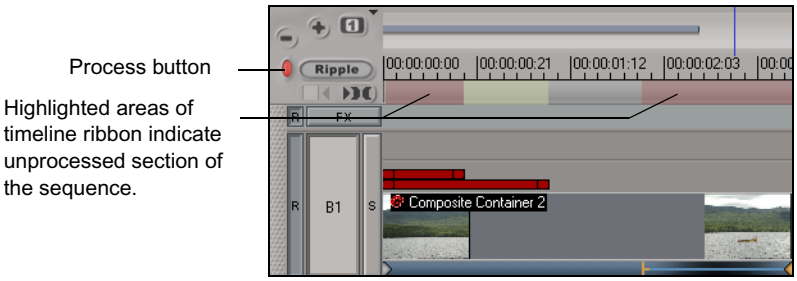
Processing Layered Clips on the Timeline

When you layer clips on the timeline, whether it's on the Editing layout or inside a container in the Compositing layout, the timeline ribbon will change color to indicate that processing is required. If the color is red, then you must process the clips in order to play them in real time. For more information, see "When is Processing Needed?" on page 873 of the *Avid DS Nitris Editing Guide*.

***Tip**: You can preview the resulting composite before processing all frames in the sequence. To view the sequence frame by frame, press Ctrl and click Play in the transport controls.*

To process the composite:

1. Select an object or specific time span on the timeline.
2. In the timeline controls, click the **Process** button.



3. Select the appropriate options from the Processing Options dialog box.
4. Click **OK** to begin processing.

   A progress indicator appears at the bottom of your desktop to show the status of the process.

   A progress indicator appears at the bottom of your desktop to show the status of the process. You can **Cancel** the process at any time, or press the spacebar on your keyboard.

You can process the container clip while it is open or closed.

Processing Effect Nodes

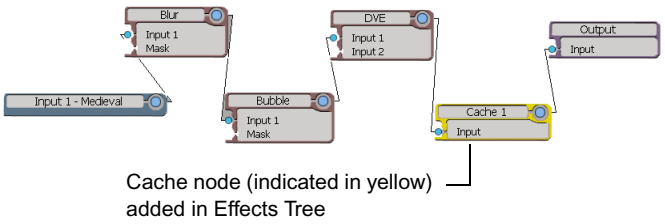
As you add effect nodes to the Effects Tree, you will notice that the timeline ribbon is highlighted indicating whether processing is required. One of the methods of processing quickly in the Effects Tree is by adding a cache before processing the entire or a section of the tree.

When working with large trees, it is a good idea to add cache nodes between effect nodes to process the effects. This will let you play the effects up to the cache node in real time. For more information, see "Using Cache Nodes in the Effects Tree" on page 891 and "Creating Caches at Any Level" on page 887 of the *Avid DS Nitris Editing Guide*.

To process a node:

1. Right-click a connector between two nodes and select **Add Cache and Process**.

   A cache node is added to the tree and the Processing Options dialog box is displayed.



2. In the Processing Options dialog box, select the appropriate options.

To process more than one cache node at a time, add the cache nodes to the cache list and then select the Cache List option from the Processing Options dialog box.

3. Click **OK** to begin processing.
4. A progress indicator appears on the bottom of the desktop to show the status of the process.

Chapter 2
Using Effects Trees

Effects Trees are useful in creating and managing complex composites. This chapter describes how to apply and use effects trees to composite.

Applying Effects Trees

You can apply an Effects Tree on a clip or track on the timeline or on a Layer. You can also apply an Effects Tree as a transition on the timeline. You can also work directly in the Effects Tree of the Compositing layout. For more information, see "Working with the Effects Tree" on page 1178.

Applying an Effects Tree on a Clip or Track

You can build a quick Effects Tree on a clip or track when you want to apply an unlimited number of effects on a single clip or track.

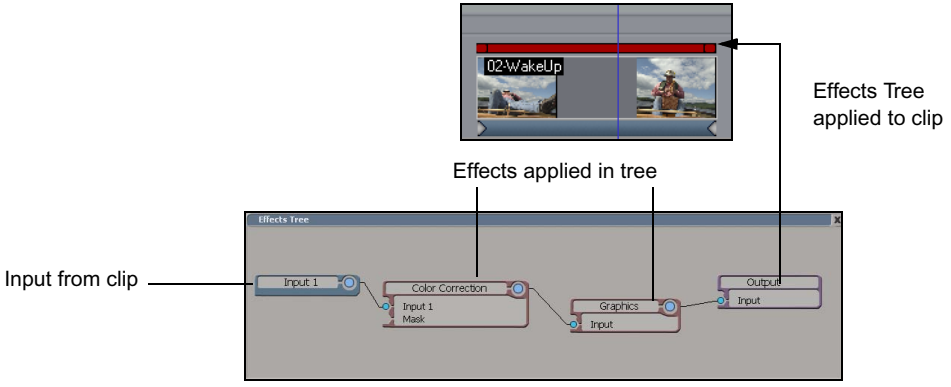
To apply an Effects Tree to a clip or track:

1. Apply a clip or track effect to a clip or track—see "Applying Effects" on page 210 of the *Avid DS Nitris Getting Started*.
2. From the effect's property editor, click the **Load Preset** button.

   The Load Preset dialog box is displayed.
3. From the Load Preset dialog box, select **Effects Tree**.

   An Effects Tree is applied to the clip or track, and the Effects Tree property editor is displayed.
4. From the Effects Tree property editor, click the **Expand** button.

   The Effects Tree view is displayed with the input as the clip or track on which you have applied the effects tree. You can now add effect nodes to the tree. For more information, "Working with the Effects Tree" on page 1178.



Applying an Effects Tree as a Transition

With Effects Trees you can apply a transition between two clips that is composed of multiple effects.

If you build an Effects Tree on the top timeline, you can only have one image input when it is applied as a clip effect or a single-sided transition. You can have two image inputs when they are applied as a two-sided transition.

To apply an Effects Tree as a transition:

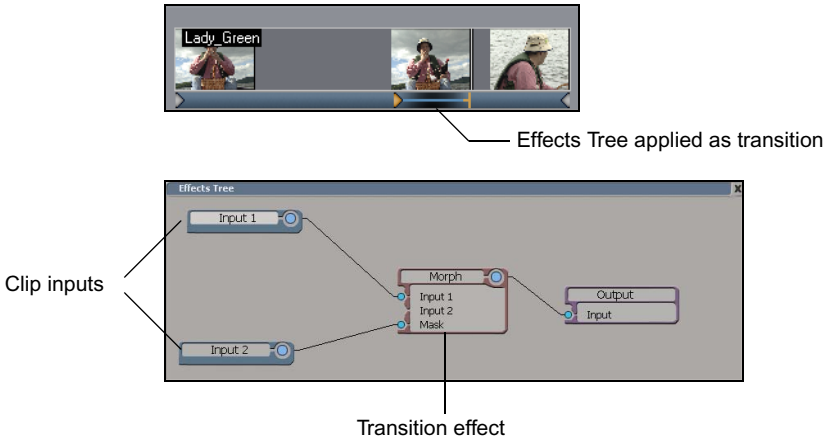
1. On the timeline, select the edit point between two overlapping clips.
2. Apply a transition, such as a dissolve or wipe—see "Understanding Image Transition Effects" on page 844 of the *Avid DS Nitris Editing Guide*.
3. From the transition's property editor, click the **Load Preset** button.

   The Load Preset dialog box is displayed.
4. From the \Image Transitions folder, select **Effects Tree Transition**.

   An Effects Tree is applied as a transition and the Effects Tree property editor is displayed.
5. From the Effects Tree property editor, click the **Expand** button.

   The Effects Tree view is displayed.
6. Add effects to the tree by right-clicking on an empty area of the view and selecting **Add Effect**.
7. From the \Image Transitions folder, select a transition effect.

   In the following example, a Morph transition was added as the transition in the Effects Tree.
8. Connect the inputs to the effect—see "Connecting Nodes" on page 1179.



Converting a Stack of Effects to an Effects Tree

When working on the timeline, you may find yourself with stacks of effects on clips, track, or the timeline. To save on screen real estate, you can convert these stacks to an Effects Tree. Another advantage for converting a stack of effects to an Effects tree is that you can save the entire stack as a preset, which you can load to another Effects Tree.

You can also select effects on clips, track, and the timeline that you want to be in an Effects Tree.

To convert a stack of effects on a clip to an Effects Tree:

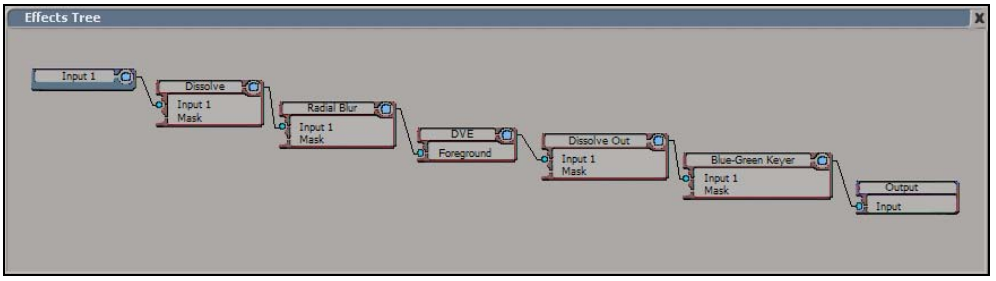
1. Select the clip or move.
2. Right-click the clip and select **Convert Effects Stack to Tree**.

   The stack of effects is replaced by one effect bar: the Effects Tree bar.

__Tip__: To convert the stack of effects of more than one clip, select the clips and press Ctrl+9. An Effects Tree bar will replace the stacks on all selected clips.

3. Double-click the Effects Tree bar to open its property editor.
4. Click the **Expand** button.

   The Effects Tree view is displayed.



5. Optional: Save the effects in the Effects Tree as a preset. For more information, see “Loading and Saving Presets” on page 1393.

To convert a selection of effects to an Effects Tree

1. Holding down the Ctrl key and select the effects that you want to be convert to an Effects Tree.

The effects need not be of one type; you can select clip, track or timeline effects for conversion.

2. With the Ctrl key is still pressed, right-click and select **Effects to Tree**.

   The selected effects are replaced by one effect bar: the Effects Tree bar.

__Tip__: After you make the selection, press Ctrl+9 to convert only the selected effects to an Effects Tree.

3. Double-click the Effects Tree bar to open its property editor.

4. Click the **Expand** button.

   The Effects Tree view is displayed.

The new Effects Tree bar occupies the total duration of the stack of effects.

If there is an effect in the stack that has a Mix to Color effect before the conversion to the Effects Tree and has a shorter duration than that of the new Effects tree bar, the Mix to color effect will not be preserved. As seen in the effect's property editor, the Mix to Color will be changed to Mix to Input so as to preserve its duration.

Applying an Effects Tree on a Layer

With Effects Trees, you can composite multiple inputs on a layer, and add an unlimited number of effects to these inputs. You can even add Effects Trees to more than one layer.

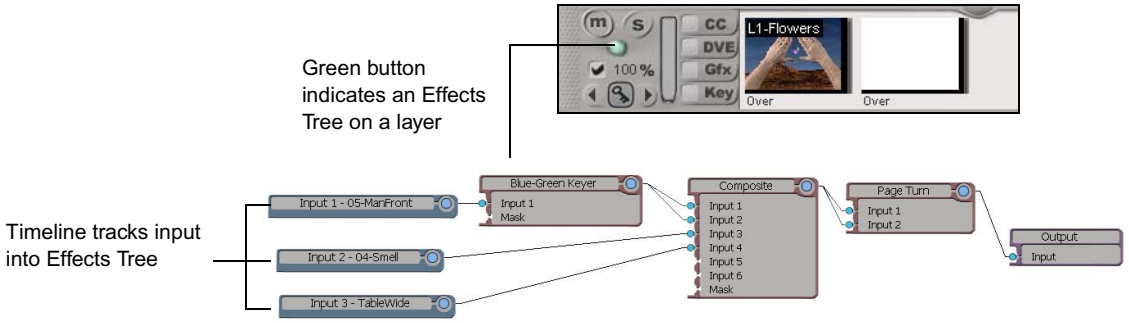
When you combine an Effects Tree with other effects on a layer, the tree acts as an input to the other effects. For example, if you create an Effects Tree and also use the Color Correction effect on the layer, then the Effects Tree acts as the input to the Color Correction effect and so on, working upwards through the effects on the layer.

To apply an Effects Tree to a layer:

1. Select a clip on the timeline and click the **Compositing** button in the taskbar.
2. In the Compositing layout, select a layer in the Layers view.

   The Effects Tree view for the selected layer is displayed.

   Within the Effects Tree you can now add inputs and effects to the Effects Tree. For more information, see "Adding or Removing Inputs To and From an Effect Node" on page 1179 and "Adding Effect Nodes to a Tree" on page 1178.



***Tip**: Each layer can have its own Effects Tree. To view the Effects Tree on a layer, right-click the layer and select **Effects Tree (layer)**.*

Opening the Effects Tree View

You can open an Effects Tree view for any effect on the timeline or on a layer.

To open the Effects Tree view, do one of the following:

- On a clip or track, press Ctrl while you double-click the effect bar above a clip/track.
- On a layer, right-click the layer and select **Effects Tree (layer)**.

Working with the Effects Tree

In the Effects Tree, you can add unlimited effects, switch one input for another, delete effects, fold nodes, copy trees, and save tree presets. You can also save tree presets which you can apply to other clips or Effects Trees.

Adding Effect Nodes to a Tree

After you have accessed the Effects Tree view and decided where to apply your Effects Tree (on a clip, track, or layer), you can begin adding effects to it. Effects are represented as nodes in the Effects Tree view.

To add effects to the Effects Tree, do one of the following:

- Right-click an empty area of the Effects Tree view, and select **Add Effect**. In the Load Preset dialog box, select an effect.
- From a toolbar, drag a preset and place it in an Effects Tree view. When you drag a preset from a toolbar or the Avid Explorer and place it on top of a highlighted connector, the preset is automatically inserted between the connected nodes.
- From the Avid Explorer, navigate to the \FactoryPresets folder. Select one or more presets and drag them to an Effects Tree view.

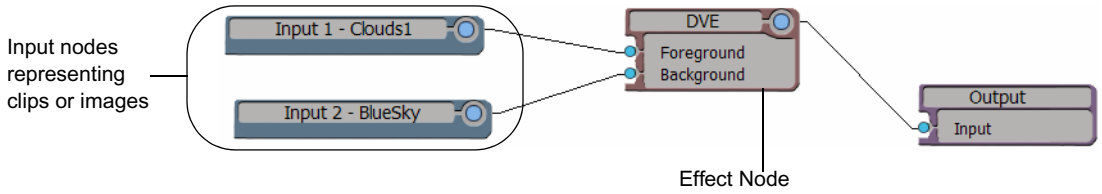
  The effects are placed in the tree in the order in which you selected them.

***Tip**: You can select multiple effects in the Avid Explorer (Ctrl-click) and then press Ctrl while you drag them to the Effects Tree. The effects are added to the tree already connected to one another, and in the order in which you selected them.*

After you have added nodes to an effects tree, you can connect them together. For more information, see "Connecting Nodes" on page 1179.

Adding Clips to the Effects Tree

When you add clips to the Effects Tree, you are essentially adding input nodes that represent the image. Note that you will not be able to view the input node unless it is connected to the output node. When adding more than one clip, you can composite them using the Composite effect node which you must in turn connect to the output node—see "Compositing Multiple Images" on page 1199.



To add an input node, do one of the following:

- From the Avid Explorer, select a clip and drag it to the Effects Tree view. To select more than one clip, use the Ctrl or Shift keys to select.

  New inputs are added to the Effects Tree and new tracks are added to the timeline.

- From the timeline of the Compositing layout, drag a track to the Effects Tree view.

  The new input node is added to the Effects Tree view.

  Although you can add multiple inputs to the Effects Tree, they won't be visible in the viewer until connected to the output node.

Adding or Removing Inputs To and From an Effect Node

You can add or show inputs (ports) in the effect node. You can also remove or hide any input. For example, the DVE effect node shows the Foreground and Background ports by default. You can add or show the Local and Transform inputs when you want to use them.

When working with dynamic effect nodes such as the composite container or the 3D DVE node, you can add multiple inputs (or ports) to the node.

To add or remove inputs or ports to an effect node:

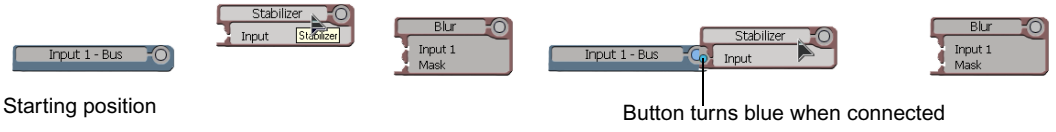
1. Right-click the effect node and select **Add/Remove Inputs**.
2. Select the input or port that you want to show or hide.

Connecting Nodes

When you want to connect nodes, you can use kissing, twanging, sticky connection, or dragging from an output port.

To connect nodes, do one of the following:

- **Kissing**: Drag a node's input port over the output port of another node, so it "kisses" the edge of the second node, and hold for a fraction of a second.



Starting position

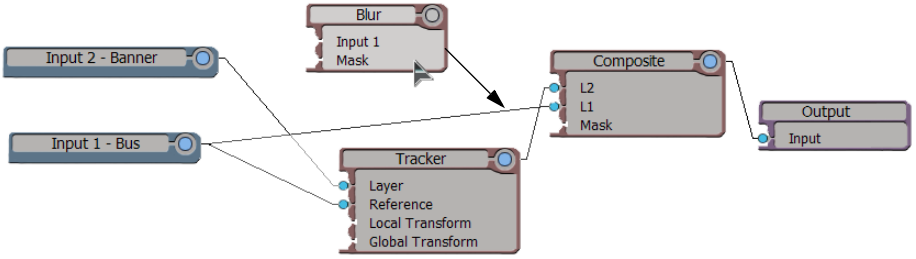
Button turns blue when connected

While holding the mouse button down, you can drag the newly connected node to another node and connect it to that one as well.

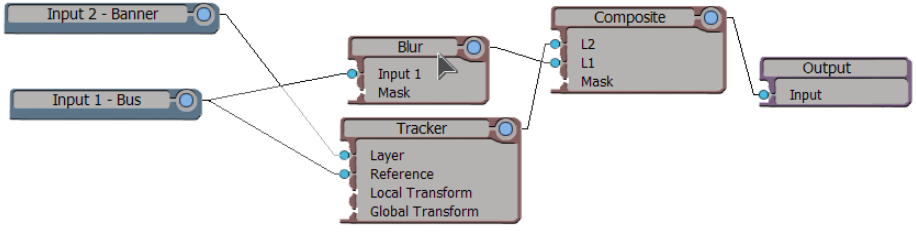
"Kissing" second node

Final result

- **Twanging**: Drag a node over an existing connector.

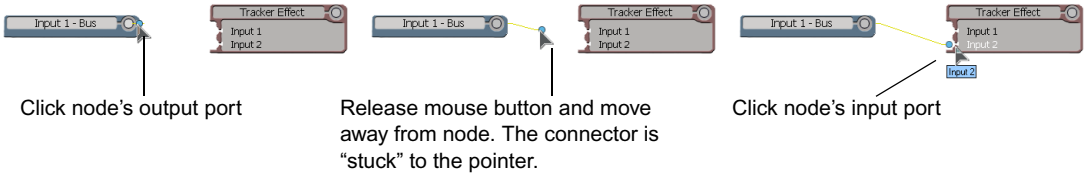


The existing connector snaps or "twangs" to the input and output ports of the node.



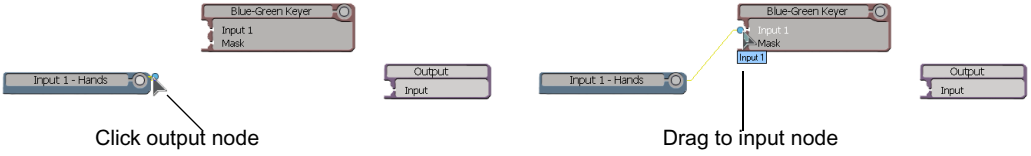
***Tip**: If you don't release the mouse button, you can move the node away from the connector and no connection will take place. Even though you haven't made a permanent connection, the results are displayed in the viewer. This is handy to quickly see how an effect may affect your tree. If the node has multiple ports, you can drag the node through the connector until it connects to the desired input.*

- **Sticky connection**: Click a node's output port and release the mouse button. The connector becomes "stuck" to the pointer. You can move the pointer over another node's input port and click to connect it.



- **Dragging from an output port**: Drag a node's output port towards the input port of another node.

  A connector is displayed from the output port and turns blue to indicate the output is connected. As you get close to the input node, the connector snaps to it. If it doesn't, it is probably because the input node is invalid.



Disconnecting Nodes

To disconnect nodes, you can rip, click a connector, click and drag a connector from an input port, or drag the input port.

To disconnect nodes, do one of the following:

- **Ripping**: Click a node and "shake" or "rip" it away from the other nodes, or press R and drag a node away from another node or connector.

The selected node is placed where you release the mouse button. If there were other nodes connected to the selected node, then the connector will be joined between the two.

- **Click anywhere on a connector**.

  The selected connector turns white. When you release the mouse button, the connector is removed.

- **Click and drag connector**: Click the connector that is attached to the input port and drag it away from the node.

  The connector is removed.

To switch one input for another, do one of the following:

- Disconnect the current input node and connect the new input node to the effect.
- Click a track button and drag it over an input node.

  If the image contributes to the composite, the viewer and layer thumbnails are updated.

You cannot switch the primary input.

Selecting Nodes

There are many ways to select nodes in an Effects Tree.

To select a node:

- Click a node's title bar.

  The selected node becomes highlighted.

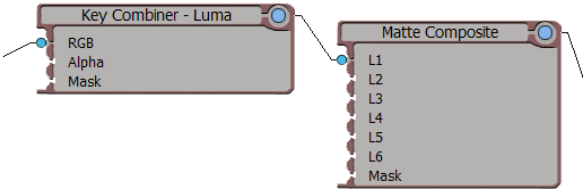
To select multiple nodes, do one of the following:

- Right-click an empty area of the view and select **Select All**.
- Hold down the Ctrl key and click the nodes (if a node was already selected, it becomes deselected).

- Drag a selection rectangle around several nodes.
- Right-click a node and select **Select Proceeding Nodes** or **Select Subsequent Nodes** to highlight all nodes before or after the selected node.

Collapsing and Expanding Nodes

You can collapse nodes if you want to hide the inputs and effects associated with them.



View of nodes when expanded.

View of nodes when collapsed.

To collapse a node:

- Right-click a node and select **Collapse**.

  The selected node is collapsed, which is useful when a node contains several inputs and you want hide them to maintain as much space as possible in the view.

To expand a node:

- Right-click a node and select **Expand**.

  The selected node is expanded.

Removing Nodes

You can only delete input nodes when an Effects Tree is applied on a layer. Also, you cannot delete the primary input node (usually input 1).

***Tip**: You can also replace effect nodes with another. However, an effect node can only be replaced with an effect that has the same number of inputs.*

To remove a node:

- Right-click a node(s), and select **Delete**.

  The node(s) are removed from the Effects Tree. Any connections to other nodes are also deleted.

To reset an Effects Tree:

- Right-click an empty area of the view and select **Reset All**.

  All nodes and effects are removed except for the input and output nodes.

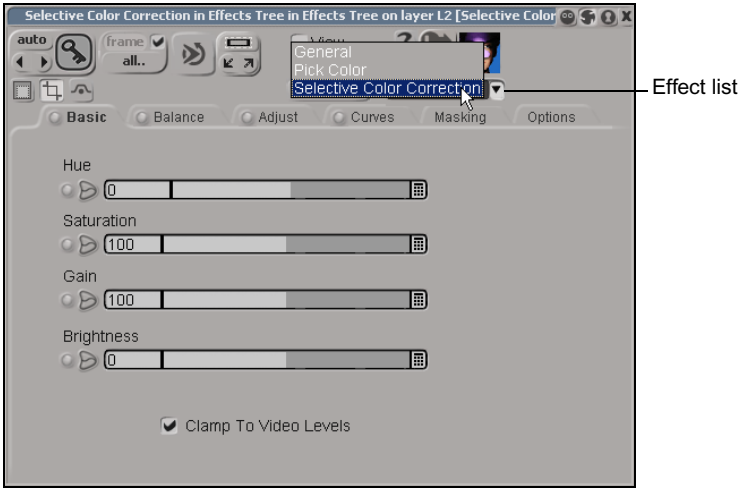
Editing an Effect Node

When you open an effect's property editor from an Effects Tree, you can edit any effect in the tree. If you have multiple effects in your Effects Tree, you can select which property editor you want to view.

To edit an effect in an Effects Tree:

- Double-click an effects node in the tree.

  The effect's property editor is displayed. You can now edit the effect using the parameters in the property editor. You can also select other effect nodes in the tree directly from this property editor's Effect list:



Effects Trees of folded nodes are not displayed in the Effects list. However, once you expand the Effects Tree view, you can see them in the tree. Double-click the expanded node to display its property editor.

To add an effect to the Effect list:

- Right-click an effect and select **Expose**.

  The effect is displayed in the Effect list. This is useful if you build a complex tree, but don't want to expose its properties in the Effect list. If you don't want to expose the properties, deselect this option.

Viewing and Bypassing Nodes

When your Effects Tree grows, it is handy to view or bypass certain nodes in the tree. For example, you may want to view the output of your tree without a certain effect. In this case, you can bypass the effect node that you don't want to see.

Another example is when you apply several effects and you want to see the result up to a certain point. In this case, you can view the node previous to that point. You can only view one node at a time.

You can also select to view nodes in separate viewers. This is handy, for example, if you want to match the colors in one clip with those of another.

To bypass a node:

1. Select the effects that you want to bypass.
2. Right-click a node and select **Bypass**.

   You can also hit B on your keyboard.

   The node's output port turns orange, and the viewer updates to display the tree without the effect that you bypassed. Bypassed nodes will not be processed.

To view a node:

1. Select the node whose output you want to view.
2. Right-click a node and select **View**.

   The output of the selected node is displayed in the viewer and the effect's output port turns green.

***Tip**: If your Effects Tree starts getting large, it's a good idea to add a cache node between some of the effects and process them. This will save you time and let you play the effects up to the cache node in real time. For more information, see "Creating Caches at Any Level" on page 887 of the Avid DS Nitris Editing Guide.*

To view an effect in a floating viewer:

- Right-click a node and select **Open Viewer**.

  The output of the node (with any applied effects) is displayed in its own viewer.

Folding Nodes

When working with large Effects Trees, it can be difficult to navigate the tree and locate your effects. "Folding" nodes into a new Effects Tree node can help organize your view.

All output connections for folded nodes can't be reconnected when:

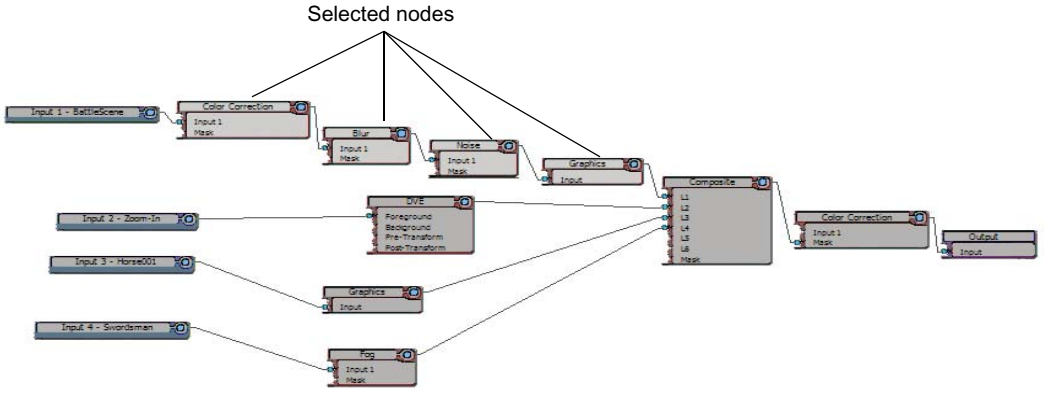
- You select effects that have their output ports connected to two different nodes and try to fold them. Since a folded node only has one output port, only one of the output ports of the effects inside the folded tree will be connected to the output.
- You select nodes that aren't in a series (for example, you have three effects and you select 1 and 3) and fold them; connection to the input node will be lost.

  In these situations, you will be prompted to undo the folding to regain all connections.

***Tip**: In your user preferences, you can make new nodes automatically fold and group when they're added to the Effects Tree, and automatically expand existing nodes when you position the pointer over them. Select **File** > **User Preferences** (Effects Tree property page).*

To fold nodes:

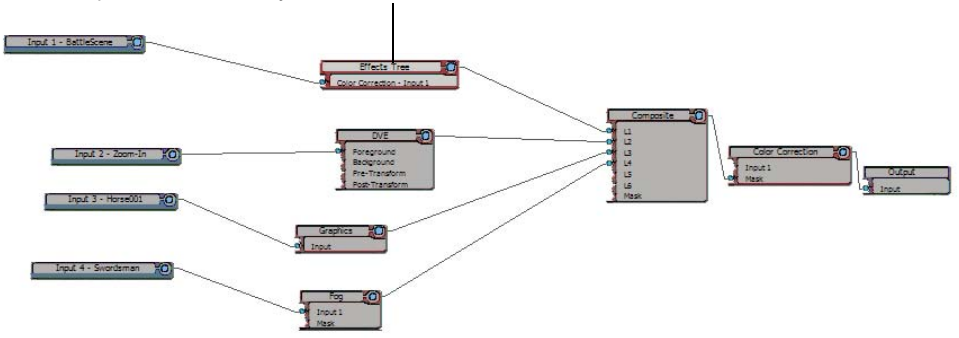
1. In an Effects Tree, select the nodes you want to fold or group.

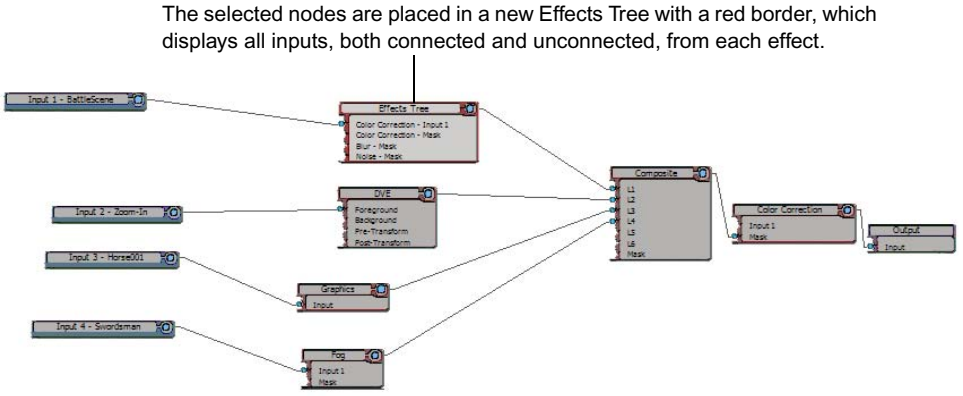


2. Right-click one of the selected nodes and select one of the following:
   - **Fold Minimal**
   - **Fold All**

Fold Minimal

The selected nodes are placed in a new Effects Tree with a red border, which only displays the inputs that are directly connected to the effect that feeds the new Effects Tree.





To unfold nodes:

- Right-click the folded Effects Tree and select one of the following:
  - **Unfold**

    The nodes are placed in the parent Effects Tree.
  - **Unfold and Repel**

    The nodes are placed in the parent Effects Tree. Any nodes that were close to the folded are repelled away from the nodes as they are unfolded.

Attracting or Repelling Nodes

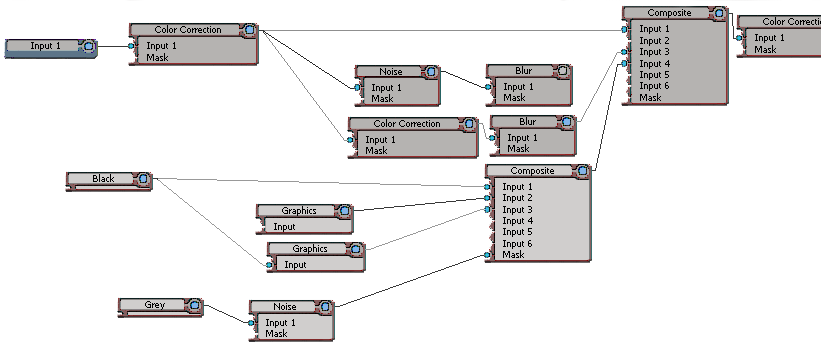
When you have many nodes in an Effects Tree, sometimes it's easier to focus on a group of nodes by pushing other nodes away from the group. You can repel or attract nodes to/from selected nodes.

Nodes are attracted or repelled by an amount that is a factor of the size of the selection. If you select a bigger node, then nodes will be repelled or attracted farther than if you select a smaller node.

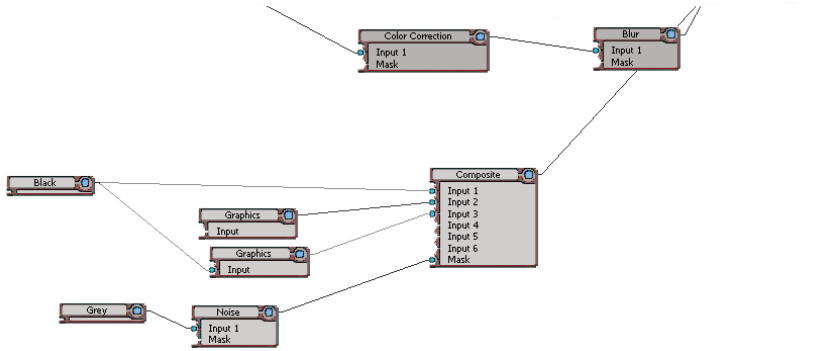
***Tip**: You can set the amount at which nodes are repelled in the User Preferences dialog box. Select **File** > **User Preferences** (Effects Tree property page).*

To repel nodes:

1. In the Effects Tree, select the nodes that you want to remain stationary.



2. On your keyboard, press the equal (=) key.



All nodes in the tree are pushed away from the selected nodes.

Keep in mind that when you select nodes, they must fall together within a square region to be repelled/attracted. For example, if you have four nodes positioned in two rows and you select two nodes diagonally, then attracting and repelling will not work.

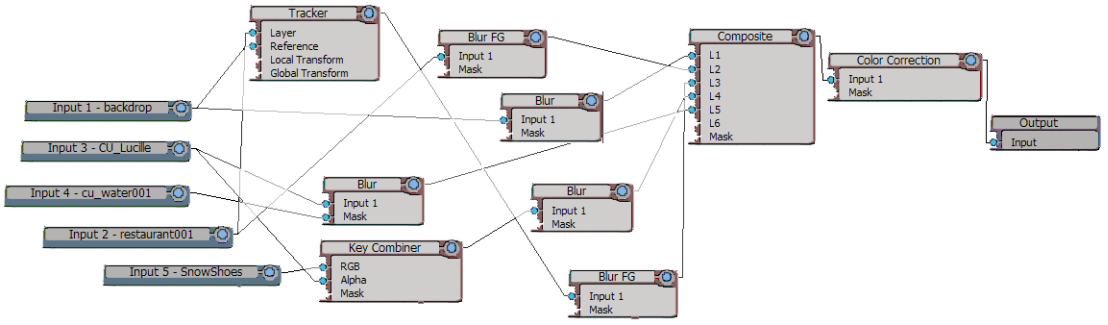
To attract nodes:

1. In the Effects Tree, select the nodes that you want to remain stationary.
2. On the keyboard, press the minus (–) key.

   All nodes in the tree are pulled closer to the selected nodes.

Organizing Nodes

When creating complex effects using the Effects Tree, you may end up with a large number of nodes all over the Effects Trees workspace. To work more efficiently and to have a clear idea of which node is connected to which, it's best to organize your Effect Tree as you work.



There are two ways of organizing nodes:

- Arranging all nodes in the Effects Tree in a more coherent or structured manner displaying all the input, effect, and output nodes.
- Sorting a selected number of nodes, or a branch of the Effects Tree, to display how they are connected.

  If you have not selected any node(s), then organizing the branch will rearrange itself around the output node. Unlike the **Organize All Nodes** option, you will notice that the nodes are not framed. Instead, the focus is on the selected nodes. To frame the Effects Tree, select the **Frame All** option.

***Tip**: To save vertical space in the Effects Tree, you can use the **Densely Organize All Nodes** or **Densely Organize Branch** options. For more information, see "Effects Tree Menu" in the Help.*

To organize nodes in the Effects Tree:

- Right-click the Effects Tree and select one of the following:

Command	Shortcut
Organize Branch	Shift +]
Organize All Nodes	Shift + [
Densely Organize Branch	[
Densely Organize All Nodes	]

Renaming Nodes

When you add several similar effects, such as color correction, it may become difficult to differentiate between each effect. Renaming the effect nodes makes it easier for you to locate them in a tree.

You cannot rename input or output nodes. However, since the second part of an input port's name in an Effects Tree is derived from a track, you can rename the track. The name will be propagated to the input node.

To rename an effect node:

1. Do one of the following:
   - Right-click the node and select **Rename Effect.**
   - Alt + click the name.
2. Enter a new name for the node.

Renaming Input Ports

You can rename an input port's name using the input's name to help you determine the node from which an input originates.

To rename node input ports, do one of the following:

- Right-click a node's input port name, and select **Rename Input**.
- Alt + click the input port name.
- Right-click a node and select **Use Input Names**.

The name of the node connected to the input port is appended to the input port's name and number. For example, if a Blue-Green keyer is connected to Input 1 of a Composite node, then the input port's name will be displayed as Input 1 - Blue Green Keyer when you select this option from the Effects Node menu.

***Tip**: You can set the **Use Input Names** option as the default in the User Preferences dialog box. Select **File** > **User Preferences** (Effects Tree property page).*

Displaying Tooltips

Tooltips are handy when you're working with a zoomed-out tree and the node or input names are difficult to see. You can display tooltips on nodes, node input names, and connectors. You can also determine how quickly tooltips are displayed when you position the pointer over these objects.

To display tooltips on nodes, connectors, and node inputs:

1. Select **File** > **User Preferences**.
2. On the Effects Tree property page, select one or more options from the Tooltip Settings box.

Zooming the Effects Tree

Zooming the Effects Tree lets you focus on one part of your tree, which may be useful in complex trees with many effects.

To zoom the Effects Tree:

- Position the pointer over a node from which you want the Effects Tree to zoom in or out and do one of the following:
  - Press Z+right-click the Effects Tree and drag right or left.
  - Press Z and drag a selection around the nodes you want to zoom in. Press Z and click in the Effects Tree to go back to the original size.
  - Press Alt+Z to zoom in on the Effects Tree or press Alt+X to zoom out.

    The Effects Tree incrementally zooms in or out each time you press the key commands.

*Tip: You can set the amount at which the incremental zoom takes place by selecting the **Steps** option in the Mouse Zoom box in the User Preferences dialog box. Select **File > User Preferences** (Effects Tree property page).*

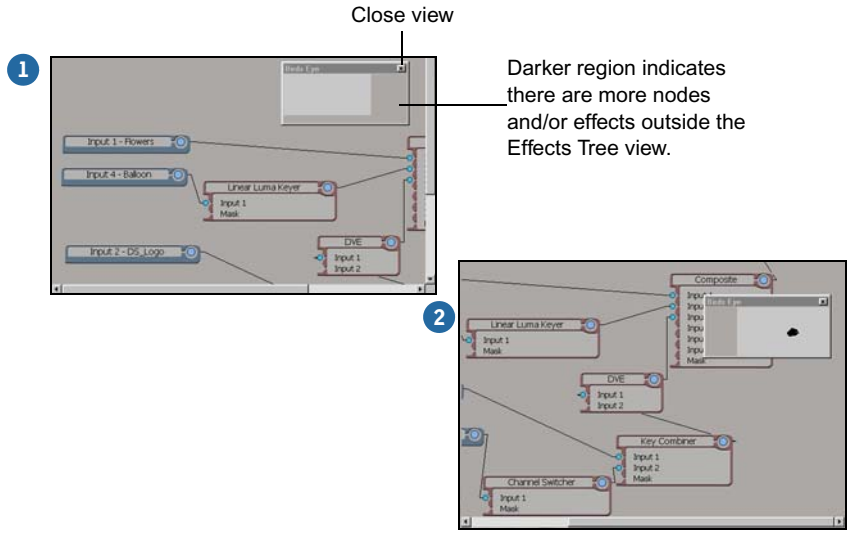
When you apply an Effects Tree to a clip or track, it can only use one input: from the clip or track. If you want to create a multi-input effect, apply an Effects Tree on a layer.

Using the Birds Eye View

The Birds Eye view lets you interactively move an Effects Tree to see nodes or effects that are outside the current view.

To use the Birds Eye View:

1. Right-click an empty area in the Effects Tree view and select **Birds Eye View**.



2. Drag your cursor over the light-colored region in the Birds Eye View to reveal more nodes and effects.

   The open hand changes to a closed hand to show that you're dragging the view. The Effects Tree moves accordingly to display more nodes and effects.

3. To close the view, click the Close button in the top-right hand corner.

Saving and Loading Trees

Once you create a complex tree, you can save it as a preset and reuse it in an existing tree or apply it as a clip or track effect. When you save a tree, all the nodes that comprise the tree including the source (input), effects, and output are saved with the tree.

You can also add an Effects Tree preset to an existing tree or replace the tree with a preset.

Saving an Effects Tree

After creating an effects tree, you can save it as a preset. If you want to apply an Effects Tree preset to a clip or track, it can only have one input.

To save an Effects Tree as a preset:

1. Do one of the following:
   - On a clip, track, or transition, double-click the Effects Tree effect bar.
   - In an Effects Tree view, right-click an empty area and select **Properties**.

   The Effects Tree property editor is displayed.
2. In the Effects Tree property editor, click the **Save Preset** button.
3. In the Save Preset dialog box, select a folder, type a name and description for your preset, and click **OK**.

   The preset is saved in the folder you selected.

*If you try to save an Effects Tree from an effect's property editor, only the current effect will be saved as a preset. Make sure you select **General** from the Effect list before you save the Effects Tree.*

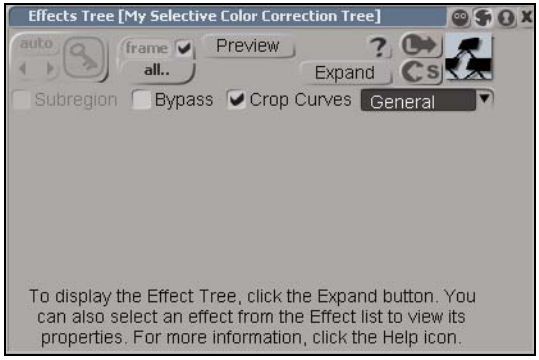
Loading an Effects Tree

Before loading an Effects Tree, you may want to view it first.

To view an Effects Tree:

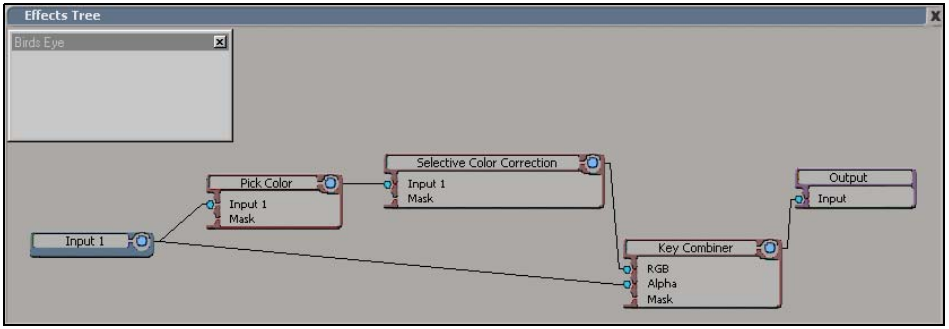
1. Double-click the Effects Tree preset node.

   The Effects Tree Preset property editor is displayed.



2. In the Effects Tree property editor, click the **Expand** button.

   The Effects Tree view is displayed in a floating window.



To load an Effects Tree:

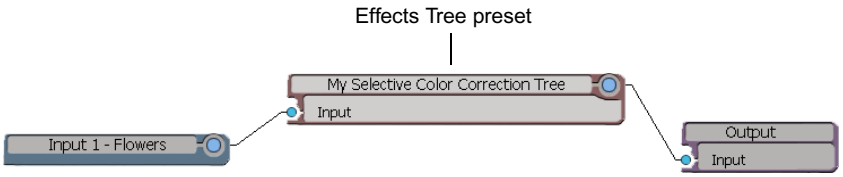
1. Right-click an empty area of an Effects Tree view and select **Add Effect**.

   The Load Preset dialog box is displayed.

2. Browse through the folders and select a preset.

   The Effects Tree preset is added to the current Effects Tree view. It looks like any other effect node.

3. Connect the preset node to the tree.


Effects Tree preset
My Selective Color Correction Tree
Input
Input 1 - Flowers
Output
Input

Using the Effects Tree to Composite

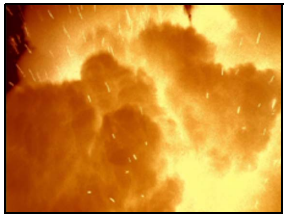
The Effects Tree can be used to composite multiple images and combine multiple effects. Some artists prefer this method because it visually maps out the nodes of the tree. This section includes examples of how the Effects Tree can be used to composite images.

Using External Mattes in the Effects Tree

An external matte is a matte taken from one clip and applied to another.

External mattes may already exist with a clip or you can create one by adding a keyer effect on the clip. You can also use the alpha or RGB component of another clip as the external matte. In the example for “Using the Shapes Tools” on page 1138, the matte created can be applied to another clip as an external matte. Sometimes, you may be provided with a matte clip that you use for compositing.

There are three methods for adding external mattes: using the Effects Tree, using the Layers view, and using matte containers. For the Layers view and matte container methods, see “Using External Mattes in the Timeline and Layers View” on page 1141.



Background clip

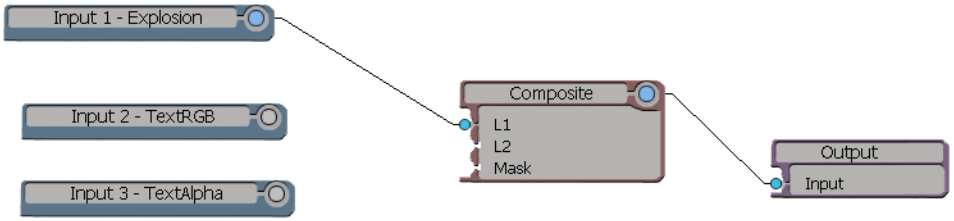
RGB clip
without a matte

External matte clip

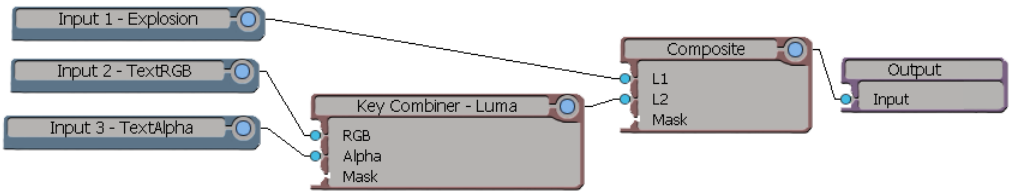
Composite result

To add an external matte to the Effects Tree:

1. In the Effects Tree, add Composite effect node and connect it to the background as shown here:



2. Drag the clip that you want to use as the foreground to the Effects Tree.
3. Drag the external matte clip to the Effects Tree.
4. Add the **Key Combiner - Luma** effect (\Tree Effects folder) to the tree and connect the nodes as shown here:



You are using the Luma channel of your external matte as a source for the alpha and combining this alpha channel with RGB channels of the clip (TextRGB)

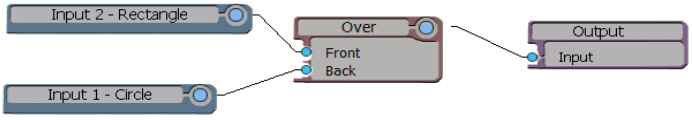
If you want to combine the alpha channel with the RGB channels of the clip using the alpha channel of the matte as the source for the alpha, use the Key Combiner - Alpha effect. You can also open the Key Combiner property editor and select the source from which to map the output image's alpha channel.

Compositing Two Layers

The Over effect is a real-time effect which lets you composite two images.

To composite two layers:

1. In the Layers view, click a layer to display its Effects Tree.
2. Right-click in the Effects Tree and select **Add Effect**.
3. From the \Tree Effects\Blending Operations folder, select **Over**.
4. Connect the input nodes to the Over node as follows:

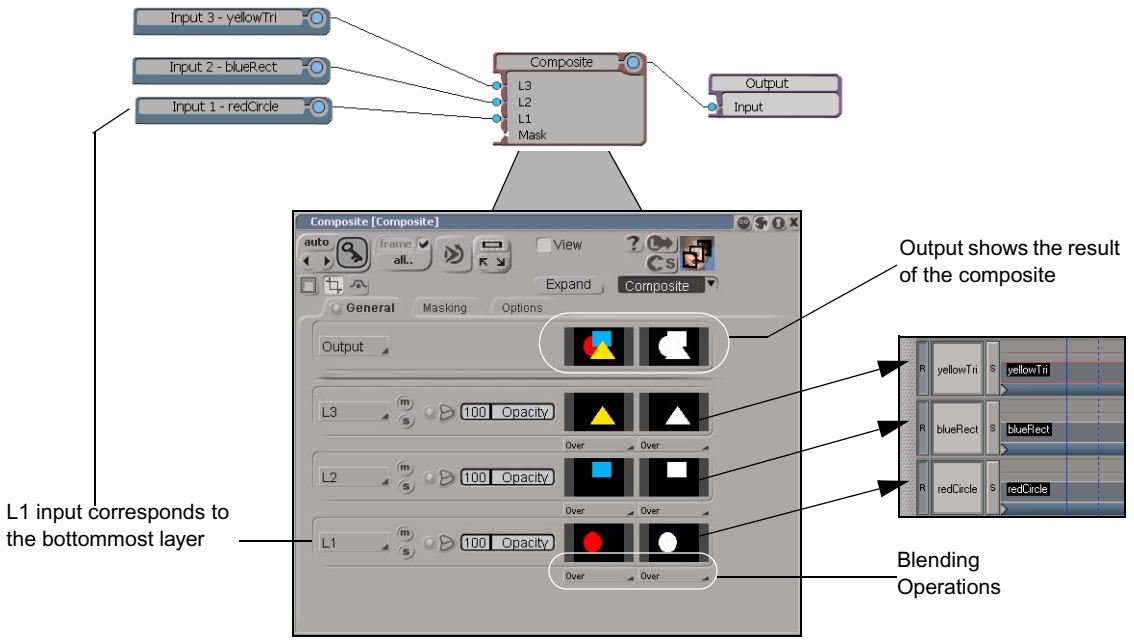


5. In the Options property page, select the appropriate options.
6. Click **OK** to begin processing.
7. A progress indicator appears on the bottom of the desktop to show the status of the process.

Compositing Multiple Images

In an Effects Tree, the Composite effect node lets you composite upto 64 images. Open the Composite node's property editor to get a visual interface of the input images, which is similar to the Layer's view.

Compositing is from bottom to top, so the order the images appear in the Composite effect property corresponds to the order of the images on the timeline of the composite container represent the output image of the Effects Tree. The result of all the nodes is fed to the output node which is displayed in the viewer.



In the composite effect node, you can mix and apply blending operations between images. You can also ensure that the result of the composite has valid RGBA colors. This is very useful when the inputs you are using are derived from a .psd file. You should select the **Clamp to Valid Color** option to maintain any blending operations that were originally performed in Photoshop.

You can also set the premultiplication state for each input. For more information on premultiplication, see “Compositing with Premultiplied Images” on page 1153.

When you use several Composite effects or use a Composite effect with a layer or other effects in the same tree, you may need to export the effect’s alpha channel in order for it to be correctly composited.

To apply the Composite effect:

1. In the Layers view, click a layer to display its Effects Tree.
2. From the \Tree Effects folder, select the **Composite** effect.

3. Connect the input nodes to the Composite node, and the output node from the Composite node to the Output node.

   If your inputs already have mattes, then you'll see the composited result in the viewer. If they don't have mattes, you can create them using any of the keyer, matte, or graphics effects. You can also add an external matte to an input using the Matte Composite effect. For more information, see "Working with Mattes" on page 1136.

***Tip**: By default, the Composite effect node opens with only two inputs. To automatically create new inputs ports in the Composite node, hold down the S key when connecting input nodes to the Composite node. To quickly add input ports to the Composite node, press down the A key and the D key to delete input ports.*

4. Double-click the **Composite** node to display the Composite property editor.
5. On the General property page, set the following properties:
   - Output premultiplication settings
   - Opacity and mix settings
   - Required inputs to the correct premultiplication setting.

     By default, all clips are set to Auto, which will maintain the clip's current premultiplication setting.
   - blending operations between inputs

If the output does not display the results you expect, the premultiplication setting of the image was probably incorrectly set when it was imported. On the General property page change the input's premultiplication setting. For more information, see "Changing the Premultiplication Setting" on page 1156.

6. On the Masking property page, specify whether or not to use a mask for the effect. By default, the effect is applied to the RGB and alpha channels. You can derive masks from the alpha of the input clip or an external matte from another clip.
7. On the Masking property page, set the Mix Parameter to blend the result of the effect with the original input or a color.
8. On the Options property page, select the appropriate options.

Click the Help button for detailed information on the Processing options.

Uncompositing Foreground from the Background

You can recover the original foreground from the background image by applying the **Uncomposite from Bgnd** effect in the Effects Tree. You can then use the clip for other compositing operations. You must have a matte in your alpha channel and the clean plate of the original background.

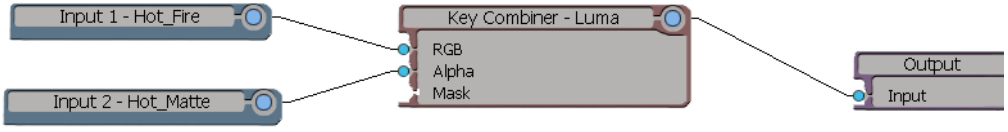
In the following example shows you how the foreground image, the text is uncomposited from the original background and then composited over a different background.

Original image

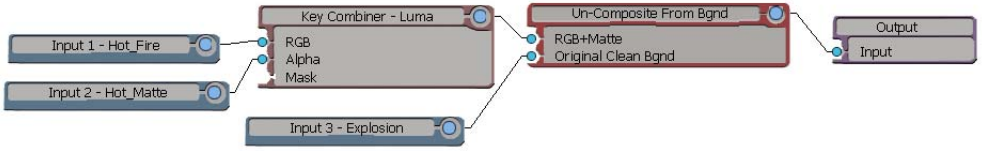
The foreground composited over a new background

To uncomposite the foreground image from the background:

1. Drag the clip that you want to use to the timeline and switch to the Compositing layout.
2. If the matte is available as an separate clip, you will need to combine it with the color channels using the Uncomposite with Bgnd effect. To do this, add the matte clip to the tree and connect using a Key Combiner - Luma effect.



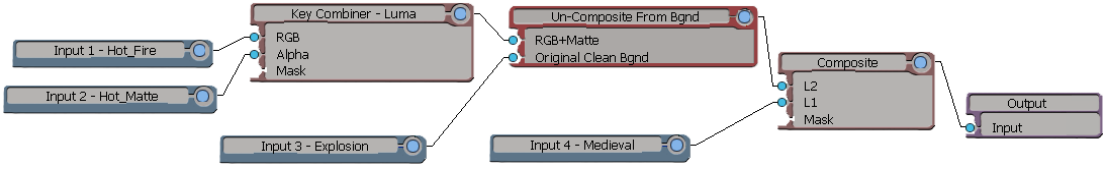
3. Add the original background to the Effects Tree.
4. Add the Uncomposite From Bgnd effect and connect as shown here:



The result is shown in the viewer.

The foreground image is now uncomposited from the gradient background

5. Add a new background image to the Effects Tree.
6. To composite the foreground image on the new background, add the Over effect in the Tree Effects\Blending Operations folder.



The result is shown in the viewer.

Combining Separate RGB and Alpha Channels

You can combine separate RGB channels of an image with an alpha channel that was created from the channels of another image. The Key Combiner (Alpha or Luma) effect is useful for this operation when you:

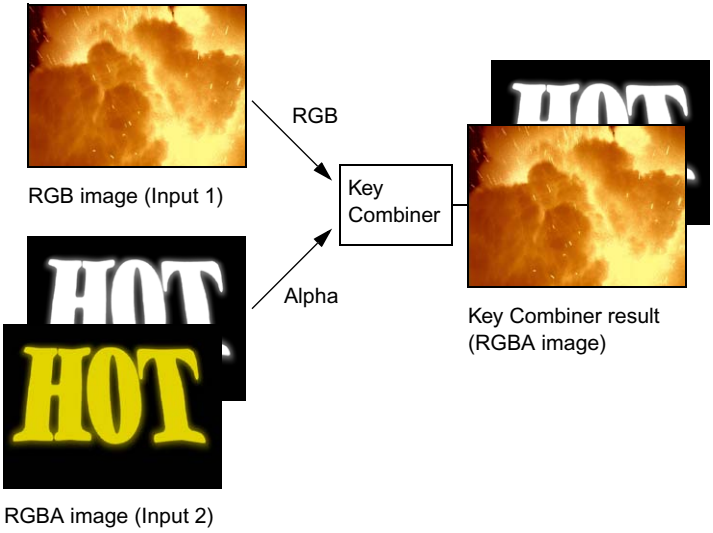
- Want to use an external matte as a clip's alpha channel, or
- Produce a logo or text in another application in which the RGB and alpha channels have been exported separately and you want to combine them in Avid DS Nitris.

When applied as a clip or track effect, only the RGB input is used. The Key Combiner effect is useful when you want to invert an image's alpha channel or fill the alpha channel so that it's opaque. Filling the alpha channel reduces processing time and disk space.

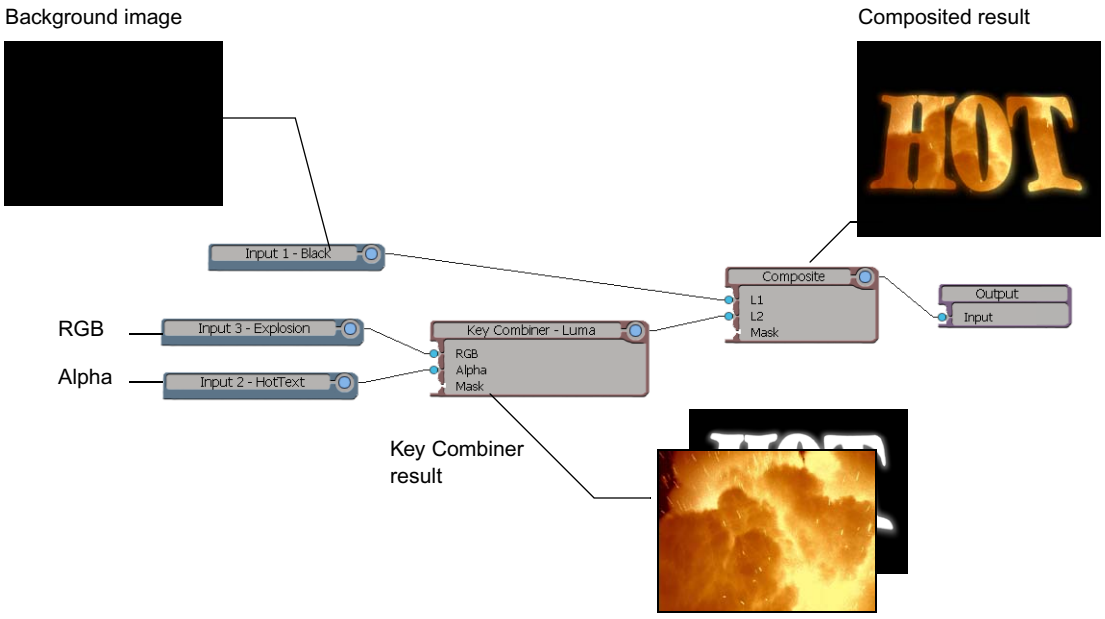
With Avid DS Nitris Editor, you can apply this effect as a tree effect, however, you will not be able to view the nodes within the Effects Tree.

To combine separate RGB and alpha channels:

1. Create an Effects Tree on a layer.
2. Add the image that you want to use as the alpha channel's source.
3. Add the image that contains the RGB channels that you want to combine with an alpha channel.



4. Add the **Key Combiner** effect to the tree and connect it as shown here:



The RGB image is combined with the alpha channel. You can apply more effects to the RGBA image or composite it over another image as shown in this example.

5. Open the **Key Combiner - Luma** property editor.

If you use the Key Combiner effect as an input to a Composite node and the output does not display the results you expect, change the input's premultiplication setting in the Composite property editor. For more information, see "Changing the Premultiplication Setting" on page 1156.

6. On the Alpha property page, map the output image's alpha channel to one of the following: alpha, luma, red, green, fill or clear.
7. On the Masking property page, select an option if you want the Key Combiner to use a mask. You can also set the Mix Parameter to blend the result of the effect with the original input or a color.
8. In the Options property page, select the appropriate options.
9. Click **OK** to begin processing.
10. A progress indicator appears on the bottom of the desktop to show the status of the process.

Unpremultiplying with Color in the Effects Tree

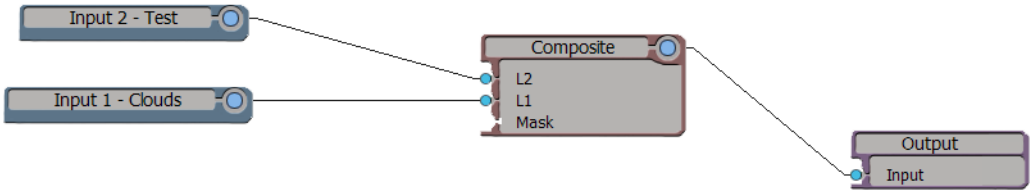
Often you will use clips that have been created in other applications such as Adobe Photoshop or Adobe After Effects. If the captured clip consists of a foreground image (and its matte in the alpha channel), which has been composited and premultiplied with a color background, you can apply the Unpremultiply with Color effect.

It recovers the original foreground image colors, especially in the semi-transparent and motion blur regions, keys out the background color and premultiplies it with a black background color, so you can use the clip for other compositing operations.

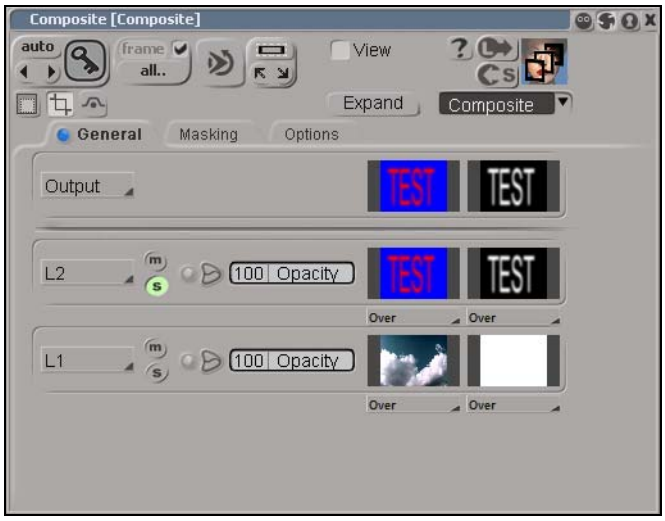
For more information on premultiplication, see "Compositing with Premultiplied Images" on page 1153.

To unpremultiply with color in the Effects Tree:

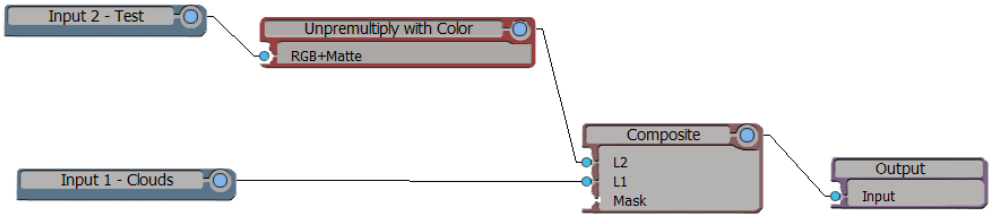
1. Drag the background clip to the timeline and switch to the Compositing layout.
2. Add the foreground clip to the Effects Tree. If you are using an external matte, add the matte clip and connect both clips to a Key Combiner effect node.
3. Add a Composite effect node and connect as shown here:



   The composited result is displayed in the viewer. You'll notice that dark areas appear around the edges of the text containing the colors from the original background. When you view the matte, you will notice the softness around its edges.
4. Double-click the Composite node to open its property editor.
5. Select the foreground image and click its **Solo** button. This will enable you to work with the Unpremultiply with Color effect on the foreground image displayed in the viewer.



6. Add the Unpremultiply with Color effect between the foreground image and the Composite effect node.



7. Double-click the **Unpremultiply with Color** effect.

   The Unpremultiply with Color property editor is displayed.

8. From the Effects List, select **Original Color**.

The Original Color property editor is displayed.

9. Click **Color Picker**.

   The cursor changes to the eyedropper cursor.

10. In the viewer, select the color that you want to remove and replace with black.

11. In the Composite property editor, click the **Solo** button of the foreground image off to see the result.

Compositing Multiple Mattes

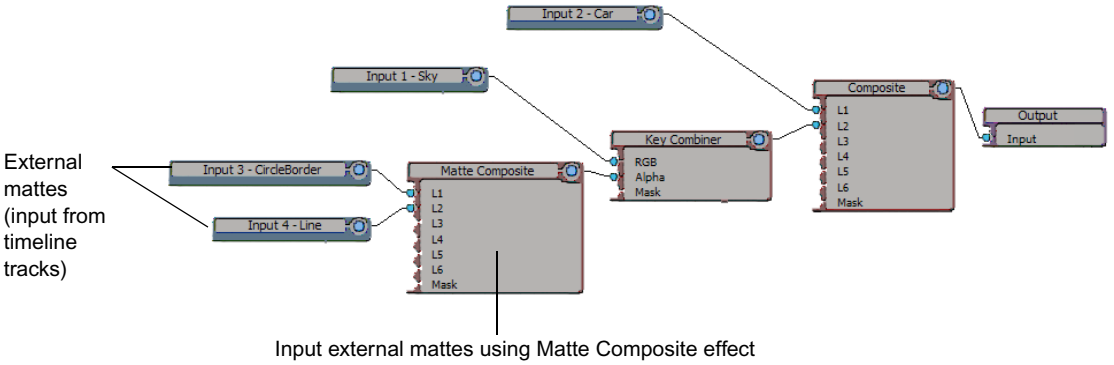
The Matte Composite effect lets you composite multiple mattes together. These mattes are combined in the order in which they appear using various matte compositing operations.

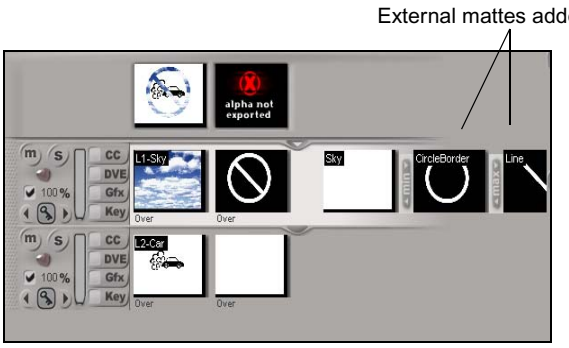
You can use the R, G, B or alpha channel from an image or effect as the inputs to the Matte Composite effect. In the example below, two RGB images are composited together using the Matte Composite effect. The alpha output of this effect is then combined with the RGB channels of the sky using the Key Combiner effect, and then composited over the car image.

You can also choose to use a separate matte as a mask for the composited mattes. The Matte Composite effect behaves in the same manner as when you apply an external matte to a layer. For more information, see "Using External Mattes in the Timeline and Layers View" on page 1141.

With Avid DS Nitris Editor, you can apply this effect as a tree effect, however, you will not be able to view the nodes within the Effects Tree.

The following example shows you how external mattes are added to an Effects Tree.





To composite multiple mattes:

1. Apply the **Matte Composite** effect to an Effects Tree.

   The effect's node is added to the tree.

2. Add the images that you want to use as mattes to the Effects Tree.

   Each image is displayed as an input node in the tree.

3. Connect each input to the Matte Composite node.

4. On the General property page, select the channel that you want to use in the composite, as well as the matte compositing operation you want to apply between each input. The default operation is Min. You can also use an invert of the RGB or alpha channels.

5. On the Masking property page, select one of the following from the Mask box:

   - **None** to not use any external matte.

- **Alpha** to use the alpha channel from the background (input 1). The composited mattes are applied using the alpha channel from the background as a mask.
- **Mask Input** to use the matte from an external source when you connect it to the Mask Input of an effect in the Effects Tree. The composited mattes are applied using the matte from another image or effect.

You can also use the alpha, the luminance of the RGB, the separate red, green, or blue channels, or an invert of any of these as the input for the external matte.

6. On the Options property page, select the appropriate options.
7. Connect the output of the Matte Composite effect to the input of another image or effect.

Click the Help button for detailed information on the Processing options.

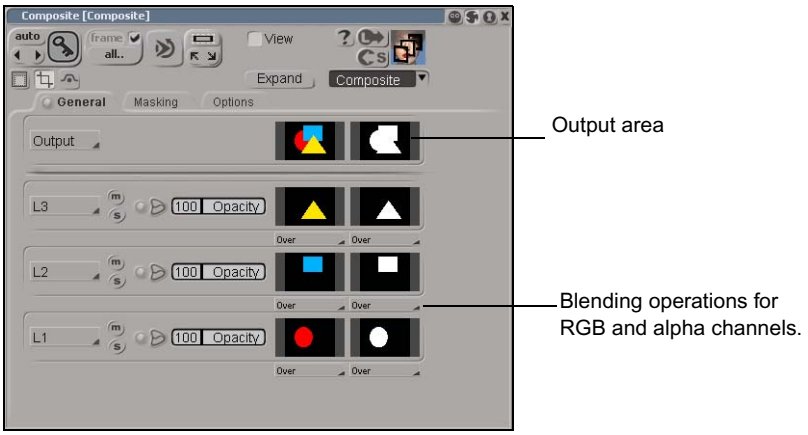
Applying Blending Operations in the Effects Tree

The Composite effect node lets you apply blending operations between input images.

By default, the blending operations are set to **Over** and the result is displayed in the Output area. You can apply the operations independently on the RGB and alpha components of each input.

Most operations that you select for the RGB channels are automatically applied to the alpha channel. You can, however, change the alpha operation separately. These operations are the same as those found on each layer.

For more information, see “Interlayer Alpha Menu and Interlayer RGB Menu” in the Help.



To apply blending operations in the Effects Tree do one of the following:

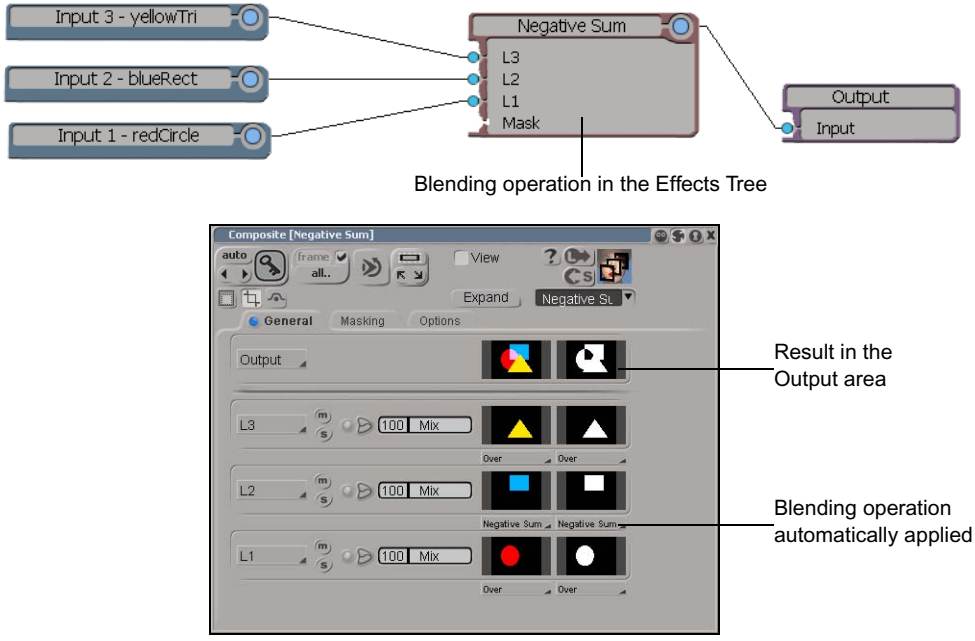
- Right-click the RGB or alpha operator between the two layers on which you want to apply the operation, and select an operator from the menu.

  The results of the composite is displayed in the Output area.

- From the \Tree Effects\Blending Operations folder, drag a blending operation preset to the Effects Tree.

  The blending operation is automatically applied between the layer, and the result is displayed in the Output area.

*You can use the alpha or luma in the foreground image to mask the blending operation against the background. Select **Use Alpha as Mask** or **Use Luma as Mask** from the Interlayer RGB menu.*



Mapping Luminance Variations between Clips

The flicker effect lets you map the variations in the luminance of one clip to another clip. This effect is useful if, for example, you have a background clip with flickering fire and you want to composite another clip (a man) on top that doesn't have the flickering. You can map the luminance variations from the fire to the man.

With Avid DS Nitris Editor, you can apply this effect as a tree effect, however, you will not be able to view the nodes within the Effects Tree.

Original

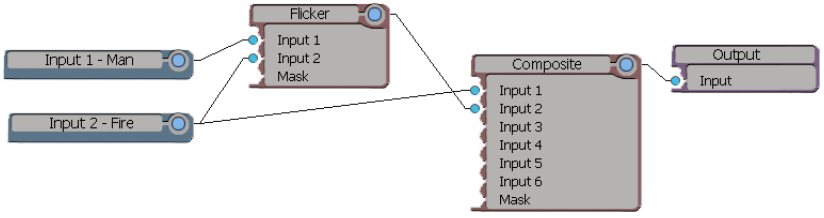
Luminance in face changes to match luminance in fire

To use the Flicker effect:

1. Place the clip you want to use as a reference on the timeline. This is the clip (fire) whose luminance values you want to map to another clip.
2. Create a composite container clip.

   The Compositing layout is displayed.
3. Click the layer to display the Effects Tree.
4. From the Avid Explorer, drag the clip (man) to which you want to apply the luminance values to the Effects Tree.

   The clip is added as an input node in the Effects Tree.
5. Add the **Flicker** and **Composite** effects to the Effects Tree.
6. Connect the nodes as follows:



7. Double-click the **Flicker** node.

   The Flicker property editor is displayed and a small selection rectangle (the luminance box) is displayed in the viewer. Since you want to map the luminance values of the background clip to the man clip, only the background clip is displayed. To view the man clip separately, deselect the **Output Reference** option.

8. On the Black property page, position the luminance box over an area containing the level of black to which you want to choose as a reference.

***Tip**: You can also draw a new luminance box in the viewer by clicking in the viewer and dragging over an area.*

9. Click **Set as Reference Frame**.

   The black luminance is set and the property editor displays the reference luminance swatch, as well as the timecode for the chosen frame.

10. Verify each frame in the clip to determine if the luminance box is in the correct position. If the area you set for the reference frame moves from frame to frame, you need to move the luminance box in each frame so that it covers the same area.
11. Set a keyframe on the frames on which you reposition the luminance box.
12. Repeat steps 8 to 11 for the White property page, if required.
13. On the Masking property page, select the channels on which you want to apply the effect. The effect is applied only to areas of the image where the alpha channel is not black. You can derive masks from the alpha of the input clip or an external matte from another clip.
14. On the Options property page, select the appropriate options.

Chapter 3
Keying

Keying lets you combine a foreground image over a background image using a matte. This chapter describes how to use Avid DS Nitris keyers.

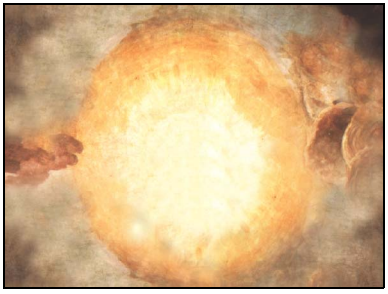
About Keying

Applying the keyer as a clip or track effect on a video track lets you composite clip over another clip on a background track underneath it. Applying the keyer to layers or trees lets you create a more complex composite, such as multiple keys on multiple layers. When keying, you can use a matte that is already combined with the foreground image, or create your own using any of the Avid DS Nitris keyers. You can create a key based on HSL, YCbCr, or RGB color values or on luminance values.

Using the Blue-Green Keyer

The Blue-Green Keyer effect lets you create a matte based on a blue or green background color. Once the matte is created, you can composite the clip over another one. If you want to key out a background color other than blue or green, use the HSL or Chroma keyer.

The following example shows you how a matte is created for a woman who is filmed against a green screen and composited over a medieval glowing background.



Creating a Basic Matte

Once you apply the keyer, you can create a basic matte and then fine-tune it using the Blue-Green Keyer property editor.

To create a basic matte:

1. Apply the **Blue-Green Keyer** effect to a clip, track, or layer, or in an Effects Tree.

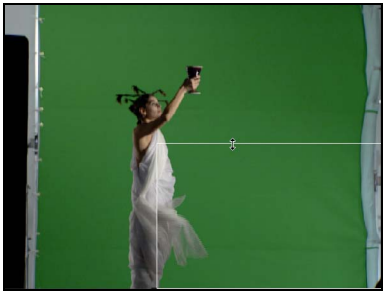
   The Blue-Green Keyer property editor is displayed.

2. On the Key property page, select the **Keep Original Alpha** option if your image has an existing matte that you want to keep.

3. Right-click the viewer and select **Comparison Buffer > Use Comparison Buffer** or press Alt+1 (one). Using the comparison buffer, you can view a snapshot of the image as it is currently and then compare the results to the key as it progresses—see "Using the Comparison Buffer" on page 914 of the *Avid DS Nitris Editing Guide*.

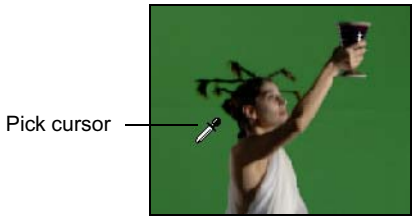
4. Right-click the viewer and select **Comparison Buffer > Grab** or press Alt+2.
5. Resize the comparison buffer, so you can view the edge of the lady's dress.

   The image is saved. This lets you view the current image with an image later in the key process.



6. Press Alt+1 to turn off the comparison buffer for now.
7. Click **Pick Key Color**.

   The cursor changes to the eyedropper cursor when you move it over the viewer.



8. In the viewer, click the color that you want to key out.

   A matte based on the selected color is created. This color is displayed in the color swatch beside the Pick Key Color button.
9. Click the **Output Matte** button to see the initial matte created by the keyer.

10. On the Options property page, select the appropriate options.

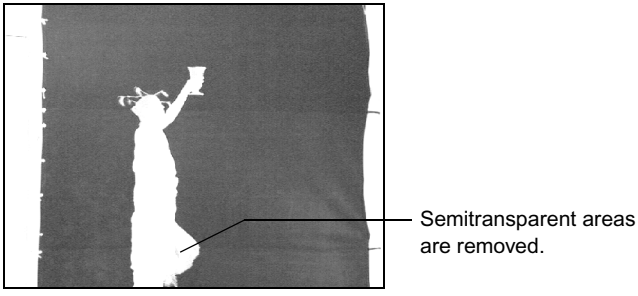
Click the Help button for detailed information on the Processing options.

Fine-tuning the Matte

The Blue-Green Keyer property editor contains several property pages from which you can fine-tune your matte, crop the image, create a garbage matte, track the garbage matte, create a spill matte, and apply spill correction.

To fine-tune the matte:

1. In the Blue-Green Keyer property editor, select the **Key** tab.
2. Adjust the **Cleanup** controls to increase or decrease the threshold between the foreground and background. Higher values remove more foreground.
3. Adjust the **Foreground Presence** controls. Higher values remove semitransparency from the foreground image.



4. On the Matte property page, select the **Output Matte** option to display the matte in the viewer.

Since all the changes you make are applied to the matte and not the RGB channels, you should display the matte while you work.

5. Adjust the opaque and transparent areas of the matte by doing the following:

   - Click the **Pick BG** button and then click the background areas of the matte in the viewer.

     Semitransparent areas of the background become transparent. You can continue clicking the viewer to force more areas to become transparent.

   - Click the **Pick FG** button and then click the foreground areas of the matte in the viewer.

     Semitransparent areas of the foreground become opaque. You can continue clicking in the viewer to force more areas to become opaque. Many times it is necessary to switch between picking the foreground and background, so some areas that should be transparent don't become opaque and opaque areas don't become transparent.

***Tip**: Use the sliders to adjust semitransparent areas making them transparent or opaque.*

6. Deselect the **Output Matte** option to view the progression of the key.
7. Press Alt+1 to turn on the comparison buffer.

   Now you can see the edges and compare them to the original image. As you can see, there's some softness around the edges that need to be removed.

8. In the Size box, click the **Apply** button.
9. Shrink the size of the matte until there is no more green around the edge of the lady's dress.

10. Turn off the comparison buffer.
11. On the Shapes property page, select the **Output Matte** option.
12. Use the graphics tools on this property page to create a garbage matte.

    You can also apply a blur to the shape, or fill the inside or outside of the shape. In this example, two rectangles were drawn with Fill Inside set to 0. These rectangles cover the garbage on both sides of the lady. You can also animate the shapes on this property page if the garbage matte obscures your image at any point.
13. If the image moves or scales, you may need to animate the shapes in the garbage matte. You can do this by tracking the shapes to the object or other objects—see "Using the Shape Tracker" on page 1363.

Creating a Spill Matte

The spill matte is derived from a selected key color. Any areas of the foreground image that contain black or gray are replaced by the spill replace color. For example, if an area has black, then 100% spill replace color is applied. If an area has 50% gray, then 50% spill replace color is applied.

To create a spill matte:

1. In the Blue-Green Keyer property editor, select the **Spill Matte 1** tab.
2. Make sure the **Apply** option is selected (by default it is selected) to apply the spill matte to the image.
3. Select the **Output Spill Matte** option to view the spill matte.

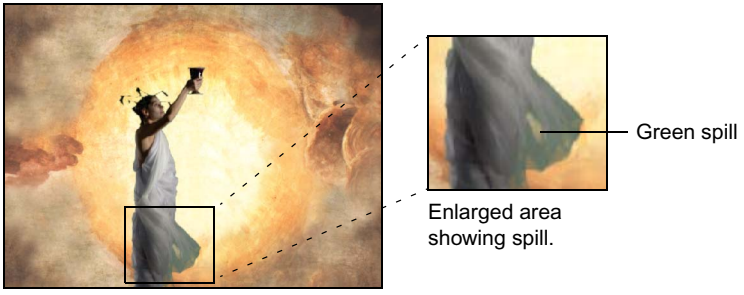
*Make sure that the **Output Matte** option is deselected on the Matte property page or you won't see the spill matte.*

4. Use the **Softness** and **Threshold** controls to adjust the spill matte.

The Softness slider adjusts the range between transparent and opaque areas of the spill matte. The Threshold slider adjusts the spill correction area.

5. On the Spill Matte 2 property page, use the controls to further adjust the matte.
6. On the Spill Replace property page, use the controls to adjust the amount and hue of spill color in an image's RGB channels.
7. Deselect the **Output Spill Matte** option to see how the image is composited and to view the spill.

   In this example, there is green spill around the edges of the woman, as well as in her dress.



8. To select a hue to replace the spill hue, do one of the following:
   - Click the **Pick Hue** button and click a color in the viewer.
   - Drag the color selector in the color wheel to the hue and saturation that will replace the current spill hue and saturation.
9. Fine-tune the replacement color using the **Hue** and **Saturation** controls.
10. Use the **Luma Gain** controls to multiply the original luminance by the value you select. A value of 100 represents the original luminance.
11. Use the **Luma Brightness** controls to add to the original luminance by the value you select. A value of 0 represents the original luminance.

Spill Subtraction

After keying out a color background with any Keyer effect, a colored fringe may remain around the foreground image. To quickly remove this “leftover”, you can apply the Spill Subtract effect. It lets you “subtract” the contribution of the background color from the spill areas to recover the original foreground color once an initial key matte has been extracted.

Note the following:

- You can only use the Spill Subtract effect directly after applying a Keyer effect and if there are unwanted artifacts around the foreground image.
- The clip on which you are applying the Spill Subtract effect must have a matte; an internal or external matte.
- You cannot use the Spill Subtract effect if Spill Correction or Spill Replacement stages have already been applied. If any of the color channels of the foreground image have been manipulated with other techniques, you will not achieve the best results.
- If you are working with a Blue-Green Keyer or Chroma Keyer effect, make sure that the **Apply** option in the Spill Replace property page and the **Force Premultiplied** option in the Matte property page are not selected.

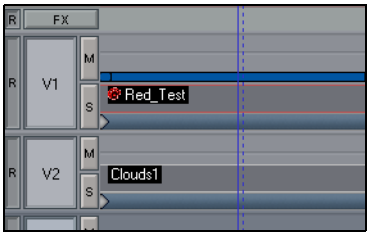
The following example shows you how the Spill Subtract effect is applied on the timeline and Effects Tree to remove the green area left behind after a Blue-Green Keyer is applied to the foreground image.

Applying a Spill Subtract on the Timeline

You can apply the Spill Subtract as a clip, track, or timeline effect.

To apply the Spill Subtract effect on the timeline:

1. On the timeline, select the foreground clip on which a Keyer effect has been applied.



2. From the toolbar, select **Video Effects > Spill Subtract**.

   The Spill Subtract effect is applied on top of the Keyer effect and its property editor is displayed.

3. Click the track's **Solo** button to only view the foreground image.
4. From the Effect's List, select Original Color.

   The Original Color property editor is displayed.

5. Click Color Picker.

   The cursor changes to the eyedropper cursor.

6. In the viewer, select the color that you want to subtract. This color is the original background color you picked to generate the initial key matte.

7. Click the track's **Solo** button off to see the result in the viewer.

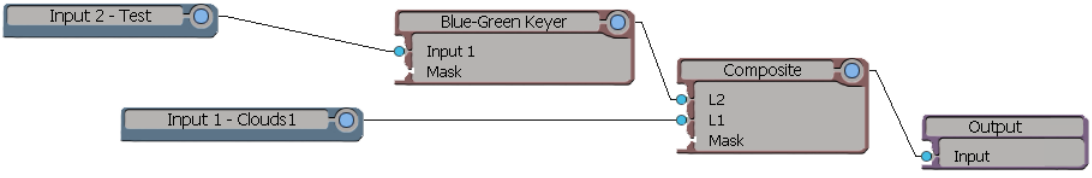
Applying a Spill Subtract in the Effects Tree

You can apply the Spill Subtract effect as an effect node in the Effects Tree.

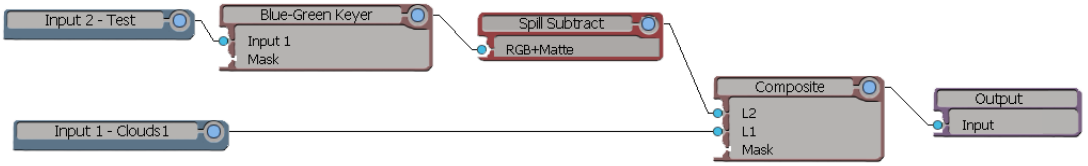
To apply a Spill Subtract effect in the Effects Tree:

1. On the timeline, select the clip to be used as the background image.
2. From the taskbar, click the **Compositing** button.

   A composite container clip is created from the clip, which is placed in the Layers view.
3. From the Avid Explorer, select the foreground clip and drag it to the Effects Tree.
4. From the \Tree Effects folder, add the Composite effect and composite the foreground over the background image.
5. Apply the Blue-Green Keyer effect to key out the background color.



6. From the \Image Effects folder, add the Spill Subtract effect and connect after the Blue-Green Keyer effect as shown here:



7. Double-click the Spill Subtract effect to open its property editor.
8. Do one of the following:
   - Click the track's **Solo** button in the timeline to only view the foreground image
   - Open the Composite property editor, select the foreground image, and click its **Solo** button.
9. From the Effect's List, select **Original Color**.

   The Original Color property editor is displayed.
10. Click **Color Picker**.

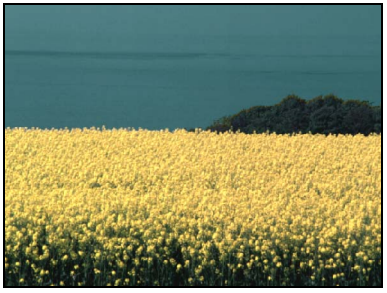
    The cursor changes to the eyedropper cursor.
11. In the viewer, select the color that you want to subtract.
12. Deselect the **Solo** button to see the result in the viewer.

Using the Chroma Keyer

The Chroma Keyer effect lets you create a matte based on color. If you want to create a matte based on a blue or green background color, use the Blue-Green Keyer effect.

In the following example, the Chroma Keyer effect was used to create a matte, which in turn was used to change the color of the sky from bright blue to aqua using the Color Correction effect.

Before



After

Creating a Basic Matte

Once you apply the keyer, you can create a basic matte and then fine-tune it using the Chroma Keyer property editor.

To create a basic matte:

1. Apply the Chroma Keyer effect to a clip, track, layer, or tree.

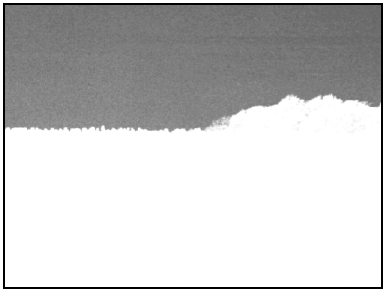
   The Chroma Keyer property editor is displayed.

2. On the Key property page, select the **Keep Original Alpha** option if your image has an existing matte that you want to keep.
3. Click the **Pick Key Color** button.
4. In the viewer, click the color that you want to key out.

   A matte based on the selected color is created. This color is displayed in the color swatch beside the Pick Key Color button.

5. Click the **Output Matte** button to see the matte.

Since all changes you make are applied to the matte and not the RGB channels, you should display the matte while you work.



6. On the Masking property page, specify whether you're using a mask for the effect or not. By default, the effect is applied to the RGB and alpha channels. You can derive masks from the alpha of the input clip or an external matte from another clip.
7. On the Options property page, select the appropriate options.

Click the Help button for detailed information on the Processing options.

Fine-tuning the Matte

The Chroma Keyer property editor contains several property pages from which you can fine-tune your matte, crop the image, create a garbage matte, track the garbage matte, create a spill matte, and apply spill correction.

To fine-tune the matte:

1. In the Chroma Keyer property editor, select the **Key** tab.
2. From the Tune box, adjust the **Chroma Tolerance** controls. Lower values add more foreground; higher values remove more foreground.
3. Adjust the **Gain** and **Lift** controls. Gain lets you add more opacity to the matte, and Lift adds more transparency to the matte.
4. On the Matte property page adjust the opaque and transparent areas of the matte by doing one of the following:
   - Click **Pick BG** or **Pick FG**, and then click background and foreground areas of the matte in the viewer.

- Use the controls to adjust semitransparent areas, making them transparent or opaque.

5. Use the **Size** controls to increase or decrease the size of the matte.
6. Use the **Blur** controls to adjust the softness of the blur and the degree to which it is applied to your matte.

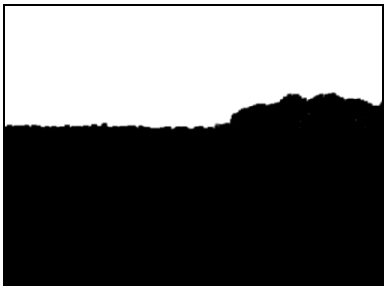
***Tip**: If you want to force the outgoing image to be premultiplied, select the **Force Premultiplied** option. This option is useful when you need to touch up an existing premultiplied image's alpha channel and keep the image premultiplied, or when you want to see the results of the keyer effect without first compositing it.*

7. On the Crop property page, use the controls to crop the image from the top, bottom, left, or right edges. The crop is applied to the R, G, B, and alpha components.
8. On the Shapes property page, use the graphics tools to create a garbage matte. You can also apply a blur to the shape, or fill the inside or outside of the shape.

***Tip**: If the image moves or scales, you may need to animate the shapes in the garbage matte. You can do this by tracking the shapes to the object or other objects. For more information, see "Using the Shape Tracker" on page 1363.*

9. On the Matte property page, select the **Invert Matte** option.

   Since the sky requires color correcting, you need to invert the matte.



Creating a Spill Matte

The spill matte is derived from a selected key color. Any areas of the foreground image that contain black or gray are replaced by the spill replace color. For example, if an area has black, then 100% spill replace color is applied. If an area has 50% gray, then 50% spill replace color is applied.

To create a spill matte:

1. In the Chroma Keyer property editor, select the **Matte** tab.
2. Deselect the **Output Matte** option.

   To see the spill matte, you must turn off the matte.
3. On the Spill Matte 1 property page, select the **Apply** option (by default it is selected) to apply the spill matte to the image.
4. Select the **Output Spill Matte** option to view the spill matte.

   The spill matte is derived from the selected key color. Any areas of the foreground image that contain black or gray will be replaced by the spill replace color. For example, if an area has black, then 100% spill replace color is applied. If an area has 50% gray, then 50% spill replace color is applied.
5. From the Tune box, adjust the **Chroma Tolerance** controls. Lower values add more foreground; higher values remove more foreground.
6. Adjust the **Gain** and **Lift** controls. Gain lets you add more opacity to the matte, while Lift adds more transparency to the matte.
7. On the Spill Matte 2 property page, adjust the following controls to fine-tune the spill matte:
   - **Map** to apply post-process mapping to the spill matte, so that the semitransparent areas fully opaque or fully transparent.

- **Size** to increase or decrease the size of the matte.
- **Blur** to apply a post-process blur to the spill matte.

8. Deselect the **Output Spill Matte** option.

   Since the next steps are to adjust the amount and hue of spill color, you need to view the RGB channels.

9. On the Spill Replace property page, use the controls to adjust the amount and hue of spill color in an image's RGB channels. To select a hue to replace the spill hue, do one of the following:

   - Click the **Pick Hue** button and select a color from the viewer.
   - Drag the color selector in the color wheel to the hue and saturation that will replace the current spill hue and saturation.

10. Fine-tune the replacement color using the **Hue** and **Saturation** controls.
11. Adjust the **Luma Gain** controls to multiply the original luminance by the value you select. A value of 100 represents the original luminance.
12. Adjust the **Luma Brightness** controls to add to the original luminance by the value you select. A value of 0 represents the original luminance.

To color correct the sky:

1. Deselect the **Output Spill Matte** option, so you can view the changes you make to the RGB channels.
2. Apply a color correction effect on top of the Chroma Keyer effect.

   The Color Correction property editor is displayed.

3. On the Masking property page, do the following:

   - In the Mask box, click the **Alpha** button.
   - In the Process box, make sure that the **R**, **G**, and **B** options are selected.

   The effect is applied only to areas of the image where the alpha channel is not black. If the matte is not adjusted properly, you can go back to the Chroma Keyer effect and adjust it further.

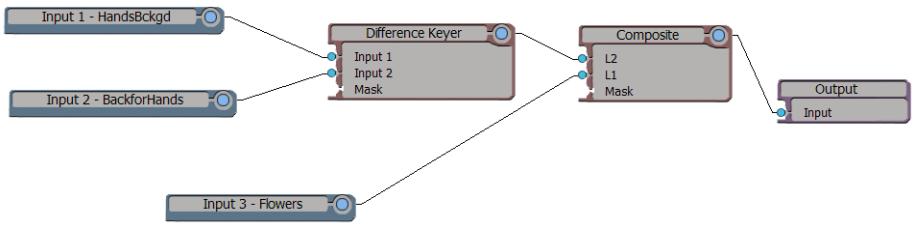
4. On the Basic property page, adjust the **Hue** to select a new color for the sky.

Using the Difference Keyer Effect

The Difference Keyer effect lets you create a matte based on the difference between the foreground and reference clips. The foreground clip contains an image that you want to isolate, while the reference clip contains a background similar to the foreground clip. When you apply the Difference Keyer effect, only the isolated image in the clip is retained.

When you apply the Difference Keyer as a layer effect, you must first set up the composite by placing the clips on tracks and layers. Once you set up the composite, you can apply the Difference Keyer effect to the foreground clip and then create a basic matte. You can fine-tune the matte using the Difference Keyer property editor.

In an Effects Tree, you connect the foreground and reference clips to the Difference Keyer node, and then use a Composite node to composite the output of the Difference Keyer node with the background clip.



The property editor has the same property pages as when you apply the Difference Keyer to a layer, but without the Reference property page. This is because the Difference Keyer node has two inputs, so the Reference property page isn't required. It contains several pages from which you can fine-tune your matte. You can, for example, fine-tune the key by adjusting the Spill Correction and Pre-blur values. You can also apply a post-process blur and adjust the matte's function curve values.

In the following examples, the Difference Keyer effect is used to create a matte for the hands, so that they can be composited over the flowers background.

Applying the Difference Keyer on Layers

In this example, the Difference Keyer was used to create a matte for the hands by applying the effect on a layer.

To apply the Difference Keyer effect on layers:

1. On the timeline, select the clip to used as the background image.

2. From the taskbar, click the **Compositing** button.

   A composite container clip is created from the clip, which is placed in the Layers view.

3. Drag the clip to be used as your foreground clip from the Avid Explorer to an empty area of the Layers view.

   A track on the timeline and a layer in the Layers view is created for the clip.

4. From the Avid Explorer, right-drag the clip to be used as your reference clip to the timeline ribbon.

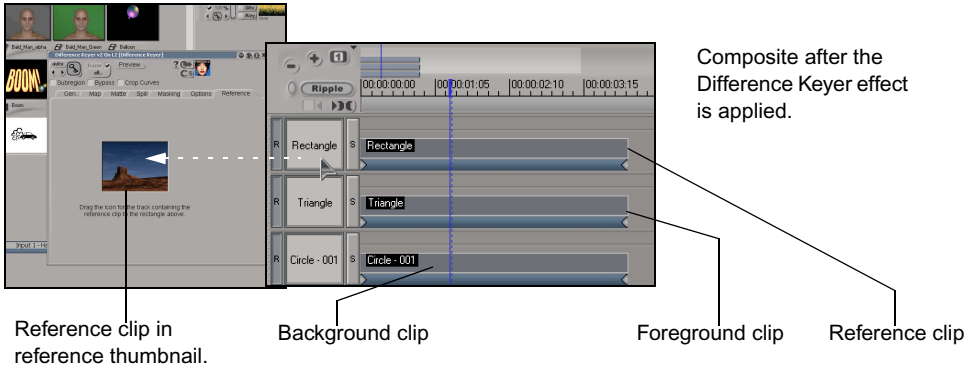
   The clip on the timeline is placed above the foreground clip without adding it as a layer.

5. In the Layers view, select the foreground layer and click **Key**.

   The Blue-Green Keyer property editor is displayed by default.

6. Click the **Load Preset** button.
7. From the Load Preset dialog box, select the **Difference Keyer** from the \Keyer folder.
8. Select the **Reference** property page.
9. From the timeline, drag the track that contains the reference clip to the reference thumbnail.

   The reference clip is displayed in the reference thumbnail. The Difference keyer computes the difference between the reference clip and the selected layer, and creates a matte on the layer.



10. Fine tune the matte further to create the results you want—see "Fine-tuning the Matte" on page 1240.

Applying the Difference Keyer to an Effects Tree

In this example, the Difference Keyer was used to create a matte for the hands by applying the effect to an Effects Tree.

To apply the Difference Keyer effect to an Effects Tree:

1. On the timeline, select the clip to used as the background image.

2. From the taskbar, click the **Compositing** button.

   A composite container clip is created from the clip, which is placed in the Layers view.

3. Click the layer to make sure it's active.

   The Effects Tree for the layer also becomes active.

4. In the Avid Explorer, press Ctrl and click the clips to be used as your foreground and reference clips, and drag them to an empty area of the Effects Tree view.

   Tracks on the timeline and nodes in the Effects Tree view are created for the clips.

Foreground clip

Reference clip

5. Right-click an empty area of the Effects Tree view and select **Add Effect**.

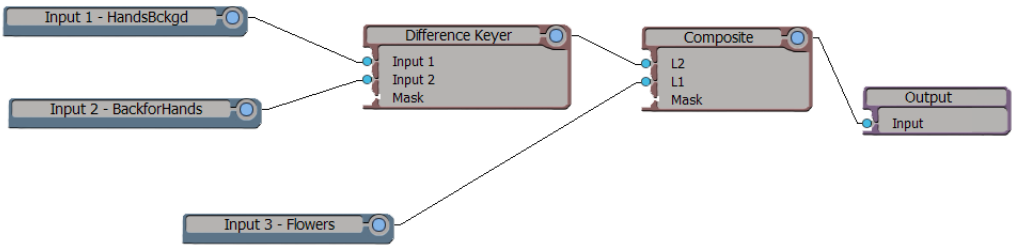
   The Load Preset dialog box is displayed.

6. From the \Keyer Effects folder, select the **Difference Keyer** effect.

   The effect is added as a node in the Effects Tree view.

7. Connect the foreground clip to Input 1 on the Difference Keyer node, and the reference clip to Input 2.

8. Add a **Composite** node, located in the \Tree Effects folder, to the tree and connect the nodes as follows:



The Difference Keyer effect computes the difference between the reference clip and the selected layer, and creates a matte on the layer.

Fine-tuning the Matte

The Difference Keyer property editor contains several property pages from which you can fine-tune your matte, crop the image, create a garbage matte, track the garbage matte, create a spill matte, and apply spill correction.

To fine-tune the matte:

1. In the Difference Keyer property editor, select the **General** tab.
2. Select the **Keep Original Alpha** option if your image has an existing matte that you want to preserve.
3. Select the **Output Matte** option to output the matte as an RGB image. This option also lets you switch the viewer's display between the matte and the RGB channels.
4. From the Pre-blur box, select the **Apply** option and use the controls to adjust the amount of blur to be applied. By default, a Fast (uniform) blur is applied. This type of blur decreases the amount of time required to process the effect.

*When you use the Pre-blur controls on the General property page, make sure the **Same as Processing** option on the Options property page is selected. This will ensure that the pre-blur is applied to individual fields.*

5. On the Map property page, make sure the **Apply** option is selected, so that changes are applied to the matte.
6. Adjust the opaque and transparent areas of the matte by doing one of the following:
   - Adjust the **Clip Low** and **Clip High** controls.

     Clip Low forces semitransparent areas of the background to become more transparent. Clip High forces semitransparent areas of the foreground to become more opaque.
   - Click **Force** (**Opaque** or **Transparent**) and select an alpha value from the viewer.
7. Adjust the function curve further by interactively manipulating it on the function curve graph.
8. On the Matte property page, select the **Apply** options from the Blur box to apply a blur to the matte.
9. Use the **Radius** and **Amount** controls to adjust the blur.
10. From the Size box, select the **Apply** option to apply the Shrink/Grow effect to the matte.

*When you use the Size controls on the Matte property page, make sure the **Same as Processing** option on the Options property page is selected. This will ensure that the shrink/grow effect is applied to individual fields.*

11. Use the **Shrink/Grow** controls to adjust the size of the matte.
12. Deselect the **Output Matte** option.

    Since you will work on the spill color correction, you no longer need to see the matte.
13. On the Spill property page, click **Pick Spill Color**, then select the spill color in the viewer.
14. To select a hue to replace the spill hue, do one of the following:
    - Click **Pick Replace Hue** and click a color in the viewer.
    - Drag the color selector in the color wheel to the hue and saturation that will replace the current spill hue and saturation.
15. Fine-tune the replacement color using the **Hue** and **Saturation** controls.
16. Use the **Luminance Offset** and **Threshold** controls to add or subtract luminance to or from the original luminance value and to adjust the spill correction area.
17. Use the **Softness** controls to create a softer transition between the replacement color and adjacent colors in the RGB image.

Spill correction in the Difference Keyer is only effective if you are keying out blue or green screen shots.

18. On the Masking property page, specify whether you're using a mask for the effect or not. By default, the effect is applied to the RGB and alpha channels. You can derive masks from the alpha of the input clip or an external matte from another clip.
19. On the Options Property page, select the appropriate options.

Click the Help button for detailed information on the Processing options.

Using the HSL Keyer Effect

The HSL Keyer effect lets you create a matte based on the hue, saturation, and luminance (HSL) values of an image. Once the matte is created, you can composite the clip over another one. You can also use the HSL Keyer effect to key out specific areas of an image.

Creating a Basic Key

Once you apply the HSL Keyer effect to a clip, track, layer or tree, you can create a basic key and then fine-tune it. Regardless of how you applied the keyer, the steps required to create a key are the same. However, if you applied the keyer using a graphics effect, you'll need to perform a few preliminary steps before you can create the key.

To create a basic key:

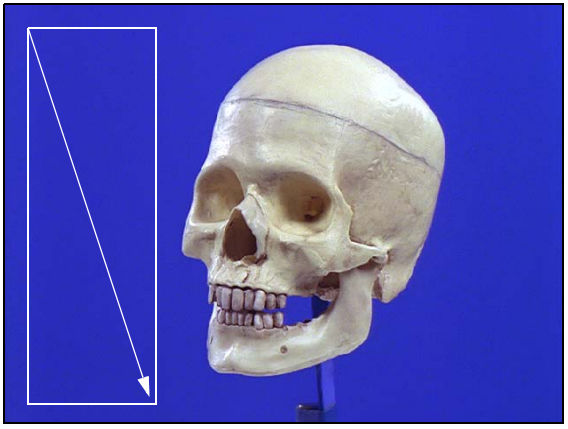
1. Apply the **HSL Keyer** effect to a clip, track, layer, or Effects Tree.

   The HSL Keyer property editor is displayed.

2. In the viewer, press Shift and drag over the portion of the image that you want to key out.

   The specified color range is removed from the image.

Selecting an area to be keyed.



Use the following shortcuts when keying out mattes:

To	Do this
Select pixels	Click and drag
Make a rectangular selection	Hold down Shift and drag
Select the pixels in roll area (fall-off regions)	Hold down Ctrl and drag

You can also enter values in the HSL Keyer property editor.

3. View the output of the matte by right-clicking the viewer and selecting **Alpha Component**.

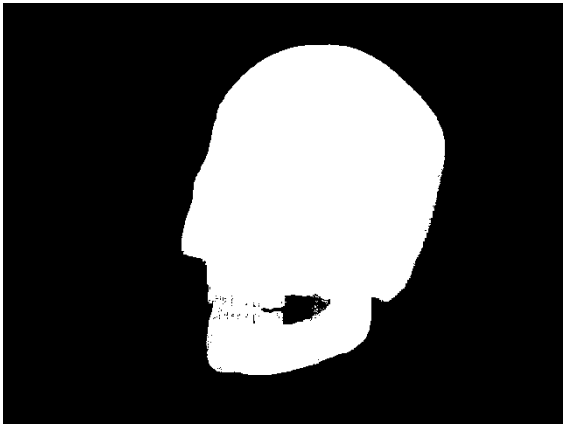
***Tip**: Select the 75% transparency to view both the matte and the image as you extract color ranges. If you applied the keyer on a video track, be sure to solo the track, so you only see the output of the matte for the keyer.*

4. Continue making rectangular selections over areas that are still not transparent.

   Each time you drag over the color to be keyed, the current frame is processed and the viewer immediately displays the results.

5. To view the final matte, right-click the viewer and select **Alpha Component > Matte**.

   The resulting matte is shown in the viewer.



6. To display the RGB image, turn off the alpha component by right-clicking the viewer again and select **Alpha Component > Off**.

   You can now see any underlying layers in the composite.

***Tip**: If you applied the keyer on a video track, be sure to deselect the **Solo** button on the track.*

Fine-tuning the Key

The HSL Keyer property editor contains several property pages from which you can fine-tune your matte, crop the image, create a garbage matte, track the garbage matte, create a spill matte, and apply spill correction.

To fine-tune the key:

1. In the HSL Keyer property editor, select the **Matte** tab.
2. Select the **Apply** option from the Blur box to apply a blur to the matte.
3. Use the **Radius** and **Amount** controls to adjust the blur.
4. From the Size box, select the **Apply** option to apply the Shrink/Grow effect to the matte.

***Tip**: When you use the Size controls on the Matte property page, make sure the **Same as Processing** option on the Options property page is selected. This will ensure that the shrink/grow effect is applied to individual fields.*

5. Use the **Shrink/Grow** controls to adjust the size of the matte.

6. On the Map property page, select the **Apply** option.

   This property page lets you apply post-process mapping to the matte generated by the HSL keyer. By modifying the function curve, you can adjust areas of the matte according to their degree of transparency.

7. On the Masking property page, specify whether you're using a mask for the effect or not. By default, the effect is applied to the RGB and alpha channels. You can derive masks from the alpha of the input clip or an external matte from another clip.

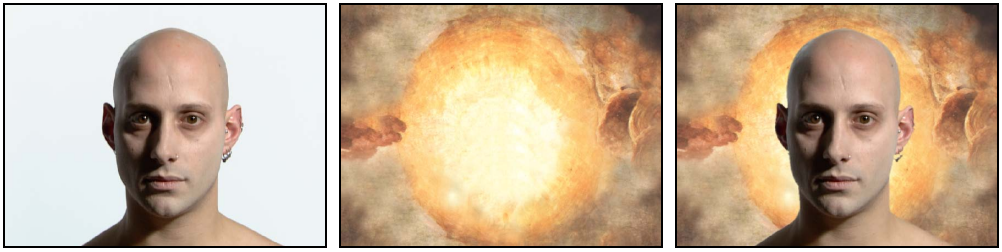
8. On the Options property page, select the appropriate options.

Click the Help button for detailed information on the Processing options.

Using the Linear Luma Keyer Effect

The Linear Luma Keyer effect lets you create a matte based on the luminance values of an image. If the background you want to key out does not contain chrominance information but only luminance information (such as white, blacks and grays), then use the Linear Luma keyer to create the matte. The Linear Luma keyer is simpler to use and faster than the Luma keyer.

In the following example, the Linear Luma keyer was used to create a matte for the man on a white background in order to composite him over the medieval background.



Creating a Basic Key

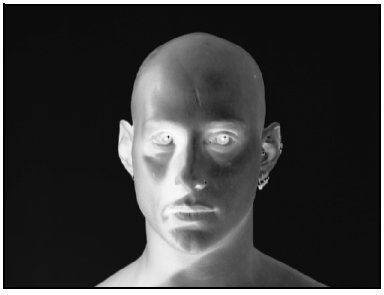
Once you apply the Linear Luma keyer, you can create a basic key and then fine-tune it. Whether you applied the keyer to a clip, track, layer, or tree, the steps required to create a key are the same

To create a basic key:

1. Apply the **Linear Luma Keyer** effect to a clip, track, layer, or Effects Tree.
2. On the Key property page, select the **Keep Original Alpha** option if your image has an existing matte that you want to preserve.
3. Select the **Output Matte** option to output the matte as an RGB image. This option also lets you switch the viewer's display between the matte and the RGB channels.

4. Click the **Reverse FG/BG** button.

   Since the key is based on the brightness of the luminance, a white background produces a high score in the keyer making the alpha white. You can reverse the foreground and background to create the correct matte, so the foreground is white and the background is black.



5. Use the **Gain** and **Brightness** controls to adjust the matte. The Gain control lets you add to or remove opacity from areas that are semitransparent. The Brightness control lets you add brightness to all areas of the matte.
6. From the **Pre-blur** box, select the **Apply** option and use the controls to adjust the amount of blur to be applied.

   By default, a fast uniform (box) blur is applied. This type of blur decreases the amount of time required to process the effect.

*When you use the Pre-blur controls on the General property page, make sure the **Same as Processing** option on the Options property page is selected. This will ensure that the pre-blur is applied to individual fields.*

Fine-tuning the Matte

The Linear Luma Keyer property editor contains several property pages from which you can fine-tune your matte, crop the image, create a garbage matte, track the garbage matte, create a spill matte, and apply spill correction.

To fine-tune the matte:

1. From the Linear Luma Keyer property editor, select the **Matte** tab.
2. Adjust the opaque and transparent areas of the matte by doing one of the following:
   - Click **Pick BG** or **Pick FG**, and then click the background and foreground areas of the matte in the viewer.
   - Use the sliders to adjust semitransparent areas, making them transparent or opaque.
3. Use the **Size** controls to increase or decrease the size of the matte.

*When you use the Size controls on the Matte property page, make sure the **Same as Processing** option on the Options property page is selected. This will ensure that the shrink/grow effect is applied to individual fields.*

4. Use the **Blur** controls to adjust the softness of the blur and the degree to which it is applied to your matte.

***Tip**: If you want to force the outgoing image to be premultiplied, select the Force Premultiplied option. This option is useful when you need to touch up an existing premultiplied image's alpha channel and keep the image premultiplied, or when you want to see the results of the keyer effect without first compositing it.*

5. Use the controls on the **Crop** and **Shapes** property pages to crop the matte or remove garbage from the matte respectively. You can also track shapes in your garbage matte using the controls on the **Tracker** property page.
6. Deselect the **Output Matte** option to view the results of the composite.

7. On the Masking property page, specify whether you're using a mask for the effect or not. By default, the effect is applied to the RGB and alpha channels. You can derive masks from the alpha of the input clip or an external matte from another clip.
8. On the Options property page, select the appropriate options.

Click the Help button for detailed information on the Processing options.

Using the Luma Keyer Effect

The Luma Keyer effect lets you create a matte based on the luminance values of an image. Luminance is the portion of a video signal that contains the brightness (black and white) information. If you want additional control over a luma key, use the Linear Luma keyer instead of the Luma keyer.

Creating a Basic Matte

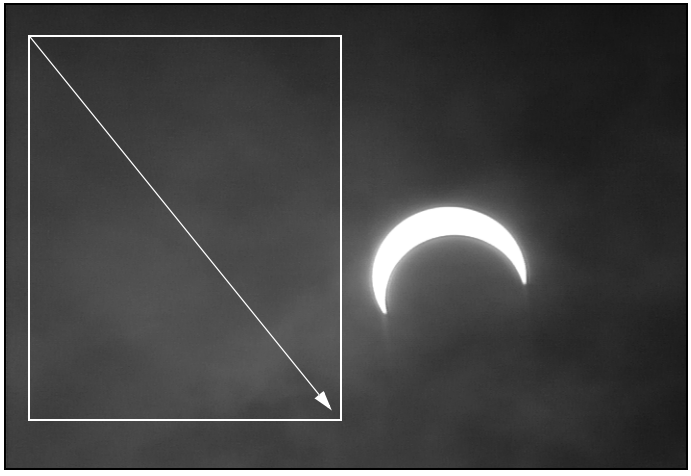
Once you apply the Luma Keyer effect, you can create a basic key and then fine-tune it. Regardless of how you applied the keyer, the steps required to create a key are the same.

To create a basic matte:

1. Apply the **Luma Keyer** effect to a clip, track, layer, or Effects Tree.
2. In the viewer, press Shift and drag over the portion of the image that you want to key out.

   The luminance range you selected is removed from the image.

Selecting an area to be keyed.



Use the following shortcuts when keying out mattes:

To	Do this
Select pixels	Click and drag
Make a rectangular selection	Hold down Shift and drag
Select the pixels in roll area (fall-off regions)	Click a pixel, press Ctrl, and drag

You can also enter values in the Luma Keyer property editor.

3. View the outline of the matte by right-clicking the viewer and selecting **Alpha Component**.

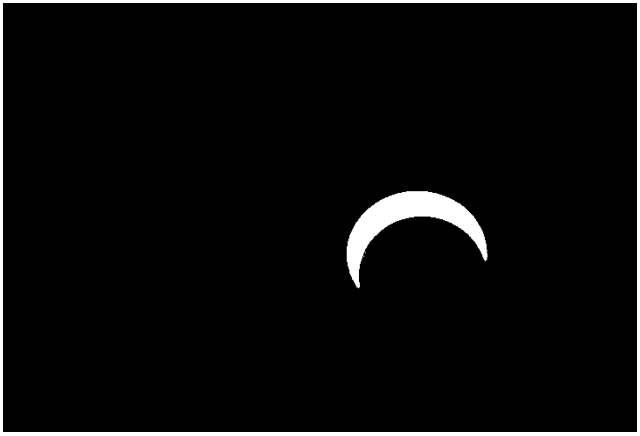
***Tip**: Select the 75% transparency, so that you view both the matte and the image as you extract color ranges. If your clip is on a video track, solo it before you view the alpha channel.*

4. Continue making rectangular selections over areas that are still not transparent. Each time you drag over the color to be keyed, the current frame is processed and the viewer immediately displays the results.

***Tip**: You can zoom in on the viewer to find pixel values that need to be keyed out.*

5. To view the final matte, right-click the viewer and select **Alpha Component > Matte**.

   The resulting matte is displayed in the viewer.



6. To display the RGB image, turn off the alpha component by right-clicking the viewer again and selecting **Alpha Component > Off**.

   You can now see any underlying layers in the composite.

***Tip**: If you applied the keyer on a video track, be sure to deselect the **Solo** button on the track.*

Results of a composite using the luminance keyer effect

Fine-tuning the Matte

The Luma Keyer property editor contains several property pages from which you can fine-tune your matte, crop the image, create a garbage matte, track the garbage matte, create a spill matte, and apply spill correction.

To fine-tune the matte:

1. On the Luma Keyer property editor, select the **Matte** tab.
2. Select the **Apply** option from the Blur box to apply a blur to the matte.
3. Use the **Radius** and **Amount** controls to adjust the blur.
4. From the Size box, select the **Apply** option to apply the Shrink/Grow effect to the matte.

*When you use the Size controls on the Matte property page, make sure the **Same as Processing** option on the Options property page is selected. This will ensure that the shrink/grow effect is applied to individual fields.*

5. Use the **Shrink/Grow** controls to adjust the size of the matte.
6. On the Map property page, modify the function curve to adjust areas of the matte according to their degree of transparency.
7. On the Masking property page, specify whether you're using a mask for the effect or not. By default, the effect is applied to the RGB and alpha channels. You can derive masks from the alpha of the input clip or an external matte from another clip.
8. On the Options property page, select the appropriate options.

Click the Help button for detailed information on the Processing options.

Chapter 4
Color Correcting Images

This chapter introduces you to the concepts of color correction and describes the different tools that you can use to color correct your images.

Setting Up the Color Correction Environment

It is important that the environment in which you will be color correcting images does not affect your perception of color. A proper environment gives you the tools you need to properly color correct an image. It also provides a neutral colorscape so that your eye will not mislead and deceive you as you manipulate color. Remember that although the camera eye does not lie, the human eye (integrated with the brain) does "lie" all the time. It corrects for lighting and color qualities created by various types of light, such as fluorescent lighting, that alter the hue of the visual object.

Your environment should have the following elements:

- **Properly calibrated broadcast monitor**: At a bare minimum, the monitor should be calibrated, so that the setup, gain, chroma, and hue (if applicable) are properly adjusted. In a professional color correction suite, additional calibrations are often performed. Most critical to these are setting the color temperature and normalizing the gray scale of the monitor.

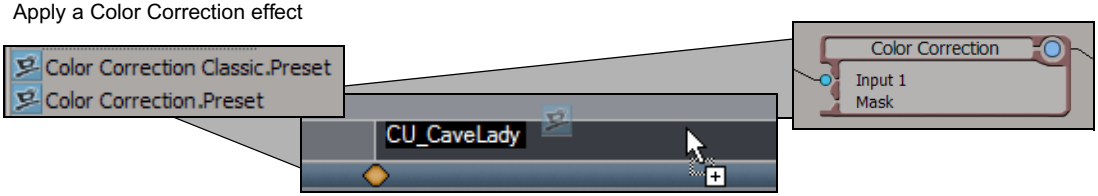
  The color temperature determines the color of gray. The desired color temperature is 6500 Kelvin, or the color temperature of natural daylight. Most monitors have a much higher color temperature out of the box and as a result have a much bluer gray than is desired for color correction.

  A normal gray scale implies that the color of gray does not vary across the gray scale. On most monitors, the color of gray shifts as the image transitions from black to white, usually getting bluer in bright regions.

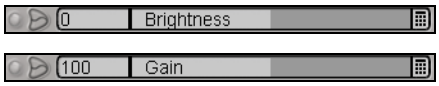
  Color temperature calibration and normalization require special measurement equipment that reads the color of gray off the monitor.
- **Proper lighting**: The lighting in the room should be set to 6500 Kelvin. (This color temperature is often referred to as D65.) The light should be on dimmers as bright lighting is undesirable.
- **Neutral gray wall behind the monitor**: Since your eyes are sensitive to any light in the room, the wall should be a neutral color as well. A neutral gray wall is the best solution, but a white wall is fine as long as bright lights do not shine directly on it.

Workflow: Color Correcting Images

1. Apply a Color Correction effect



2. Set black and white points



Black point

White point

Be sure to analyze the footage before you begin color correcting

3. Correct tonal and contrast ranges
   - Use HSL controls
   - Use levels

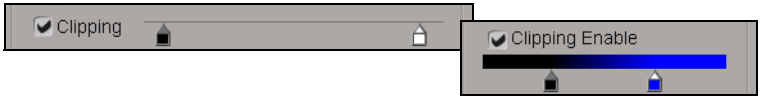
The Levels property page is a specialized version of the HSL controls

4. Use the Hue Offset tab to correct hue or color cast problems

5. Other color correction tasks such as channel blending or matching clips

Use the Match Color Tool to retain color consistency between two or more clips that are shot in the same environment

6. Use the Luma, Chroma, or RGB clipping properties on the HSL property page to make sure that your adjustments are within legal limits



Color Correction in Avid DS Nitris

The Avid DS Nitris Color Correction tools let you:

- Restore or alter the original look of a scene so that it can be more realistic and well-balanced
- Correct shots taken in the same environment, so that your scene remains consistent
- Fix white or black balance problems that are caused when shooting
- Create special effects

In Avid DS Nitris, there are two types of color correction effects from which you can select the one that works best for your project or most suitable for your working method. You should always define what the overall goals of your color correcting process.

- **Color Correction Classic effect**: Provides a very basic Color Correction toolset. It lets you adjust the various aspects of an image's color such as the hue, saturation, contrast, and brightness. You can adjust the color in each of the user-defined ranges of shadows, highlights, and midtones.
- **Color Correction effect**: With a more advanced property page, this effect offers a broader tool set that allows you to perform additional tasks, such as color channel blending, analysis of video images using histograms, and color correction using a match color tool. Most of the procedures in this chapter use the Color Correction effect.

There are also several preset Color Correction effects in the Color Correction folder (\Image Effects\Color Corrections) that you can apply to your image. These include Blue Duotone, Old Photo, and Saturated.

It is important that you always make sure that the clip that you want to color correct is selected on the timeline or the position indicator is on the clip. Once you apply the Color Correction effect, you can modify parameters to color correct your image. The adjustments you make to parameters in the Color Correction property editor are cumulative and applied on top of parameters on subsequent property pages.

Working with Source Effects

It is always a good idea to decide beforehand whether to color correct all your footage at the source, on an entire sequence, or on a per clip basis. Your decision depends entirely on your footage. Applying source effects will solve problems that are present in your source material, such as color inconsistencies or imbalances, or when you want to achieve a common look and feel to all your media.

Source effects are not limited to color correction. You can also apply image effects, such as the noise effect directly at the source to eliminate a visible scratch on your material. Other effects include graphics effects. A great example is when you want to apply a logo to the material from the source tape. Use the Graphics combo view to edit the graphic.

Source effects should be applied before any sequence dependant processes such as frame rate conversion, media conversion or mix and match.

There are three levels where you can apply and edit source effects:

- **Tape**: It is common to color correct after you have captured your material from the source tape when you want to maintain color and lighting consistency on your tape. This may be the case when you have material on the same tape that was shot at two different locations at the same time of day.

  Color correction or other effect settings at this level will be reflected on all clips and subclips that derive from the same source tape.

- **Master clips**: After you have captured from tape, you can apply source effects on a master clip. Master clips always reference captured media files that are located on your storage drives.

  Color correction settings on the clip will be inherited by the subclips created from it.

- **Subclips**: You can also apply source effects directly on subclips, which have been created from master clips.

  Remember that subclips do not directly reference the original media and remain linked to the master clip from which they were created. All subclips created from a master clip that has a source effect will inherit the new settings.

Clips on the timeline will have a green icon on the clip indicating that a source effect has been applied.

You can edit effects to the result of the source effect or composite without applying a certain effect to each clip or subclip created from your source material. Remember that additional effects on the clip or sequence are cumulative; it's similar to working with new clips on the timeline or in the Effects Tree.

***Tip**: To bypass the applied source effect on a clip, apply a mix. If you set the mix value to 0 on the portion of the effect that you want, the source effect will not be applied.*

In the Animation Editor, you can add keyframes and bring the curve down to 0 for the area that you want to bypass. For more information, see "Editing Animation on the Animation Graph" on page 991 in the Avid DS Nitris Editing Guide.

Applying and Editing Tape Source Effects

Once you have captured material from tape, you can apply source effects using any of the following methods:

- Using the Tape Tool to Apply Source Effects
- Using the Avid Explorer to Apply Source Effects
- Applying Tape Source Effects on the Timeline
- Applying Tape Source Effects in the Effects Layout

Using the Tape Tool to Apply Source Effects

The Tape Tool view lets you see the media on one or more tapes, their qualities, and the parts of the media that are used in a selected clip or sequence. For more information, see Tape Tool in the Help.

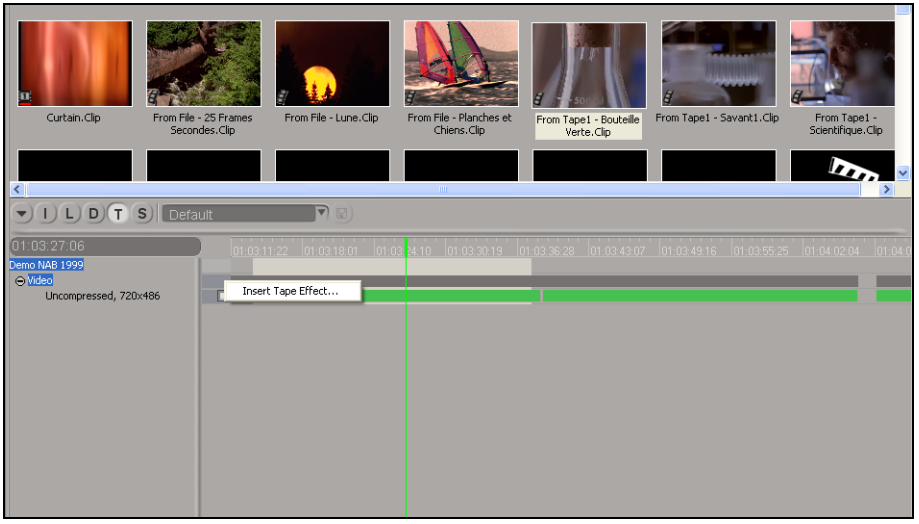
To apply and edit source effects on tape using the tape tool:

1. Do one of the following:

   - In the Avid Explorer, click the **Tape Tool** button.
   - From the Data Management menu, select **Media Tool**. In the Media Tool view, click the **Tape Tool** button

   The bottom portion of the view/bin displays a timecode box on the right side and a timeline on the left.

2. Right-click the gray area as shown below and select **Insert Tape Effect**.



   The Load Preset dialog box appears.

3. Select an effect and enter the settings in its property editor.

To bypass source side effects, use the Bypass option in the property editor of the effect. For more information, see "Bypassing Effects" on page 235 of the *Avid DS Nitris Getting Started Guide.*

Using the Avid Explorer to Apply Source Effects

All captured material from tape are stored in the folder, within a specific project, that you selected as the capture target. You can apply source effects at this level.

To apply and edit tape source effects in the Avid Explorer:

1. In the Avid Explorer, navigate to the folder containing the capture clips from tape.
2. Right click the clip, select **Source Effects > Edit Tape Effect**.
3. Do one of the following depending on the task:
   - If you are applying an effect for the first time, select an effect from the Load Preset dialog box and enter the settings in the effect's property editor.
   - If you are editing the source effect, modify the values in the property editor.

Applying Tape Source Effects on the Timeline

Applying and editing source effects on the timeline is useful when you want to pre-apply some effects.

To apply and edit tape source effects on the timeline:

1. Drag and drop the clip captured from tape to the timeline.
2. Do one of the following:
   - Right-click the clip and select **Source Effects > Edit Tape Effect**.
   - From the NLE Toolbar, click **Editing** and select **Source Effects > Edit Tape Effect**.
3. Do one of the following depending on the task:
   - If you are applying an effect for the first time, select an effect from the Load Preset dialog box and enter the settings in the effect's property editor.
   - If you are editing the source effect, modify the values in the property editor.

Applying Tape Source Effects in the Effects Layout

If you are already working in the Effects layout, you can apply at tape source effect on a clip from the transport controls of the viewer.

You can toggle between the Tape Effect Mode button and the Masterclip Effect Mode button.

Editing Masterclip and Subclip Source Effects

You can edit the properties or values of the source effects on the master clip or subclip you are using.

If you make any adjustment on a master clip, subclips created from it will reflect the changes.

To edit source effects on a master clip or subclip:

1. Do one of the following:
   - In the Avid Explorer, right click the clip, select **Source Effects > Edit Master clip Effect** or **Edit Subclip Effect**
   - Right-click a clip on the timeline, select **Source Effects > Edit Master clip Effect** or **Edit Subclip Effect**

   The Load Preset dialog box opens.

2. Do one of the following depending on the task:
   - If you are applying an effect for the first time, select an effect from the Load Preset dialog box and enter the settings in the effect's property editor.
   - If you are editing the source effect, modify the values in the property editor.

Editing Masterclip Source Effects in the Effects Layout

If you are already working in the Effects layout, you can apply at tape source effect on a clip from the transport controls of the viewer.

You can toggle between the Tape Effect Mode button and the Masterclip Effect Mode button.

Removing Source Effects

You can delete the source effect applied on the tape, master clip or subclip on the timeline.

To remove source effects on tape:

1. Select the master clip either in the Avid Explorer or on the timeline.
2. Right-click and select **Source Effects** > **Remove Tape Effect**.

All values that were set to the master clip or subclips created from the master clip are now removed.

To remove source effects on a master clip or subclip:

1. Select the master clip either in the Avid Explorer or on the timeline.
2. Right-click and select **Source Effects** > **Remove Master clip Effect** or **Source Effects** > **Remove Subclip Effect**.

   All values that were set to the master clip or subclips created from the master clip are now removed.

Loading Source Effects

You can load any effect that you want to use on a clip that already has source effect on it.

To load a source effect's property editor:

1. Right-click the clip either on the timeline or in the Avid Explorer and select **Source Effects > Edit Master clip Effect** or **Edit Subclip Effect**.

2. In the effect's property editor, click the Load Preset button.
3. In the Load Preset dialog box, select an effect.
4. Set the desired values.

   Subclips previously created or subclips newly created from this material will inherit the new values.

Applying a Color Correction Effect

There are several ways that you can apply the Color Correction effects:

- You can apply both the Color Correction Classic and Color Correction effects to a clip, track, timeline, or Effects Tree—see "Applying Effects" on page 210 of the *Avid DS Nitris Getting Started Guide*.
- You can add them as effect nodes to the Effects Tree—see "Adding Effect Nodes to a Tree" on page 1178.
- From the timeline navigation bar, you can switch to the Color Correction mode by clicking the **Color Correction** button.

- From the taskbar, click the **Effects** button. By default, the Color Correction effect with its large property editor is displayed.

  A gray effect bar appears on the timeline indicating that a default Color Correction effect has been applied. When you edit the values on the Color Correction property editor, the effect bar automatically changes to light green.

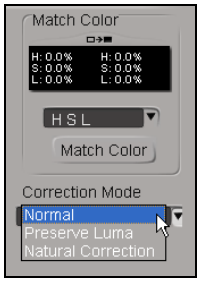
***Tip**: When working in the Editing and Compositing layouts, Ctrl Click the **Effects** button in the taskbar to open a floating Color Correction property editor. A Color Correction effect is applied on the clip the position indicator is on.*

Setting the Color Correction Mode

When working with the Color Correction effect, you can set the color correction mode depending on the task at hand.

To set the color correction mode:

1. In the Color Correction property editor, select **HSL > Controls > Master**.



2. Select a correction mode:
   - Normal: Displays the correction in the viewer as expected
   - Preserve Luma: Displays the corrected image where the hue values of the image are replaced with new output values without distorting the luminance values
   - Natural Correction: Displays the corrected image where the hue values of the image are replaced with new output values without distorting the luminance and saturation in the image

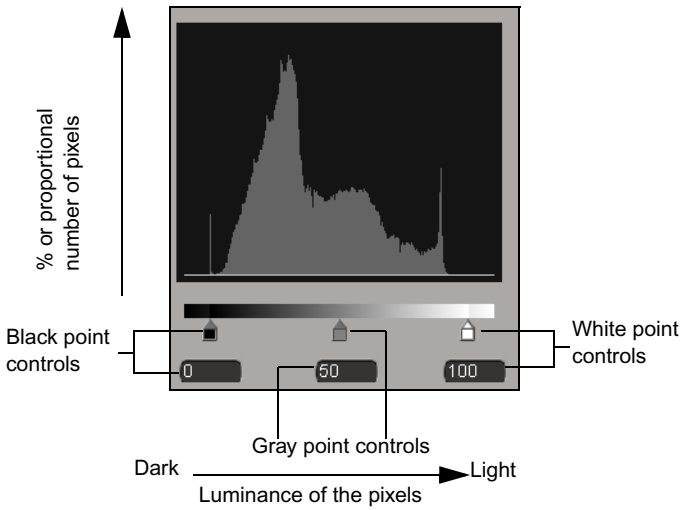
Analyzing Footage

You should always analyze the footage to check that the black and white points of the image are properly set, for luminance and color problems. This will help you determine how to proceed with color correcting your images and whether you need to set the black and white points.

Analyzing Images using Histograms

One of the ways to analyze images is by using the histogram, which provides an easily understood summary of the color or tonal range (from shadows to highlights) of an image. It is on the Levels property page of the Color Correction effect property editor.

Here is an illustration of the properties of the histogram.



A histogram is a graph of information about the color values of all the pixels in an image. Color values are plotted on the horizontal axis of the graph; the percentage or proportional number of pixels is plotted on the vertical axis.

Right-click the histogram to turn ON or OFF a filled curve.

If an image is mostly dark, the bars of its histogram are concentrated at the low end. If an image contains only a small number of discrete color values, its histogram shows discrete spikes for each of those values.

A typical setup in the histogram will show the following values on both the input and output side (Normalized %):

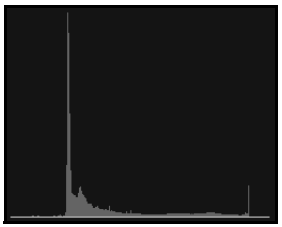
Black Point	Gray Point	White Point
0	50	100

The black and white point values represent normal safe limits for video broadcast. Any value below 0 is considered SuperBlack while any value above 100 is considered SuperWhite.

The following examples illustrate some histogram patterns:

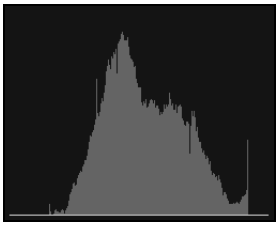
Example 1

This image has large areas that are very dark and a relatively even distribution of values in the rest of the brightness range. The histogram shows a sharp spike at the very low end, a concentration of values in the lowest 25% of the range, and a relatively even distribution in the rest of the range.



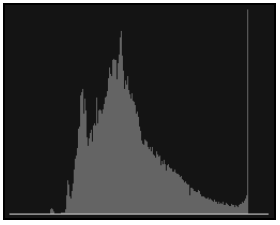
Example 2

This image, like the last one, has more dark values than light. But the distribution of values is less extreme. This is reflected in the histogram, which shows a more rounded peak at the low end, fewer extremely low values, and relatively more midtone values.



Example 3

This image has very large highlight areas in the background and on the chicks. Most of the rest of the image is relatively, but not extremely dark. The histogram shows sharp spikes at the high end, relative concentration in the low to middle range, and few values in the middle to high range.



Once you determine the quality of the color and tonal range of the footage, then you can begin to color correct it accordingly.

Setting Black and White Points of an Image

When analyzing footage, it is important to make sure that the black and white points are properly set.

Always play the segment you want to adjust and check the following using the vectorscope or the viewer:

- The black point is at 7.5IRE for NTSC or 0 mV for PAL.
- The white point is at 100IRE for NTSC or 700 mV for PAL.

If they are not, then you will need to set the black and white points. Setting the black point and the white point is often straightforward. Using a vectorscope, you simply look for what should be the darkest area of the image and adjust controls until it becomes as dark as possible and then repeat the same process for the white point of the image.

When capturing DPX files, you can quickly set the black and white points by adjusting the color values of the output. For more information, see “Capturing DPX Files” of the *Avid DS Nitris Capture and Output Guide*. Also see “Linearizing Film-Based Material”.

Displaying Pixel Information in the Viewer

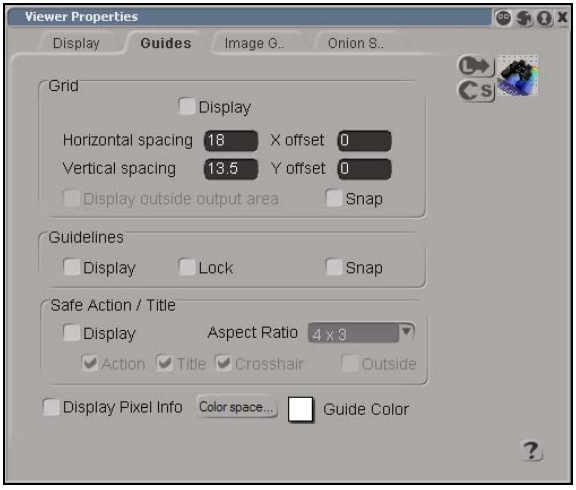
You can also quickly check the pixel ratios of the darkest and lightest areas of your image using the viewer properties in Avid DS Nitris by displaying the pixel information.

To display pixel IRE information in the viewer:

1. Right-click the viewer and select **Viewer Properties**.

   The Viewer Properties dialog box is displayed.

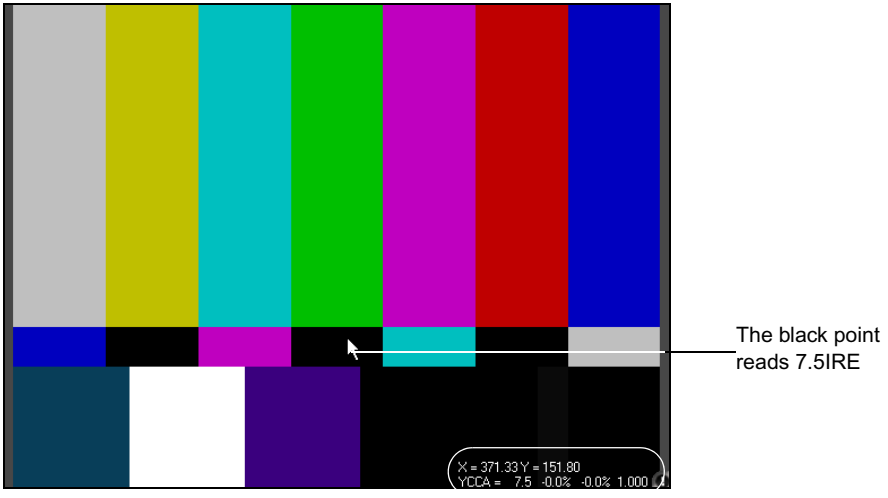
2. Select the **Guides** tab.



3. Select Display Pixel Info.
4. Click the **Color Space** button and select **YCC 601 > Y IRE > CC Normalized (%)**.

   In the viewer, the location (X,Y) coordinates and the RGB IRE color information of the pixel that the cursor is hovering over.

   Here is an example showing the black IRE values of a test pattern in the viewer:



Setting the Black and White Points

There are two methods:

- Using the HSL Controls
- Using the Levels Controls

The method you choose depends on how you prefer to work.

To set the black and white points using the HSL Controls:

1. Switch to the Effects layout or add a Color Correction effect to access the Effects layout.
2. Move the position indicator to the segment of the clip you want to correct.
3. Click **HSL > Controls > Master**.
4. In the Luma box, do the following:
   - **Black point**: Adjust the Brightness control until the waveform or the pixel ratio in the viewer reads 7.5IRE for NTSC or 0 mV for PAL. To attain a richer or deeper black, adjust the Setup control in the Shadows tab
   - **White point**: Adjust the Gain control until the waveform or the pixel ratio in the viewer reads 100IRE for NTSC or 700 mV for PAL.

If the black point of the image is already set or does not require any setting, adjusting the black point using the Brightness control will alter its value.

To set the black and white points using the Levels property page:

1. In the Levels property page, click the Master tab.
2. Use the input histogram to analyze the image.
3. To set the black point, do one of the following:
   - Drag the black slider to the right until you get a good black. The waveform or the pixel ration reads 7.5IRE for NTSC or 0 mV for PAL.
   - Type a numerical value in the appropriate text box and press Enter.
4. Set the white point.
5. If you need to, you can adjust the gray slider to get a nice histogram in the output side—see "Input and Output Adjustments" on page 1279 to understand the relationship between input and output in the Levels page.

Color Correcting Tonal Ranges in Images

After using the histogram to analyze footage, you may find that an image lacks a full range or contrast. This problem can be corrected by adjusting the tonal range to improve sharpness, contrast, and detail. When color correcting the overall tonal range of an image, either brightening or darkening an image, you are essentially remapping the highlights and shadows of an image to provide a new output. A good place to start is by using the HSL controls.

You can also use the Levels property page, which is a more advanced and specialized version of the HSL controls, to control the highlights and shadows by defining the white, gray, and black point of an image. One of the advantages of using Levels property page over the HSL controls is that you can control the highlights and shadows for a specific color channel (Red, Green or Blue), the luminance range, and the composite signal.

Be careful when adjusting the highlights and shadows of an image. You should determine whether:

- The scene was meant to be shot in either darkness or lightness. In the case of a shot at sunset, expand the range as much as possible without making the image unrealistically dark.
- The contrast and details and a good balance between light (highlights) and dark (shadows) tones.

You may want to adjust the range of tone or contrast of an image:

- When it lacks a full range of one color channel or across all color channels.
- To deliberately reduce detail in one part of the range.
- To deliberately expand another part of the range that is more important in the image.
- To adjust the gray point in respect to the black and white points in order to rebalance the midtones without significantly affecting the shadows and highlights. This is also known as making a gamma correction.
- Rebalance the color or luma range.

Working with the HSL Controls

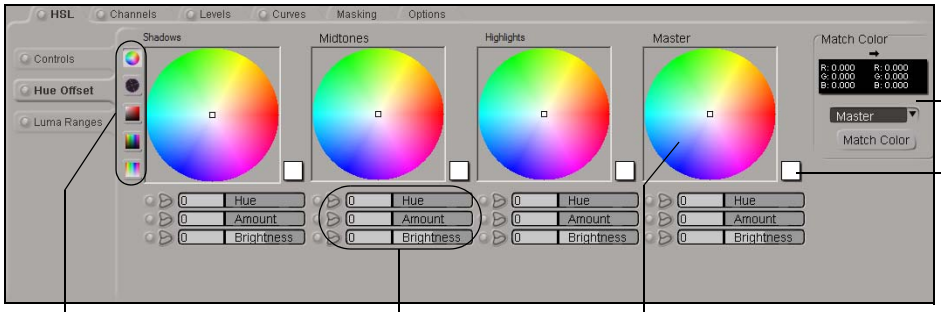
The HSL controls can be divided into three groups:

- Hue and Saturation controls, which when adjusted do not affect the luminance of the image.
- Brightness, Gain, Setup, and Contrast controls, which when adjusted affect the luminance of the image.
- The Gamma control, which is applied to the result of the entire image.

*You can control the color contrast in the Chroma box. To lock the Luma and Chroma Contrast sliders so their values are identical, select **Lock**.*

Hue and Saturation

These controls are useful when you want to alter the entire color cast or tint of the image or the intensity of the colors in the image. In addition to the hue and saturation controls in the Controls tab, you can specify the hue and saturation of an image by using the color wheels in the Hue Offset tab. The hue changes as you move around the wheel, while Saturation increases from the center



If an object of an image that should be a neutral gray appears tinged with color, you can use the offset to restore the correct gray color.

You can also use the hue and saturation controls to create a specific look and feel to your footage. For example. you may want to add a blue tinge to create a perception of dusk.

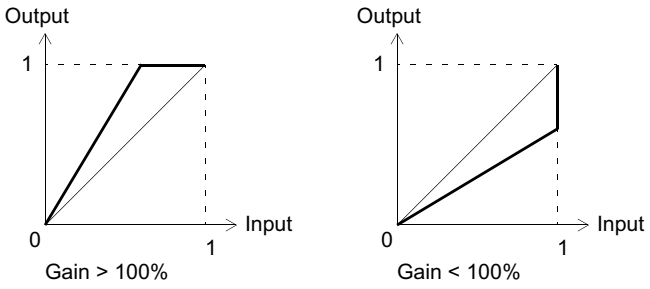
When experimenting, do use the vectorscope to make sure that you are working within legal limits.

Gain, Brightness, Setup, and Contrast

Brightness and the Contrast controls always interact with each other, while Gain and Setup controls work together. If you have made an adjustment using either the Luma or Chroma Contrast control, you should adjust the luminance of your image by using the Brightness control. If you have made a Gain adjustment, use the Setup control to adjust the luma of your image.

To customize the luminance ranges for the highlights, midtones, and shadows of the image, use the curves in the Luma Ranges tab. For more information, see "Luma Ranges Tab" in the Help.

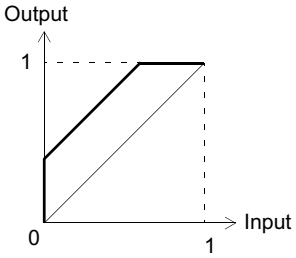
- **Gain** is a multiplication factor and makes adjustments to the luminance of your image based on a percentage of the original luminance. To "brighten" or "darken" an image, you may choose to use the Gain control instead of Brightness because it makes proportional adjustments, whereas Brightness continues to add even when you have already set your Black point and therefore, lightening or darkening the Black point further.

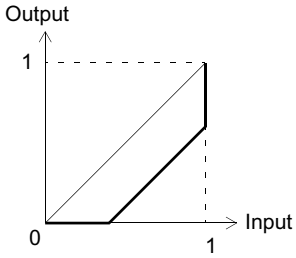


*You can lock the Luma Gain and Chroma Saturation sliders so their values are identical by selecting **Lock**.*

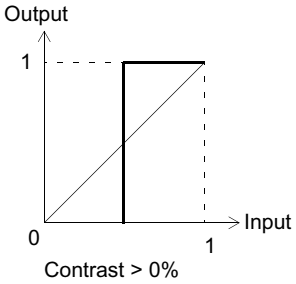
- **Setup**, like **Brightness**, is an additive factor and adds luminance to the image.

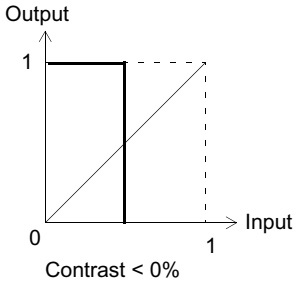
  Although it's similar to the Brightness control, Brightness is applied before the Contrast and Gain operations while Setup is applied after the Contrast and Gain operations.





- **Contrast** increases or decreases the contrast in an image.

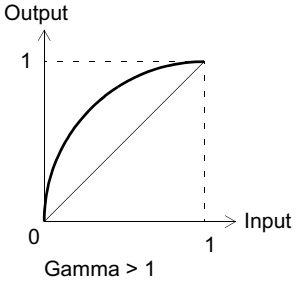


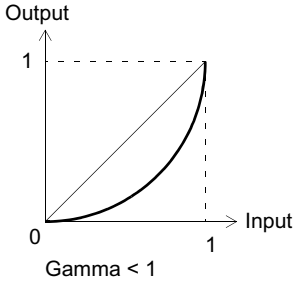


Gamma Corrections

After correcting the shadows and highlights of your image, you may still find that it may still be slightly darker or lighter. A gamma correction using the Gamma control solves this problem because it is applied to the result of the image without altering the shadows and highlights.

It uses the following formula: Output = Input ^ (1/gamma).





You can define the remapping of the midtones by using the Gamma slider:

- on the Master, Highlights, Midtones, and Shadows tabs of the HSL property page
- on the RGB tab of the HSL property page. You can adjust the Gamma value for each color channel
- of the RGB Gamma slider on any of the tabs on Controls (except Alpha). All RGB Gamma slider is dynamically linked. Adjusting the value automatically changes the value across the property page.
- on the Levels property page. It is available in the Red, Green, Blue, and Master tabs. Increasing the value lightens the selected color channel of that image. The Curve graph provides a visual feedback of the change.

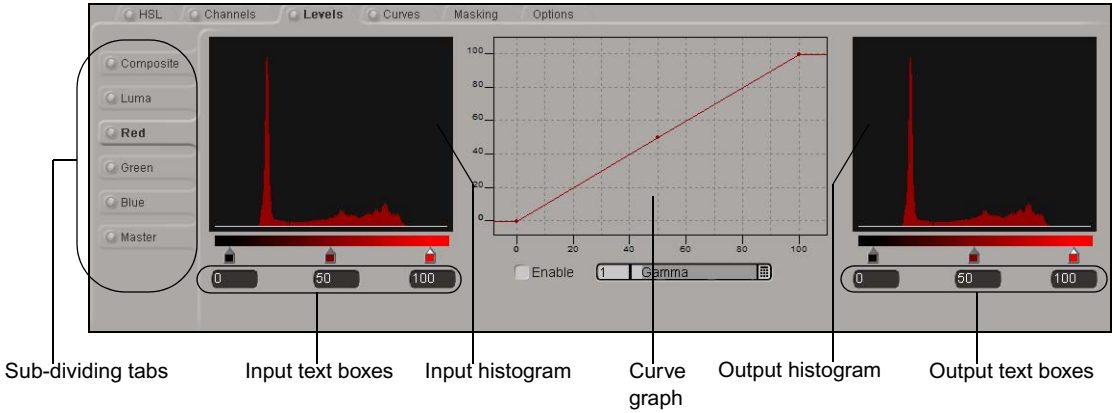
Increasing the Gamma value on the Controls tab of the HSL property page, for example, in the Master tab brightens the entire image. Increasing the value in the Highlights tab brightens the highlights of the image.

Large adjustments of the gamma can sometimes be useless. It is better to make small adjustments without the whole image becoming either too dark or too light. Smaller gamma adjustments are more useful when fine-tuning the relative weight of the darks and lights. Using a gamma correction also improves the contrast and detail of the image.

When using the Color Correction Classic effect, use the gamma on the luminance channel in the Adjust property page. The relationship on this property page is Gamma, Gain, and Setup.

Using Levels to Correct Tonal Ranges

All the controls in the Levels property page are dynamically linked. When you make one adjustment on this property page, all the controls reflect that change.



Input and Output Adjustments

Adjusting tonal and contrast ranges means that you are changing the relationship between the input and output values for your image. If you change the values on the input side by using the text boxes or sliders, then the range of the input values are mapped to the same range of the output values on the output histogram.

The input histogram always shows the distribution of values for the uncorrected image. After an adjustment, the output histogram updates according to the changes being made. The Curve graph also updates to show the relationship between the input values (x axis) and the output values (y axis).

It is important to understand the differences between the input and output sides.

Input Side	Output Side
Defines the black, white, and gray point of the uncorrected image	Defines how the corrected image is displayed
The Composite and Luma tabs only have black and white points.	
Lets you increase the tonal range of an image	Lets you decrease the tonal range of an image

Input Side	Output Side
Changes made on the input side makes the system clip the values	Changes made on the output side, remap the values
Set the input values to approximate the camera's view when the footage was shot. When you color correct an image, you typically want to maximize the tonal range.	Set the output values to add a stylistic look to the image.
To be set first	To be set after the input values

Working with the Composite and Luma Tabs

The Composite tab displays histograms that represent the levels in the composite image before and after correction. The Luma tab shows histograms that represent the luminance levels in the image before and after correction. They are useful for checking whether your color-corrected images are within the composite and luminance limits you need to meet and for adjusting levels to meet those limits, if necessary.

The Composite and Luma tabs display unit information in normalized units. You can make only black point and white point adjustments in the Composite and Luma tabs. By adjusting these two points, if necessary, you can bring any values that exceed your composite or luminance limits back into an acceptable range.

Linearizing Film-Based Material

When film-based media are scanned, a series of frames are produced in DPX or Cineon file format, which could be logarithmic-based. Avid DS Nitris provides the option to convert logarithmic-based media to linear-based media prior to applying effects. This conversion is known as linearizing.

If you are only editing (trimming or cutting) log-based media, linearizing the files is not necessary.

There are three ways to linearize film-based material:

- Directly at import—see "Capturing from DPX Files" in the Help.
- By using the LogLin Remapping effect that has two presets: lin2log and log2lin—see "Linearizing Log-based Media" on page 1284 and "Log2Lin" in the Help.
- By using the color correction effect—see "Linearizing Log-based Media" on page 1284.

Working with LUTs

The Lookup Table (LUT) is a file that contains the conversion of pixel values. The number of entry in the file represents the number of possible pixel values on a per channel basis. The value of each entry represents the mapped pixel value.

Before you import the files, you need to determine what look-up table (LUT) should be used to convert the pixel values from a log to a linear representation. You can import an LUT specific to the files, or use a standard LUT. If you use a standard LUT, you can choose either a linear transformation or a log-to-linear transformation.

The "Linear" option preserves the log-based representation during import. Within Avid DS Nitris these log-based images can be used for many actions where linearizing (conversion from log to linear) may not be important, such as cuts-only editing or some basic effects. For applying complicated effects and combining the media with other non-log representation images, Avid recommends linearizing the pixel values by applying one of the following:

- an LUT modified by the controls in the DPX Import dialog box
- an LUT imported from file

You can export DPX or Cineon files through similar controls. When exporting, you can convert from linear to log or invert the file used for import. For more information, click the Help button in the DPX Export dialog box.

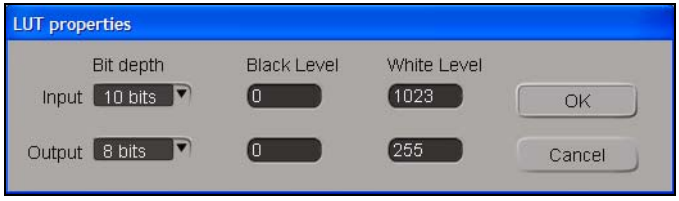
Exporting LUTs

You can export a LUT by saving the input and output's bit depth, black and white levels.

To export a LUT:

1. In the Color Correction property editor, select the **Levels** property page.
2. Select a color tab (Red, Green, Blue).
3. Click the **Export LUT** button.

   The LUT properties dialog box is displayed.



4. For Input and/or Output, set the following:
   - Bit depth: Specifies the number of bits used to store information about each pixel of the image
   - Black Level: Sets a new default value for what you want to use as black level.
   - White Level: Sets a new default value for what you want to use as white level.

   The system remaps the new Black Level and White Level default values.
5. Click **OK**.
6. Specify the location, give the filename, and click **OK**.

Loading LUTs

When you have a series of varying shots that belong to one film project, you can load an existing LUT and apply it to the shots to create consistency between them. Once you have loaded the LUT, you cannot modify its properties or adjust the Display Gamma value. However, you can invert the values to apply the inverse settings if necessary.

To load a LUT:

1. In the Color Correction property editor or the LogLin Remapping property editor, select the **Levels** property page.
2. Select a color tab (Red, Green, Blue).
3. From the Type drop-down list, select **File LUT**.

   The Open LUT file dialog box is displayed.
4. Select the file and click OK.

   The LUT properties dialog box is displayed. You can change the bit depth of the output, as well as the in/out levels.

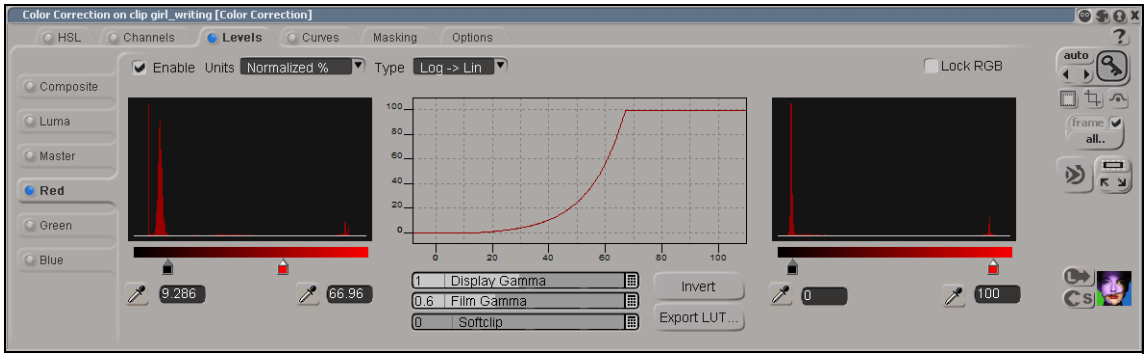
   The system remaps the new default values and the changes can be seen in the curve graph.s

Linearizing Log-based Media

After capturing DPX or Cineon files, you can use the color correction effect or the LinLog Remapping effect to linearize log-based media. Both of these effects are real-time.

To linearize a DPX image:

1. Drag and drop the image from the bin to the timeline.
2. Do one of the following:
   - Apply a color correction effect
   - Apply the Log2Lin effect (\Image Effects folder)
3. Select the Levels property page.



4. Select a color tab (Red, Green, Blue). To apply the same values for all three curves, select **Lock RGB**.

   You can leave the **Normalized %** setting for the Units, unless you want to display using different units.

5. Adjust the Display Gamma control to make a gamma correction or set the gamma value between the set reference black and white.

6. Set the Film Gamma, only if you have determined the film gamma for your footage.

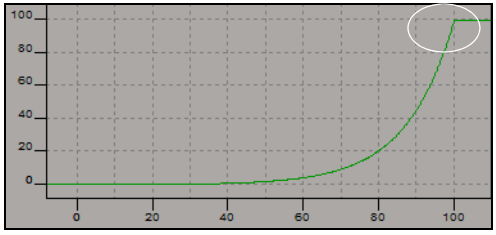
If you don't know the Film Gamma setting, visit the Kodak website to find out how to compute the film's gamma based on the graphics provided for stock films. Otherwise, you can leave the default value and adjust the Display Gamma.

7. Adjust the Softclip value—see "About Softclipping" on page 1285.

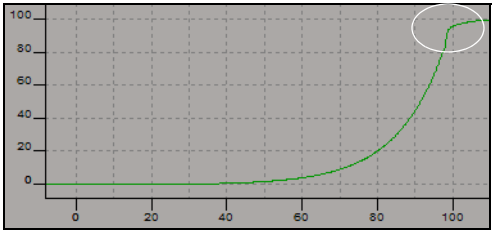
   The image is now linearized. Proceed to edit and apply effects.

About Softclipping

When you linearize film-based material, any color information beyond the reference white value is cut off. Slightly adjusting the softclip value softens the hardness. If your image is too white, you can softclip the whites slightly to add details to the image. You should softclip when you are sure that there's significant and useful information in the highlights that are clipped.



This curve shows that any information above 100% is clipped.



The softclip value is adjusted here. The curve is softer allowing some of the highlight color information that was previously clipped to be part of the image.

Color Correcting a Dark Image

The following example illustrates how to adjust the tonal range of a clip that is too dark because of insufficient light while shooting. The aim of color correcting the image is to give it a daylight effect without losing too much saturation or contrast.

One of the solutions is to increase the proportion of the tonal range that lies between gray and white, enhancing detail in the image. Either the HSL controls or the Level property page can be employed.

This example uses the Color Correction effect as opposed to the Color Correction Classic effect, which can also be applied to achieve the same results. There are two advantages of using the Color Correction effect:

- The HSL controls are laid out for you in fewer property pages. You can also control the settings per color channel.
- By using the Levels property page, you can quickly analyze your image using the histogram, set black and white points, and tweak the color channels in only a few steps.

***Tip**: If you want to start all over again, you can restore the default values. For more information, see "Returning to Default Values" on page 1307.*

Uncorrected image

The image has too much blue color in the midtones and the color cast is dark and unsaturated.

Corrected image

The image is brighter with better contrast.

To color correct a dark image using the HSL controls:

1. Making sure that the position indicator is on the clip, apply a color correction effect.
2. In the Color Correction property editor, select **HSL > Controls > Master** and adjust the **Brightness** until you get a good and acceptable black.

3. Adjust the Gain value to set the white point of the image.

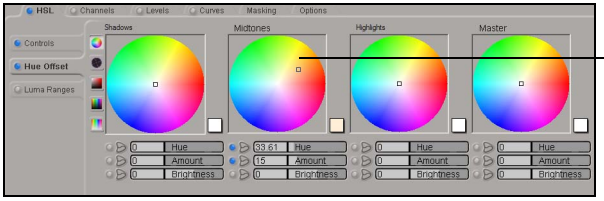
***Tip**: Display the pixel ratio in the viewer.*

4. If your image looks flat, adjust the saturation to give it more depth until you are satisfied.

***Tip**: Select **Lock** to lock the Saturation and Gain controls.*

5. Use the Gamma control to make a gamma correction. This will make adjustments to the midtones of the image without affecting the highlights and shadows.

6. If necessary, continue to make any other adjustments:
   - Highlights: to adjust the brighter parts of the image
   - Midtones: to adjust the midrange part of the image
   - Shadows: to adjust the darker parts of the image
   - RGB: to adjust individual color channels and the RGB value of the image
   - Apha: to adjust the alpha channel of the image
7. To correct the hue or color cast problems, click the **Hue Offset** tab.
8. Drag the color selector of the a color wheel towards the warm yellows and reds. In this example, an adjustment is being made in the



While you drag the color selector in the wheel, the image updates.

You can also use the color picker and pick a blue section of the image which will be applied to the image. You can then subtract the blue hue and then adjust the Hue and Gain values.

9. Fine-tune the changes until you are satisfied with the result.

To color correct a dark image using the Levels property page:

1. Click the **Master** subdividing tab.
2. Use the histogram of the input side to analyze the image.
3. Set the black and white point of the image—"Setting Black and White Points of an Image" on page 1271.
4. In the Histogram of the Input side, do one of the following:
   - Drag the gray slider slightly to the left to increase the general whiteness of the image
   - Type a numerical value in the appropriate text box and press Enter.

   The system maps a new range of input values to a single output value. The changes can be seen in the output histogram.
5. Continue tweaking other tabs until you are satisfied with both the output histogram and the look and feel of the output.

6. On the Masking property page, select the channels on which you want to apply the effect.

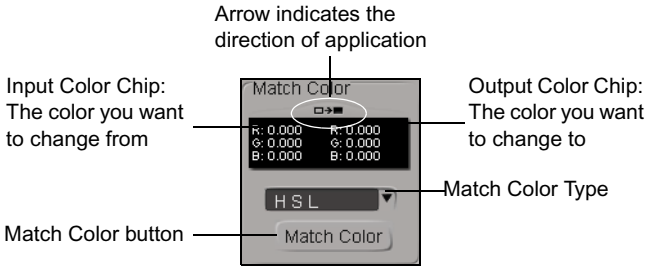
If the alpha channel is used as mask, the effect is applied only to areas of the image where the alpha channel is not black. You can derive masks from the alpha of the input clip or an external matte from another clip.

7. (Optional) Set the **Mix** parameter—see “Mix Parameter For Effects” in the Help.

Color Correction by Matching Clips

When you have two clips shot in the same environment at different times, it is important that the color in both remain consistent. For example, if you have two adjacent clips on your timeline, one with the perfect blue sky tone and the other one with a not-so-perfect blue sky tone because it was shot on a different day or time of day, you can use the Match Color Tool to correct the shots.

The Match Color Tool lets you quickly make a color correction by selecting input and output colors from your images.



Only the Controls and Hue Offset tabs of the HSL property page and the Curves property page include a Match Color Tool.

You can use the Match Color Tool when you have material from a multi-cam shoot; the cameras are shooting the same subject, but the color may be different between the two angles.

The system matches the input color value with the output color value and adjusts all the other color values in the image proportionally. It automatically adjusts selected controls in the group to make the change. You can set the combination of color components the system will use to determine the match from the menu.

***Tip**: You can also use the Match Color Tool as an information palette for checking the exact RGB value of a sample area in an image.*

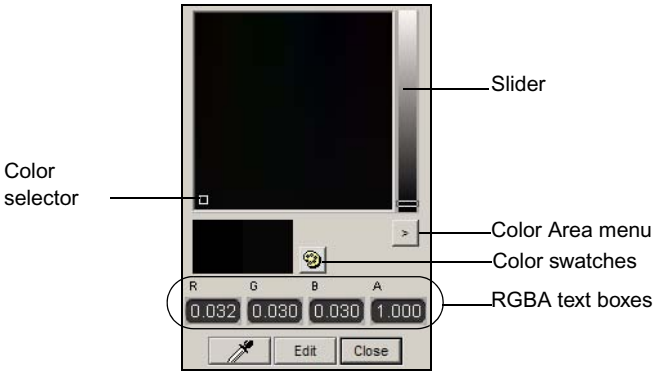
Using the Match Color Chip

You can use the Match color chip to select a color from anywhere on your desktop or from the mini color editor.

To load the mini color editor:

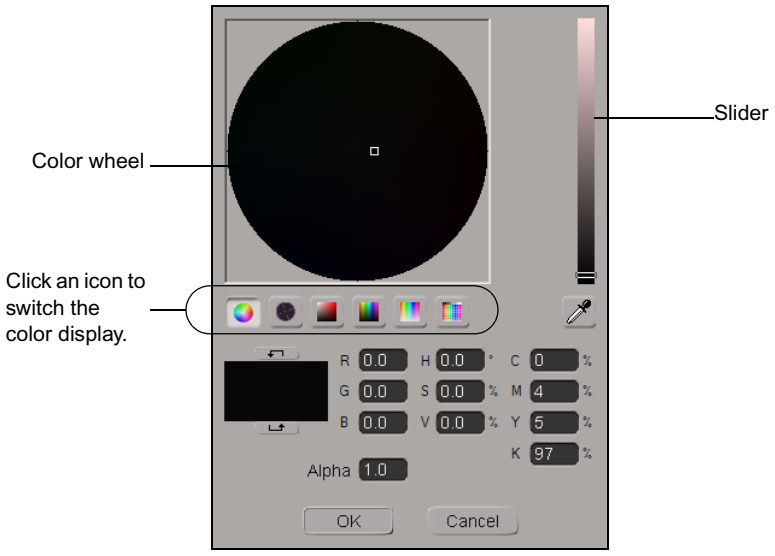
1. Do one of the following:
   - Double-click either the input or output color chip.

     The color editor is displayed.



   - Shift + double-click either the input or output color chip.

     The color editor is displayed.



2. Make the changes in the color editor.
3. Click the **Edit** or **OK** button, depending on which color editor you are using.

***Tip**: To change the display mode of the color chips, right-click the Match Color Tool chip and select from the menu.*

The Natural Match Feature

The Match Color Tool in the Curves property page includes the NaturalMatch™ feature, which allows you to replace the hue values in an image with new output values without distorting the saturation and luminance values in the image.

In many situations, when you are correcting on a shot-to-shot basis, color matching is complicated by differences in lighting between one shot and another. NaturalMatch is particularly useful for adjusting skin tone, even when the reference image shows a significant difference in lighting.

In the following example, the skin tone in clip A has a blue-green tint and is mostly in shadow while clip B is perfect and natural looking in the brightly lit environment. If these clips are presented one after the other on the timeline,

then their color characteristics must match. To achieve a natural-looking correction, you can replace the hue of clip A while preserving the original luminance and saturation characteristics by using the NaturalMatch feature.

Clip A: Uncorrected clip.

This clip has a blue-green tint showing very poor skin tone.

Clip B: Clip to be used for reference.

This clip shows a better skin tone which will be used to color correct Clip A.

Before you begin to use the Match Color Tool to determine which range you want to correct (highlights, midtones, shadows or the master image) and the property page that is best to use to achieve your result. Be sure that your position indicator is on the clip that you want to color correct.

Since the clips are on the timeline and being presented one after the other, we must color correct them so the hue, saturation and luminance remain consistent. This example will also use the NaturalMatch to color correct the skin tone of the fisherman in the second clip by automatically generating the Curves adjustments for all three color channels when matching the skin tones.

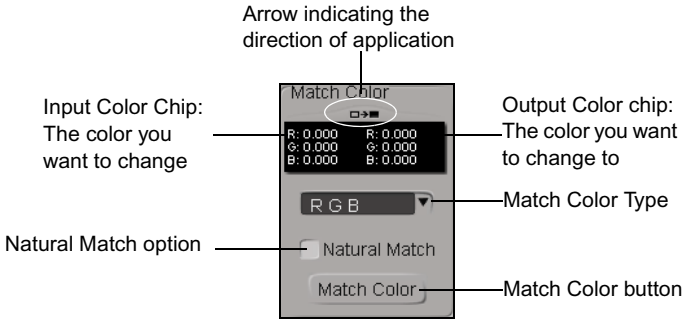
In this first clip, the skin tone of the fisherman looks more natural than the second clip.

The fisherman's skin tone in this clip has a blue-green cast. It should match the preceding and following clips.

The skin tone in this clip will be used to match the fisherman's skin tone in the second clip without losing its luminance and saturation.

To color correct using the Match Color Tool:

1. Select the Curves property page.
2. In the Match Color box, click the input color chip (left) to select the color that you want to correct or replace.

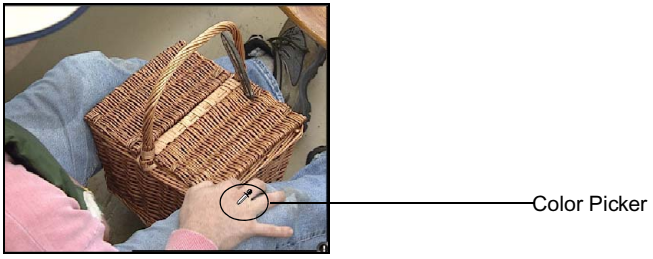


3. Using the Color Picker, point over the color of the image that you want to change and click.

The input color chip changes to the color that is selected and the system updates it with the new color values visible in the left chip.

***Tip**: You can change the type of color values displayed by right-clicking inside the Match Color Chip. For example, if you want to display your color in normalized RGB units select **RGB Normalized** from the context menu.*

4. Now select the output color chip (right) and select the color that you want to use for the matching.



The output color chip changes to the color that is selected and the system updates it with the new color values visible in the right chip.

You should select the output color from an image other than the current clip, such as the next clip or a reference clip.

***Tip**: If you want to refine the color in the chip, double-click inside either the input or output color chip to display a dialog box with a spectrum of colors that you can use or manually type values in the text box.*

5. (Optional) Select a Match Color Type from the pop-up menu to determine the exact nature of the match the system makes.
6. Select the **Natural Match** box.

If you are in the Curves property page, use the Natural Match feature to automatically generate the Curves adjustments for the color channels to compensate for luminance.

7. Click the **Match Color** button to make the color correction.

   The corrected image is displayed in the viewer.

Uncorrected image

Corrected image

   The system adjusts the current clip and resets the controls in the property pages to reflect the adjustment. The Curve graph is updated to reflect the changes made.

8. Continue to tweak the image by using the graph and the three keys in the animation graph.

Click the Help button in the Property Editor for detailed information on the Color Correction properties.

***Tip**: If there are other clips on the timeline that will need to be corrected using the same adjustments, you can save the properties as preset. For more information, see "Using Presets in Graphics" on page 1393.*

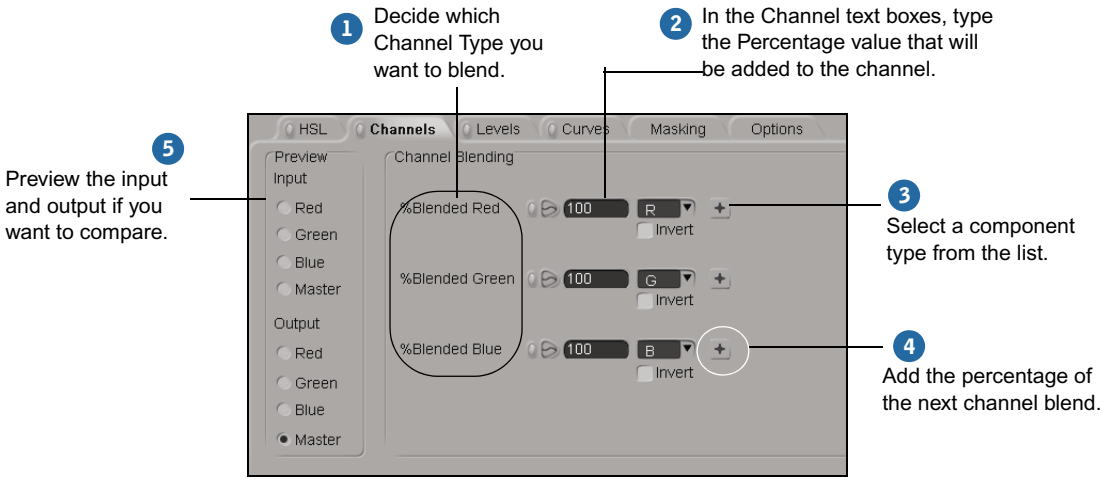
Correcting Inaccurate or Deficient Color Channels

When analyzing footage, you may find that there are parts of the image that have inaccurate or deficient color channels or that an image lacks contrast or is too noisy. You may also have a color channel that is clipped to white, therefore not containing enough information to contribute much detail to the image. These problems are usually solved by channel blending, where the color channel is repaired by "borrowing" from another color channel to improve the appearance of the image.

Channel blending lets you work with components from both the RGB (red, green, blue) and the YCrCb (luminance, red chroma, blue chroma) color spaces. It gives you very precise control over the final composition of each color channel by letting you create a formula that you can use to correct the inaccurate or deficient color channel.

The Channels property page of the Color Correction property editor, also allows you to preview the individual uncorrected color channels in monochrome in order to check the amount of contrast or noise in each channel. If, for example, the image lacks contrast, you can use the channel blending properties to adjust other channel values to add contrast to the image.

The following is a typical workflow for channel blending.



Channel Blending Considerations

1. When you find that one of your color channels has a problem that you want to correct by blending, you need to look for another color component that can correct the problem while minimizing any unwanted changes. In general, you should look for a component that exhibits less of the specific problem you want to correct, but otherwise looks similar to the problem channel.
2. You do not have to restrict your component choices to the same color space (RGB or YCrCb). In fact, it is common practice when performing advanced color correction to borrow from a different color space.

   For example, if you have a green channel that is noisy in the highlight range, you might find that the Cb (blue chroma) component has less highlight noise. but is otherwise similar in its brightness distribution to the green channel. Blending a percentage of Cb into the green channel will reduce the noise without greatly disturbing other aspects of the channel.
3. You can preview the full range of color components available by temporarily redefining one of the existing channels. For example, if you want to see what the Cb component looks like in comparison to your problem green channel, you can redefine the red channel as 100% Cb. Then you can switch back and forth between the Red Input and Green Input previews to compare the two.

The total of the percentages you set for a channel does not need to be 100. The percentage values simply indicate relative proportions of one component as opposed to others.

The following example, shows how an individual color channel is altered by blending. The preview of the Master input channels shows an acceptable overall contrast, however the Blue Input monochrome preview shows that the blue channel lacks contrast. In this example, the best solution is to blend a percentage of the green channel into the blue channel to reintroduce contrast and detail.

To correct a deficient color channel in an image:

1. Select the Channels property page.
2. Select the **Blue Input** option to preview the blue channel in monochrome.

Uncorrected image

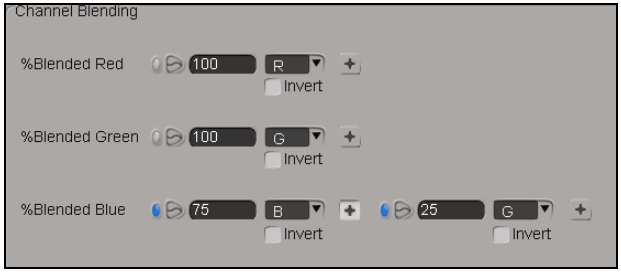
The preview of the master input does not provide much information on the contrast.

Corrected image

The preview of the blue input shows a lack of contrast at the lower half of the image.

***Tip**: Select **Master** to preview the complete uncorrected image in color. While correcting color channels, use the Output in the Preview panel to see how your image looks while you blend color channels.*

3. In the Channel Blending box set the %Blended Blue to **75**.
4. Click the plus (+) button and add **25%** Green.



5. Preview the output image.

The preview of the blue channel output shows more detail in the lower half of the image.

Although the preview of the Master output is less dramatic, it improves the look of the sky and reduces the strength of the yellow color.

6. Continue tweaking the percentage values until you are satisfied with the output.

Adjusting Curves to Color Correct

Complex tasks, such as color and luminance adjustments, are easily achieved by adjusting the curves in the Curves property page without having to use many controls. The same task can be achieved by adjusting more than one control and the color wheels in the HSL property page. However, in the Curves property page, the same task can be accomplished by fewer steps. Adjustments in this page are made by manipulating the keys. You can add as many keyframes as you want to control color with great precision, since you can make detailed adjustments to many different subdivisions of the brightness range.

The following example illustrates how to use curves to make a simple adjustment. You will learn how curves can be used to control color across different parts of the brightness image. This example will adjust the Red curve.

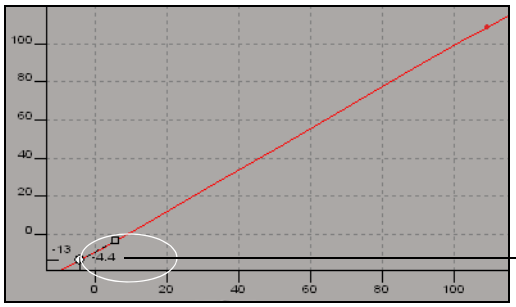
Original image

To adjust curves:

1. Select the Curves property page.
2. From the Channels box, select the **Red** option to show the curve in the graph.
3. Select the first keyframe of the curve and drag the keyframe downwards to reduce it slightly.

***Tip**: You can type the input and output values for the position of the keyframe in the X and Y text boxes below the graph. Press Enter.*

This will reduce the darker parts of your image as seen here. If you want to make these parts darker, then you must increase the output value (Y axis).



The curve is adjusted

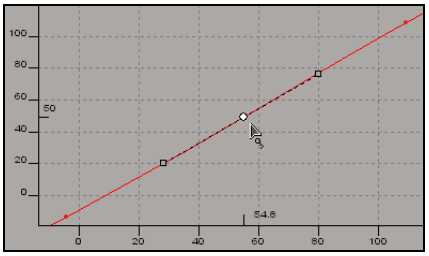
Notice how much of the red tone is lost from the background grass, the shirt, and the lower red sign post, which loses much of its detail. The higher red sign post is relatively less desaturated, however, and some of the reddish tinge is retained in the cloud highlights in the top right.

***Tip**: To compare the results with the original image, you can toggle the **Enable** button on and off.*

4. Select the next keyframe and adjust it until there's more detail and contrast in the image.

   Adjusting this keyframe will reduce the lighter parts of the image. To make them lighter, increase the output value.

5. You can add more keyframes as needed. Hold down the A key and click the middle of the curve to add a keyframe.



6. Select the keyframe and adjust it.
7. Continue adding and/or tweaking the curve until you are satisfied with the result.

Setting Legal Luma, Chroma, and RGB Values

One of the frustrating things that can happen to a colorist after completing a color correcting task is to have material returned because the output is not within legal broadcasting limits. Especially when you are being creative or experimenting with cool color effects, you must always maintain legal values or levels.

If the waveform monitor reports illegal values or shows that the levels are beyond safe color limits, you must enable the luma, chroma, and RGB clipping options in the HSL property page of the Color Correction effect. If you are using the Color Correction Classic effect, be sure to select the Clamp to Video option. This will preserve the full pixel range and comply with transmission standards.

Colors are clipped first in RGB color space and then in Luma/Chroma color space at the Luma/Chroma clip levels. Therefore, when you set luma and chroma clipping values, then these settings will override those of the RGB clipping value. Also note that if you are working in either the Natural Correction or Preserve Luma Correction mode, previously set RGB clippings values may be invalidated.

To set legal luma and chroma values:

- **Color Correction Effect**: On the Master tab of the HSL property page, use the Luma and Chroma clipping sliders or text boxes to set the legal limits and then make sure the values are enabled.
- **Color Correction Classic Effect**: On the Basic property page, select **Clamp to Video Levels**.

To set legal RGB values:

- In the RGB property page, use Red, Green, or Blue clipping sliders or text boxes to set the desired RGB limits and them make sure the values are enabled.

***Tip**: Select **Lock RGB Clipping** in the RGB box to lock all RGB channel limits to the same values while making further adjustments.*

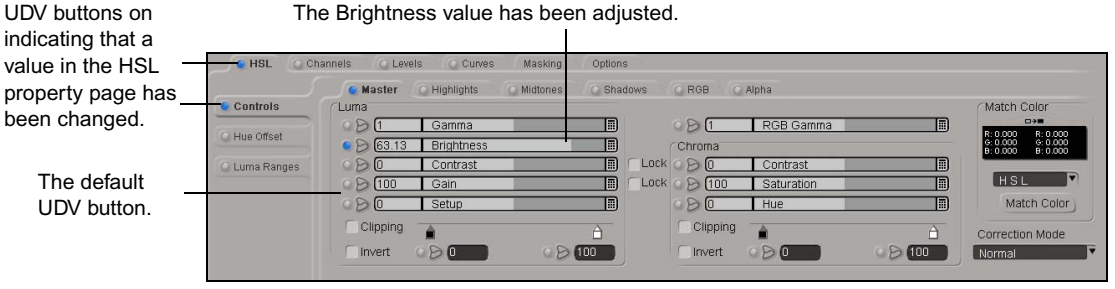
Returning to Default Values

In the process of color correcting images, you may feel that you are not achieving the effect you had in mind. You can use the Use Default Value (UDV) button located next to every adjustable parameter to return to the default value of that parameter. It is also located on the subdividing tab where the parameter belongs and all property pages that have adjustable parameters. After adjusting a value, you will notice that the UDV button turns blue, as well as the UDV button of the subdividing tab and the associated property page turns blue.

On the Curves property page, although there is no specific UDV button for the graph or even the options for the channels, changing the curve or color correcting the image using the Match Color Tool, adjusts the default values. The change is indicated by the UDV button on the Curves property page.

It is important to differentiate between the user value and the default value. The user value is simply the new set value that replaces the default value.

The UDV button is only available in the Color Correction and Color Correction Classic property editors.



You can also use the UDV button if you want to see the effect of your changes by temporarily deactivating the adjustments made to other values. For example, if you adjust the hue and saturation properties of the Master image in the HSL property page and you want to adjust the hue and saturation of the highlights, you can use the UDV button to temporarily deactivate the Master hue and saturation by returning to their default values. You can go ahead and change the hue and saturation properties of the highlights without the influence of the previously adjusted values.

To return to the default value:

Do this	To
Click	Return to the default value and temporarily use the default value to see the effect of parameters on your image without the influence of modified parameters. The UDV button works as a toggle; it turns light blue the system is using the default value for the affected property. When you turn it off, it returns to the blue color indicating that the set user value will be used when the system processes the image.
Ctrl-click	Return to the default value. You have now erased the user value previously set. You can adjust as many values as you want and restore the default values. The UDV button returns to the default gray and the slider returns to its default position.
Shift-click	Restore the user values of all properties at once. It is useful to restore all user values of a property page or subdividing page. It is similar to clicking the UDV button for each parameter for that property page or subdividing page.
Ctrl + Shift-click	Reset the default values at specific keyframes—see "Animating with the Color Correction Effect" on page 1308.

***Tip**: To restore the default values of the entire property page, Ctrl-click the UDV button of the property page.*

Animating with the Color Correction Effect

When creating animations using the Color Correction effects, you can use the UDV button to reset the default values for a specific keyframe that you want to use in your animation without restoring the default values for the entire clip or erasing the animation on the clip. For more information, see "Creating Animation" on page 963 of the *Avid DS Nitris Editing Guide*.

To restore default values at a keyframe:

1. Move the position indicator to the frame on which you want the animation to start.
2. Adjust the properties that you want to animate.
3. Set a keyframe.
4. Move to a different position in the clip where you want to set a keyframe using the default values.
5. Ctrl + Shift-click the **UDV** buttons of the properties that you made changes to.

   The Set/Remove button for the properties change to yellow, indicating that a temporary key has been set.
6. Click the yellow **Set/Remove** button to set a keyframe at this position.
7. In the property editor, click **Preview** to view the animation.

Chapter 5
Transforming Images

Avid DS Nitris allows you to transform images by scaling, translating, rotating, cropping, or changing the perspective.

Applying a DVE

You can apply DVEs to clips using one of the following ways:

- **Timeline**: You can apply the DVE effect on the timeline as you would with any other effect—see "Applying Effects to the Timeline Effect Track" on page 216 of the *Avid DS Nitris Getting Started Guide*.
- **Layers**: You can apply a DVE on each layer of the composite—see "Applying a DVE to a Layer" on page 1312.

  You can also apply a global DVE to transform several layers—see "Applying a Global DVE in the Layers View" on page 1319.
- **Effects Trees**: You can apply a DVE in the Effects Tree as would with any other effect—see "Adding Effect Nodes to a Tree" on page 1178.

  You can also transform several images in the Effects Tree by adding a Transform node—see "Transform Trees" on page 1320.

***Tip**: When processing the DVE effect, you may notice a slight difference in the quality of the realtime and the processed DVE. The difference may be more pronounced for DVEs that are partially processed (one part of the clip is realtime and another is processed). In these cases, it is strongly recommended that you process the entire effect in order to remove the boundary between the realtime portion and the processed portion of the effect.*

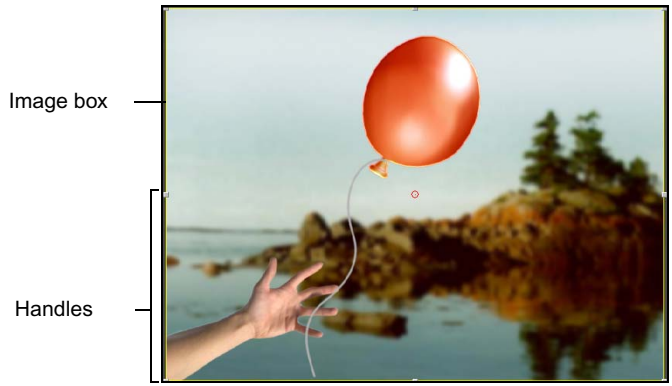
Applying a DVE to a Layer

The most common way to apply a DVE is through the Layers view.

To apply a DVE to a layer:

1. In the Compositing layout, create a composite with your clips.
2. In the Layers view, click the **DVE** button on the layer on which you want to apply the transformation.

   The DVE is applied to all clips on that layer and a yellow bounding box surrounds the image in the viewer. The DVE property editor is displayed.



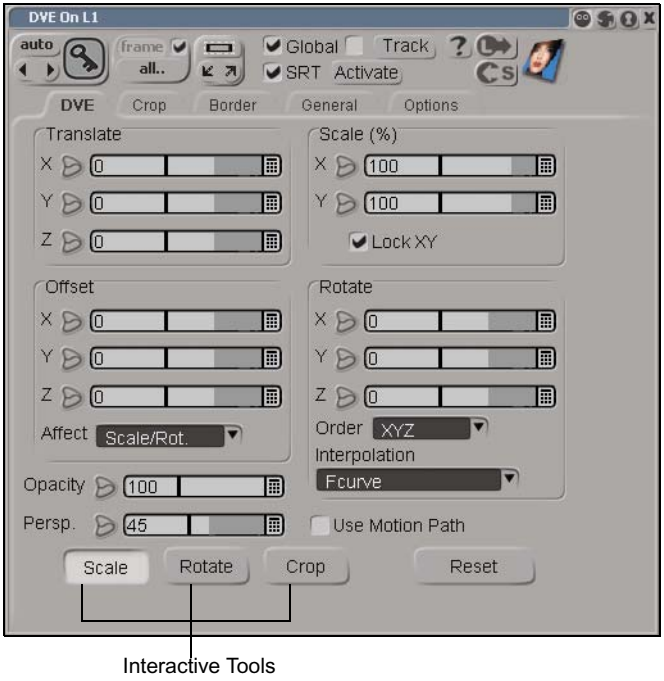
You can transform the image interactively in the viewer by repositioning the image box or adjusting its handles to change the dimensions. The direction of the transformation is based on the X, Y, and Z axes (Cartesian 3D space).

***Tip**: You can also animate the position of an image over time. For more information, see "Creating a Motion Path" on page 1332.*

3. Select one of the interactive tools in the DVE property editor before adjusting the image in the viewer.

   You can select these tools from the DVE toolbar or use the keyboard shortcuts to activate the Scale, Rotate, or Crop tools. The complete list of keyboard shortcuts is available from the Help menu in Avid DS Nitris.

   Any transformations that you apply in the viewer are reflected in numeric values in the property editor, where they can be adjusted to fine-tune the position of the image.



***Tip**: By default, an image rotates around its center and its image offset is 0. You can shift the center of rotation by entering different X, Y, and Z values for the image offset.*

4. You can now translate, scale, rotate, or crop the image—see "Translating an Image" on page 1316, "Scaling an Image" on page 1316, "Rotating an Image" on page 1317, and "Cropping an Image" on page 1318.
5. After applying the transformation, you can set other options on the General property page, such as the quality settings, transform channels, and motion blur.
6. On the Options property page, select the appropriate options.

Click the Help button for detailed information on the Processing options.

Locking DVEs

When you want to focus on one particular DVE, you can lock it so that all manipulations are only applied to a selected DVE. This helps you avoid accidentally selecting another DVE while you're manipulating the locked DVE.

When you click the Lock button on the DVE toolbar, the selected layer becomes locked. If you want to work on another layer while in Lock mode, simply select another layer in the Layers view.

To lock a DVE:

1. On the Layers view, select a layer containing a DVE.
2. Select **View > Default toolbars > DVE tools**.
3. From the DVE toolbar, click the **Lock** button.

   The selected DVE is locked.

Transforming an Image

After applying a DVE to the image, you can transform it by translating, scaling, or rotating it. Using the DVE property editor, you can also crop the image or adjust the border.

Translating an Image

You can move an image in any of the X, Y, or Z axes. When you translate in the X direction, the image moves from left to right; in the Y axis, the image moves up or down; in the Z axis, it moves from front to back.

***Tip**: You can constrain the tool to move only along the X axis or only along the Y axis. First, press the Shift key to constrain the movement and then move the image in the desired direction.*

To translate an image:

1. In the DVE property editor, select the **DVE** property page.
2. In the viewer, move the image unattractively by dragging the image box.

   The pointer changes to the translate cursor.

   You can also type the exact X, Y and Z coordinates in the respective text boxes or use keyboard shortcuts to interactively move the image in different planes. The complete list of keyboard shortcuts is available from the Help menu in Avid DS Nitris.

***Tip**: You can offset the image without changing the Translation values in the DVE property editor by holding down the Ctrl key and moving the image interactively in the viewer.*

Scaling an Image

You can scale an image to size by changing its height and width.

To scale an image:

1. In the DVE property editor, select the **DVE** property page.
2. In the viewer, position the pointer over a handle on the image box.

   The pointer changes to the scale cursor.

To	Do this
Scale the image proportionally	Drag one of the corner handles inwards or outwards
Scale without maintaining the image proportions	Press Shift and drag one of the corner handles
Adjust the height or width of the image	Drag one of the side handles

Rotating an Image

You can rotate an image around any of its three axes by using the pointer to turn the image and define the rotation visually in the viewer.

To rotate an image:

1. In the DVE property editor, select the **DVE** tab.
2. Select the **Rotate** tool.

3. In the viewer, position the pointer over a handle on the image box.

   The pointer changes to the rotate cursor.

To	Do this
Rotate the image around the image's Z axis	Drag one of the corner handle
Rotate the image around the image's X axis	Drag the middle top or bottom handles
Rotate the image around the image's Y axis	Drag one of the middle side handles

***Tip**: To translate a rotated image in its own plane, first hold down the I key and then translate your image interactively in the viewer.*

Cropping an Image

Cropping lets you cut away portions of an image. You can crop an image on either the X or Y axis using the handles in the viewer. You can also select the part of the image that you want to keep by drawing a rectangle around it.

To crop an image:

1. In the DVE property editor, select the **DVE** tab.
2. Select the **Crop** tool.
3. In the viewer, position the pointer over a handle on the image box.

   The pointer changes to the crop cursor.
   Any area outside the box is cropped.

To	Do this
Crop two adjacent sides	Drag a corner handle
Crop the selected side of the image	Drag a middle handle
Draw a rectangle around the image	Press R and drag the mouse

Transformation in Layers View and Effects Tree

Local and global transformations can be achieved from the Layers view or the Effects Tree. In the Layers View, a global DVE is used to specify a global transformation that is optionally used by the DVE effect present on each layer for the transformation. In the Effects Tree, transform trees are built by using *Transform* nodes and *Rasterization* effect nodes.

Applying a Global DVE in the Layers View

The global DVE in the Layers view applies a common transformation around a global axis to all participating layers after a local transform, such as through a DVE effect, has been applied.

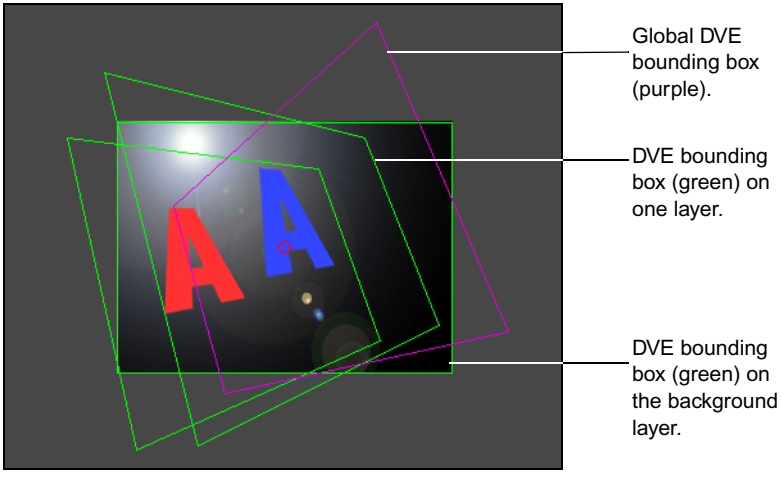
To apply a global DVE:

1. Right-click an empty area of the Layers view and select **Global DVE Controls**.

   A purple bounding box surrounds all the DVEs. It lets you interactively manipulate all participating DVEs in the viewer. The global DVE property editor is displayed.

   Although no handles are displayed on the purple bounding box, the pointer changes to indicate the transformation mode (scale, rotate, or translate) when you position it inside the bounding box.

Viewer displayed in wireframe mode.



Green bounding boxes surround each layer affected by the DVE. If you select one of the green bounding boxes, its color changes to yellow indicating the selected layer. You can interactively make changes just to that layer. You can also select it by clicking the corresponding layer in the Layers view.

2. Scale, rotate, or translate the image the same way as with the DVE tool by interactively manipulating the global DVE wireframe in the viewer or by using the global DVE property editor.

***Tip**: If you do not want the global DVE to affect a specific layer, open its DVE property editor and deselect the **Global** option.*

Transform Trees

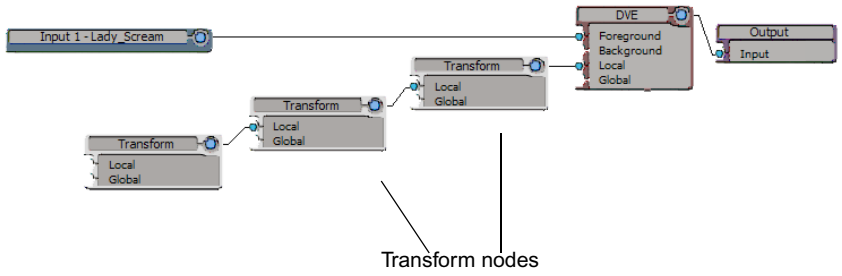
Transformation hierarchies in the Effects Tree are achieved by using the *Transform nodes* and *Rasterization* effect nodes that process the images according to a specified transformation. The same input and output connection mechanism used when building Effects Trees is also employed. For more information, see "Using Effects Trees" on page 1171.

What are Transform Nodes?

Transform nodes are used only to specify the actual transformation. They solve problems faced when you add one DVE effect node after another to transform images. For example, when performing a series of transformations using concatenated DVEs, you risk losing the quality of the image or clipping the images.

To add a Transform node to the Effects Tree:

- Do one of the following:
  - In an empty area of the Effects Tree, right-click and select **Add Transform**.
  - In an empty area of the Effects Tree, press T on the keyboard.
  - From the Avid Explorer, drag the Transform preset from either the \DVE or \Tree Effects folder.



Transform nodes have the following features:

- Specify their own local transformation using properties in the property editor
- Concatenate their own transformation with the transformation supplied through their local and global input.
- The output of the Transform node can be connected to the input of another Transform node or a *Rasterization* effect node.
- Has fully animated properties just like any other effect node.
- Has interactive transformation tools.
- Can be bypassed. Bypassing disables the transformation of that particular node.
- The connection between a transform node to another transform node or to a Local or Global Transform port in the DVE effect node are gray. Notice that when connecting the ports, the color of the connector as you drag it is orange.

What are Rasterization Effect Nodes?

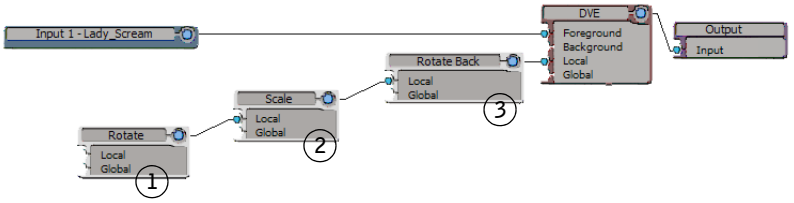
Rasterization effect nodes, such as the DVE, 3D DVE, and Tracker, are responsible for manipulating input images according to transformations supplied as inputs. They have the following features:

- Specify their own local transformation using properties in the property editor or the interactive tool.
- Concantenate their own transformation with the transformation supplied through their local and global input.

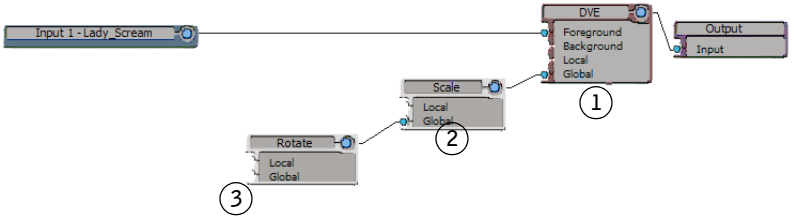
- The local or global inputs of the Rasterization nodes can only be connected to the output of a Transform node. However, the output of the Rasterization node cannot be connected to a local or global input of any other node.
- Provide camera perspective controls.

What is the Difference between Local and Global Inputs?

The local input for a particular node is used to specify a transformation that is applied *before* the transformation supplied by the node. In the example below using the local input in each node, the image is first rotated, then scaled, and finally rotated back before being rasterized in the DVE node. The transformation is applied around the local axis of the image or images.



The global input for a particular node is used to specify a transformation that is applied *after* the transformation supplied by the node. In the following example, the global input is used to connect the Transform nodes after being rasterized in the DVE node. The transformation is applied around the global axis corresponding to the transform node connected to the input.



If both local and global inputs of a node are connected and a local transformation is specified using the properties of the node, then the local is applied first, followed by the local transformation, and finally the global.

The local and global inputs work the same way in both the Transform node and Rasterization effect nodes. In Rasterization nodes, such as the DVE, the camera properties such as the Perspective are applied after the local and global transformations.

Working with Transform Trees

By using the flexible connection mechanism of the Effects Tree and the ability to order the transformations according to the local and global inputs, transform trees can be used to solve multiple problems.

This section will present solutions to some of these problems.

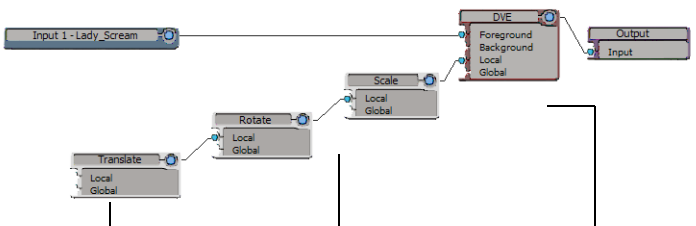
Visualization of Sequential DVE Transformations

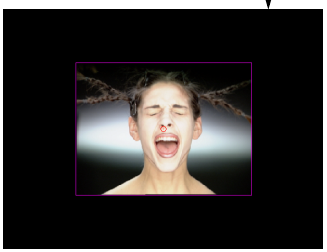
Problem: Visualizing a series of transformations before they are actually applied to an image.

It is important to visualize the transformations before they are applied to the image. To accomplish this, you can add as many Transform nodes as needed in your Effects Tree, connecting them to each other and the Rasterization effect nodes using local inputs. The last result can then be connected to a Rasterization node to finally transform the image. You should plan before hand which transform should come first, next and so on.

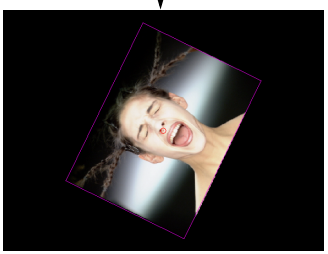
The Transform nodes are connected to each other through the local input.

The task is to translate the image in z, then rotate around the z axis, and finally scale it up.

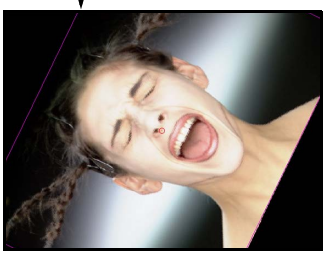




The image is first translated.



Then it is rotated.

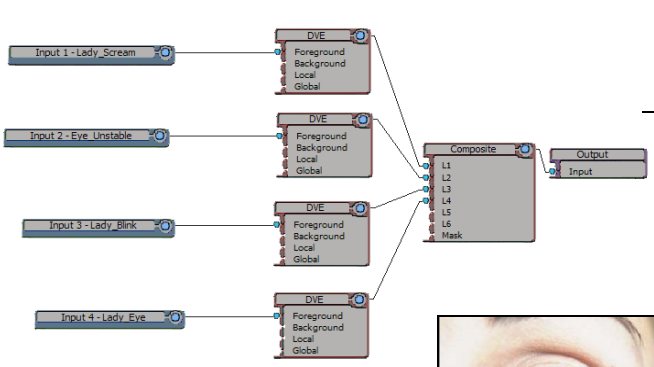


Finally, the image is scaled up.

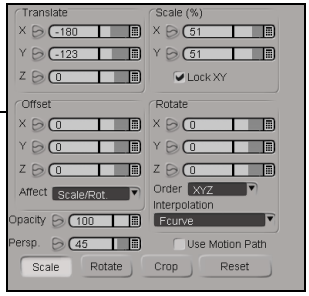
Globally Transforming Multiple Images

Problem: Applying a common transform around a global axis on multiple images.

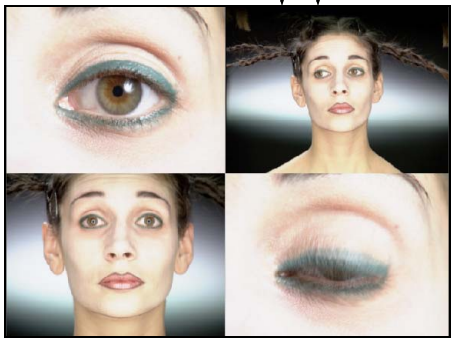
The following example uses multiple images which have been used to create a video wall. The video wall was created by applying a DVE effect on each image. Each image is scaled and translated to one of the four corners using the local transform of each DVE node.



The Effects Tree built and used to create the video wall.

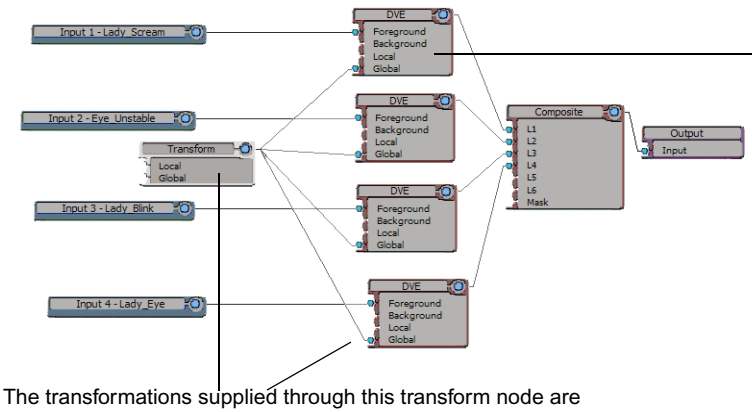


The DVE property editor.



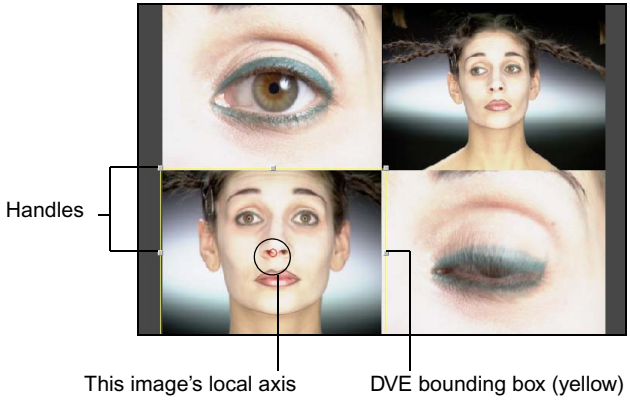
To globally transform multiple images in the Effects Tree:

1. Add the Transform Node.
2. Connect it to the global input of each of the DVE nodes.



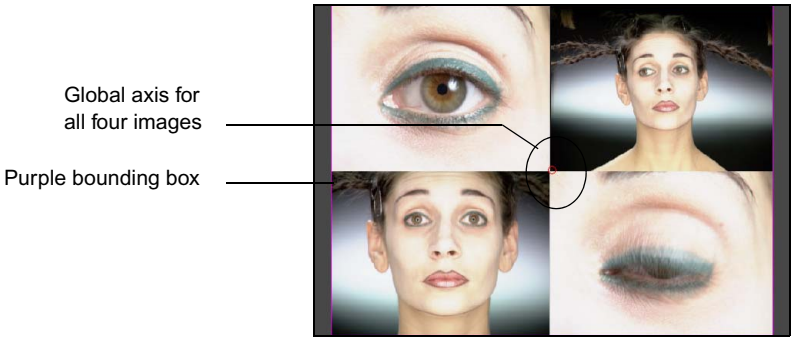
Each DVE node has its own local transformation (scale and translation).

The transformations supplied through this transform node are applied after each local transformation as it's connected to the global input.



3. Open the Transform Node property editor.

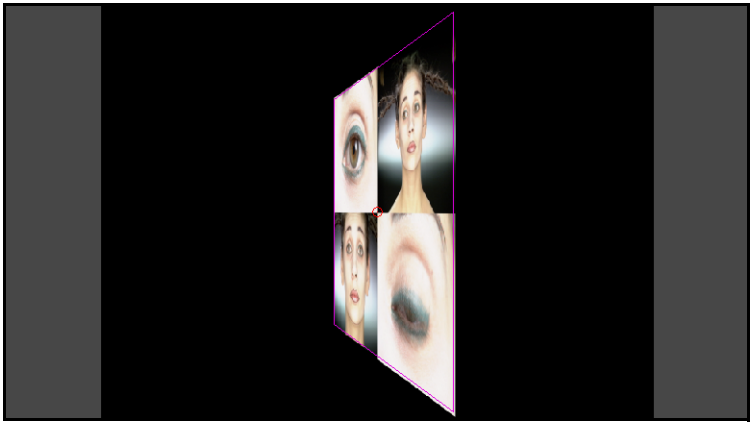
   A purple bounding box surrounds all the DVEs that the Transform node has been connected to.



4. You can interactively manipulate the purple bounding box in the viewer.

   Since all nodes are connected to the same Transform node, all images will be transformed by the same values around a global axis.

   In the following example, the Transform node is used to rotate all four images using the global axis.



Multi-Level Global DVE in the Effects Tree

Problem: Applying transformation around multiple global axis.

Using the example of the video wall, the following example illustrates how you can transform a set of images around two separate global axes and then finally transform the result around a single common global axis.

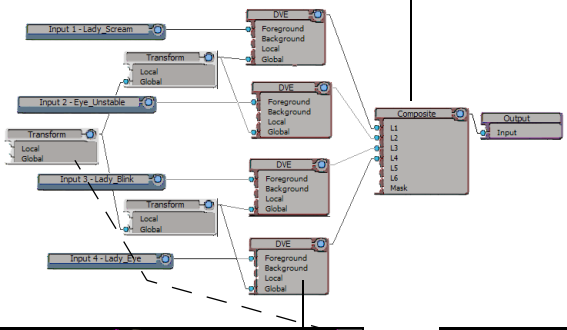
***Tip**: Rename the Transform nodes to differentiate them. For more information, see "Renaming Nodes" on page 1191.*

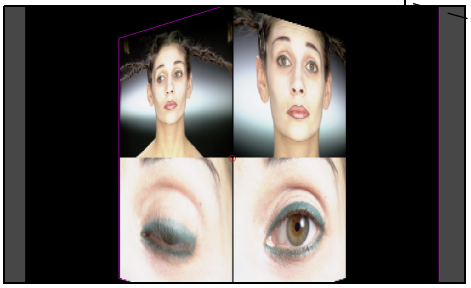
To apply a multi-level global transformation:

1. Add a Transform node and connect it to the global input of the first two DVE nodes.

2. Open the Transform node's property editor and interactively transform the image.

   In this example, the images on the right were rotated.





3. Add another Transform node and connect it to the global input of the next two DVE nodes.

4. Open its property editor and transform the image.

   In this example, the images on the left were rotated.

5. Add another Transform node to the Effects Tree and connect it to the global inputs of the two Transform nodes.

6. Open the Transform node and transform the images. Notice that the entire image is transformed around a common global axis.

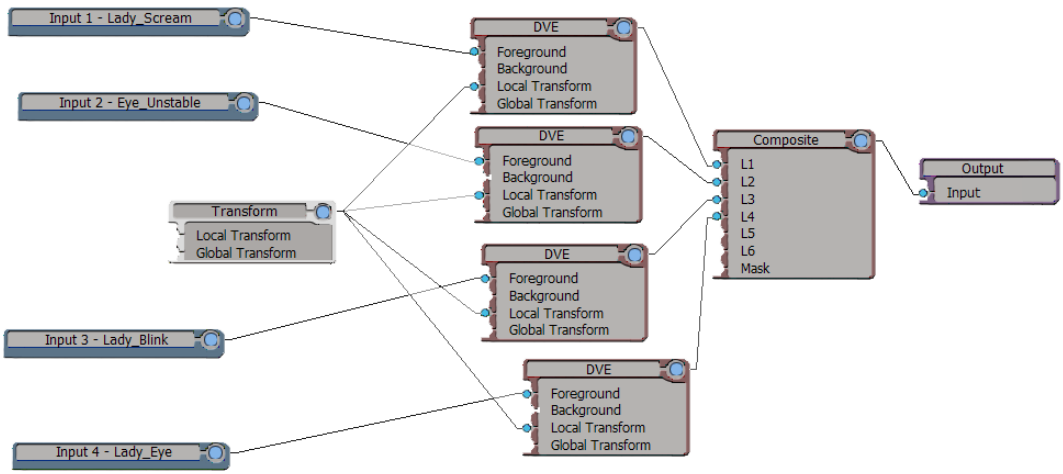
Common Transformation Around a Local Axis

Problem: When you have multiple images and you want to apply the exact same transformation around the local axis of each image.

The following example builds upon the video wall case and illustrates how to rotate and scale all the images by the same amount around their own local axis.

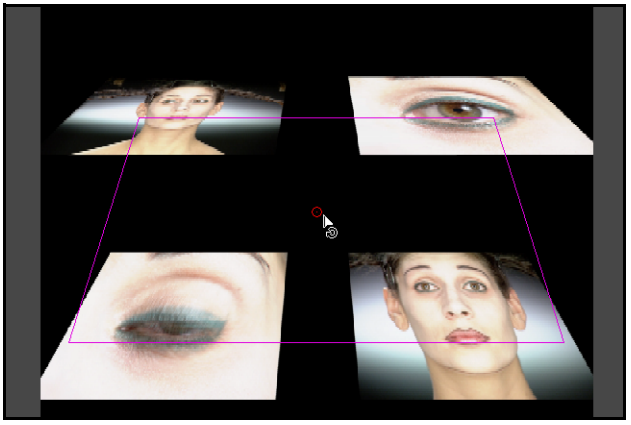
To globally and locally transform images:

1. Add a Transform node for each DVE node and connect them using the local input.



2. Open the Transform node's property editor and scale, rotate, or translate the image.

   In this example, the entire videowall was rotated around its local X axis.



3. Open the Transform node and scale, rotate, or translate the entire video wall.

Remember that the Transform node is fully animated which you can use to create very interesting effects.

Corner Pinning

By repositioning the four corners of an image, you can create any four-sided shape. This is known as *corner pinning*.

***Tip**: The corner pin effect is also available as a clip effect in the \Image Effects folder.*

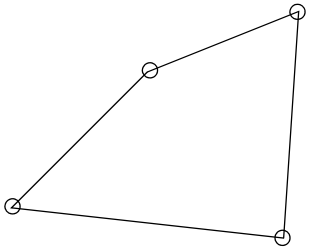
To apply 4-point corner pinning:

1. In the DVE property editor, deselect the **Global** and **SRT** options to turn off any other transformations while you work on corner pinning your image.

2. Select the **Track** option.

   Corner pins are displayed in the four corners of the image.

3. Drag each corner to reshape the image.



4. Select the **Global DVE** and **SRT DVE** options.

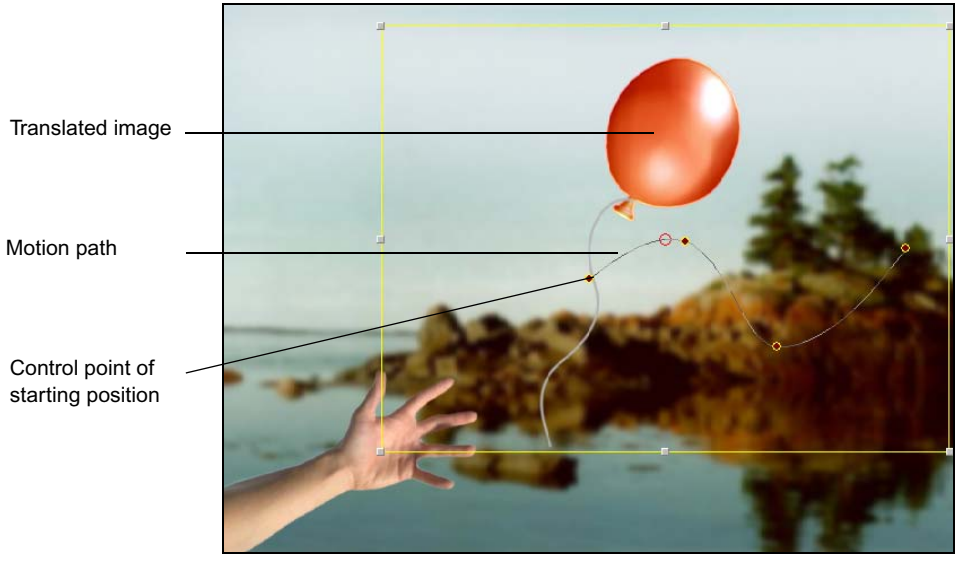
Working with Motion Paths

Motion paths are useful for applying transformations between two clips, such as push-wipes, fly-bys, or picture-in-picture effects.

Creating a Motion Path

By animating the position of an image, you can create effects, such as fly-bys. You can also create a motion path by moving the image from one frame to the next and setting keyframes. This animation is represented by a motion path, a trajectory that the image follows when you play the animation. Once you create the motion path, you can edit it in the viewer. For more information, see “Editing a Motion Path” on page 1333.

Also, all of the animated properties are represented by function curves which plot the property’s values over time. For more information, see “Creating Animation” and “Understanding the Animation Editor” in the Help.



To create a motion path:

1. On the timeline, place the position indicator on the frame on which the animation will start.
2. In the DVE property editor, select the **Use Motion Path** option.
3. Click the **Autokey** button to set the Autokey mode.
4. Click the **Animation Key** button to set the first keyframe.

   A yellow circle is displayed on the center of the object to indicate that a keyframe is set and motion path recording has started.

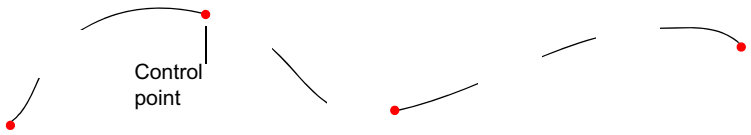
   All subsequent keyframes are created automatically when you move to another frame and move the image.
5. Go to the next frame on which you want to change the DVE properties, and make the necessary changes.

   The first control point in the motion path is displayed in the viewer.
6. Repeat step 5 for subsequent frames.

   Each time the motion path is extended, new controls points are added to it.

Editing a Motion Path

The motion path is indicated by black and white dotted lines with control points that represent the new position of the image at a given frame.



To edit the animation, you can modify the motion path by adding, moving or removing control points. You can also change the curvature of the motion path, as well as the speed at which the image travels along the path.

To move a control point:

- In the viewer, drag a control point to a new location.

  The control point moves to a new position, while maintaining the same timecode.

To add a control point:

- Press A and click the motion path where you want to position the image.

  A control point is added at the corresponding timecode.

To move control points:

- Do one of the following in the viewer:
  - Click the control point(s) that you want to select, and then drag them in the viewer. To lock the X and Y translation, press Shift.
  - Press Shift+R and drag to form a rectangle around the control points that you want to select, and then drag them in the viewer.

  The selected control points are moved to new positions, while maintaining their timecodes.

***Tip**: If you want to lock the layer that contains the motion path, press Ctrl+L (one). To unlock the layer, press Ctrl+L (one) again.*

To remove the motion path:

- In the DVE property editor, right-click the **Animation Key** button and select **Remove Animation**.

  All control points are removed and the image maintains its position on the current frame.

To change the curvature of the motion path:

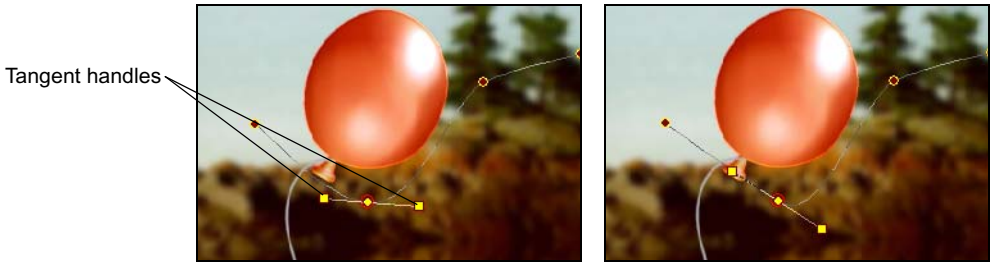
1. In the viewer, select a control point.

   The tangent handles are displayed.

2. Drag the tangent handles.

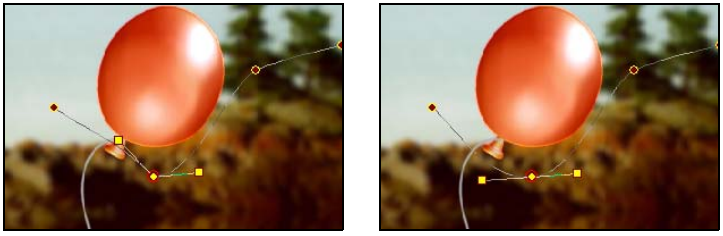
   The curvature of the motion path changes at the selected control point.

***Tip**: If the tangent handle is very close to the control point, press H and drag to give priority to the tangent handle.*



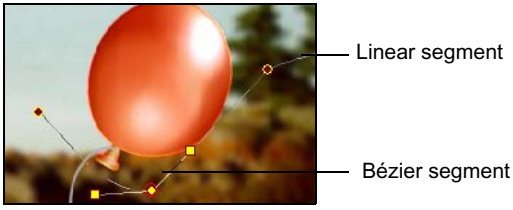
3. To break the tangent, press B and drag a tangent handle.
4. To unify a broken tangent handle, press U and drag a tangent handle.

   The opposite tangent handle is aligned with the selected tangent handle.

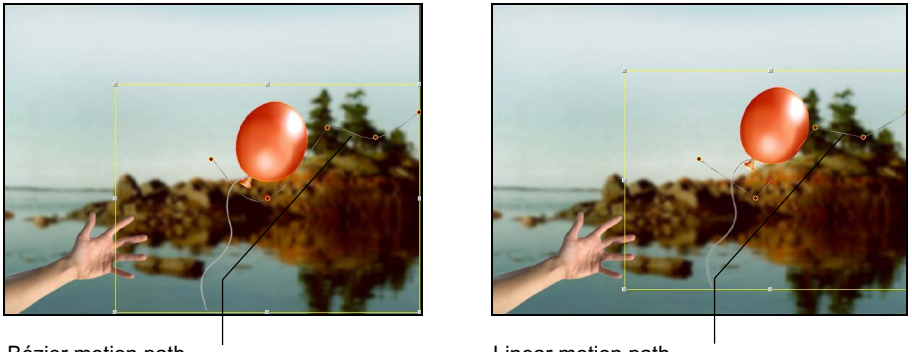


Broken Unified

5. To change the curvature while maintaining the ratio between the tangent handles, press R and drag a handle.
6. To convert an interval between two keyframes to a linear curve, press the semicolon (;) key and, on the motion path, click the interval that you want to convert.
7. To convert an interval between two keyframes to a Bézier curve, press the apostrophe (’) key and, on the motion path, click the interval that you want to convert.



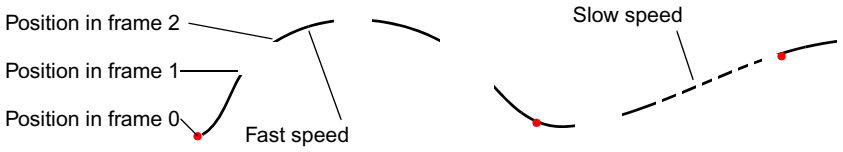
8. To convert the entire motion path to a different type of curve, in the animation editor, right-click the Animation Key button and select one of the following:
   - **Bézier** to create a smooth spline curve that you can edit using the tangent handles at keyframes.
   - **Linear** to create a straight line between keyframes.



Changing the Speed of the Motion Path

The speed at which the image moves in the viewer depends on the distance and number of frames between keyframes. If the image moves across the viewer in a single frame, the speed of translation is high. If it takes 30 frames for the image to move across the viewer, the speed is slower.

On the motion path, this speed is represented by a series of black and white segments. Each segment represents the distance that the image travels from one frame to the next. If the segments are long, the image is moving fast; if they are short the image is moving slowly.



By default, the image moves smoothly along the entire motion path. Depending on the type of motion that you want to create, you can set the speed type at each keyframe.

To change the speed of translation, do one of the following:

- To slow down the motion, move the keyframes closer together.
- To speed up the motion, move the keyframes farther apart.

To adjust the speed between keyframes:

- In the viewer, right-click a keyframe and select one of the following:

Option	To
Stay Until Next Key	Maintain the image's current position until the next keyframe.
Constant Speed	Move the image at a constant speed from the current keyframe to the next.
Smooth Speed	Adjust the speed of the image before and after the keyframe to create a smooth motion.
Ease In/Ease Out	Slow down the image, stop at the current keyframe, and then speed up again.

Previewing an Animated DVE

You can preview the DVE animation in the viewer in real time using the Wireframe Preview button on the DVE toolbar. Although you cannot see the image moving in the viewer until you process the effect, the wireframe mode lets you verify the position of the image.

To preview an animated DVE in wireframe mode:

1. To display the DVE toolbar, select **View > Default Toolbars > DVE tools**.
2. From the DVE toolbar, click the **Show All Wireframes** button.

   All layers with DVEs are displayed with bounding boxes.
3. Select the layer with the animated DVE by clicking on its bounding box or clicking the corresponding layer in the Layers view.
4. Click the **Wireframe Preview** button.

The animation starts playing.

5. Click the button again to stop the preview.

To access the wireframe preview mode from the top timeline, you must display the DVE toolbar, and leave the DVE property editor open.

Chapter 6
Tracking

This chapter describes how to use Avid DS Nitris to track and stabilize images.

Motion Tracking

Motion tracking lets you follow the motion of up to four points in an image sequence. You can use the resulting motion paths to paste one object onto another moving object, or stabilize a sequence with camera shake or other undesired motion.

Motion tracking is also useful for creating a motion path to apply to external images or for tracking shapes, such as a garbage matte or paint stroke.

Before you can do any motion tracking, you'll need to understand the following terms:

- **Reference** is the clip that is tracked to construct a motion path. In the following example, four-point tracking is applied to the bus in order to paste a banner onto its side.
- **Layer** is the clip that follows the motion path extracted from the reference clip. In this case, it's the banner that will be pasted onto the bus.
- **Result** is the composite of the moving layer above a background. Once a motion path is constructed, it is applied as a DVE to the layer. In the example below, the result is the banner pasted onto the side of the bus.

***Tip**: The reference does not necessarily have to be the background. You can composite the layer with any other clip.*

There are several scenarios in which you can use motion tracking:

- **Compositing**: Movement in one image is tracked and applied to another. A point (or set of points) in one layer follows the motion of a point (or set of points) in a reference layer—see “Tracking Composited Clips” on page 1348.
- **Stabilizing**: A single clip is stabilized to remove unwanted movement. In this case, a point in the reference clip tracks an arbitrary static point within the same clip—see “Stabilizing Clips” on page 1370.
- **Creating motion paths**: A path is created by tracking a reference point (or set of points), then saved and applied later as a preset to other layers or clips.
- **Shape Tracking**: Create a garbage matte and then use a tracker to track motion in the sequence and then apply it to the garbage matte, or draw a shape and use the tracker to apply motion from one image to the shape—see “Tracking Shapes” on page 1363 or “Tracking Graphics Objects” on page 1461.

Choosing a Tracking Method

Whether you want to stabilize an image or track motion, using a tracker effect lets you perform both.

Depending on how you prefer to work, you can apply tracking/stabilizing to a layer or an Effects Tree. The main differences between these methods are workflow and an extra property page in the Effects Tree tracker.

Also, to aid in your workflow, separate presets of the tracker effect are available for stabilization.

Stabilizing Clips

There are several ways in which you can stabilize a clip:

- **Apply the Stabilize tree effect to a clip**

  This lets you stabilize a clip without having to first create a composite container clip. You can apply this effect to a clip on the timeline. This tree effect is a preset effect of the Tracker tree effect—see "Using the Stabilizer in the Effects Tree" on page 1371.

- **Apply the Stabilize tree effect to an Effects Tree**

  If you prefer to work with an Effects Tree, this method lets you stabilize a clip inside an Effects Tree. This tree effect is a preset effect of the Tracker tree effect—see "Using the Stabilizer in the Effects Tree" on page 1371.

- **Apply a Tracker effect to a layer**

  Once you create a composite container clip, you can use the layer DVE's tracker to stabilize a clip. If you prefer to create a composite using layers, use this tracker to stabilize a clip on a layer—see "Using the Stabilizer in the Layers View" on page 1374.

Tracking

There are two ways to track the motion in a clip:

- **Apply a Tracker tree effect to an Effects Tree**

  Since motion tracking typically requires more than one input, you can only apply a Tracker tree effect inside an Effects Tree—see "Using the Tracker in an Effects Tree" on page 1351.

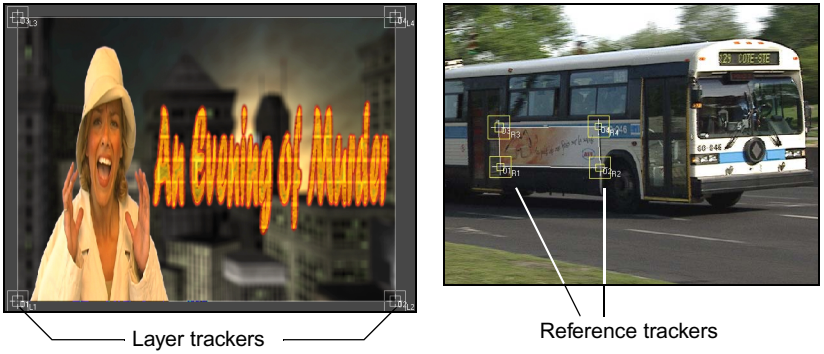
- **Apply a Tracker effect to a layer**

  Once you create a composite container clip, you can use the layer DVE's tracker to track motion in a clip. If you prefer to create a composite using layers, use this tracker to track motion in a clip on a layer—see "Using the Tracker in the Layers View" on page 1349.

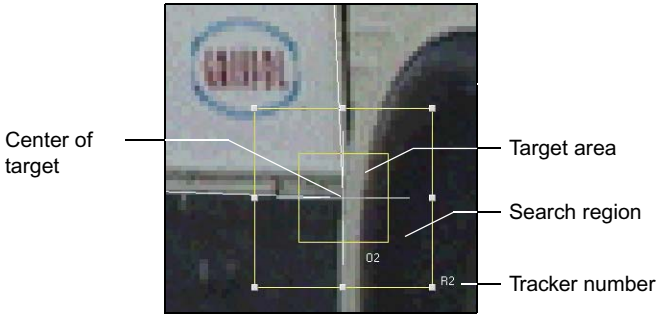
Using the Trackers

Before you actually start tracking or stabilizing anything, there are a few things you should know about the trackers. The reference point that you select for tracking and the way you position the trackers affect the overall success of your tracking.

With every tracking scenario, there are trackers on both the reference and the layer. The tracker(s) on the reference must be positioned on the point(s) that will create the motion path. The tracker(s) on the layer should be positioned on the point(s) that will follow the motion path.



A *tracker* is composed of two concentric rectangles representing the target area and the search region. The *target area* is the pixel pattern that the tracker looks for in each frame, and the *search region* is the vicinity in which the tracker looks for its target.



The motion tracker takes a snapshot of the pixel patterns in the target area and then looks for that pattern in subsequent frames. For this reason, you must select the target carefully in the first frame, so the tracker has a unique pattern to follow.

Using Multiple Trackers

To define the region for tracking, you must determine the number of trackers to use. You can use one, two, or four trackers:

Use	To
1-point tracking	Track an object that moves in a particular direction but does not scale or rotate.
2-point tracking	Track an object that is being scaled and/or rotated from one frame to the next.
4-point tracking	Track the surface of any four-sided object, such as a window, television screen, or rectangular sign.This technique is sometimes referred to as *four-point corner pinning.*

Selecting a Suitable Reference Point for Tracking

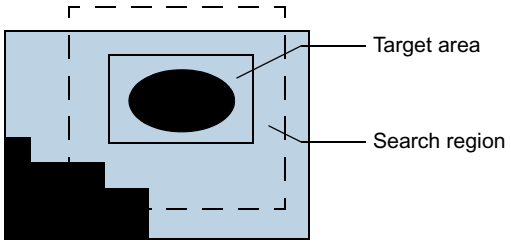
The key to successful tracking is selecting a good reference point. When tracking is started, the individual trackers (R1-R4, L1-L4) sample a target area of the reference clip at the target frame. In each subsequent frame, the motion tracker searches for the target image within the tracker's search region. When the target is found, a keyframe is set. The resulting motion path controls the tracker DVE, and the layer image is moved accordingly.

In order for the search region of the tracker to recognize the target area and its motion against its surroundings, you should choose a region with good contrast and detail. You can also change the color space in which the tracker searches to find a channel with the most contrast.

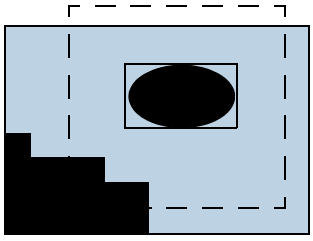
When placing the reference tracker, choose an area that:

- Has a clear pattern with high contrast. You can also change the color space to select a channel with the most contrast.

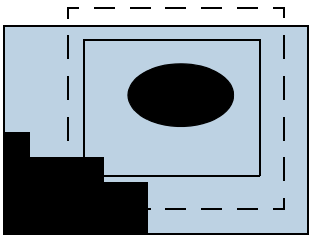
- Appears in all frames of the sequence being tracked. That is, make sure it does not disappear or fall outside the viewer area. If the image does move outside the viewer area, you can offset the trackers—see "Offsetting the Tracker" on page 1380.
- Has a pattern that remains constant in all frames. That is, make sure that the background is not constantly changing.



Correct placement of target.



Incorrect placement of target.



Incorrect placement of target.

When tracking, you will often encounter an area you would like to follow but can't be tracked directly. For example, you might want to track something that goes behind a tree for part of the sequence. Offsetting lets you position the target area on something you can track temporarily, while keeping the target on its original reference point. For more information, see "Offsetting the Tracker" on page 1380.

*If the material that you want to track is field-based, you should either select the **Track in Fields** option on the Advanced property page of the tracker or deinterlace the clip before positioning the reference trackers.*

Setting the Search Region

The search region determines how much of the image is analyzed when searching for the target area.

Here are some points to remember when setting the search region:

- The time required to analyze the search region is proportional to the size of the search region. Avoid unnecessarily large search regions unless you use **Translation Only** option, which decreases this time.
- A very large area also increases the chance of a false match with some completely different part of the image.

Tracking Composited Clips

Not available in Avid DS Nitris Editor.

Most of the time, when you composite images together, you need one image to follow the motion in another image. For example, you want to composite a banner on the side of a bus and make the banner follow four points on the bus. The motion of the banner layer needs to follow the motion of the bus reference layer, so you can “pin” the banner to the bus.

Depending on how you prefer to work, there are two ways that you can apply motion tracking to composited clips: using a DVE tracker on a layer or using a tracker in the Effects Tree.

You can pin a moving object in a layer image to a moving object in a reference image. To do this, track an object in the layer image and then separately track an object in the reference image. Avid DS Nitris then applies a transformation to the layer image, so that the trackers in both images stay aligned.

Reference

Bus sequence

Layer

Banner to be pinned onto side of bus.

Result: composited sequence after tracking is applied

Using the Tracker in the Layers View

If you prefer to composite images together using layers, use the DVE on a layer.

To set up tracker in the Layers view:

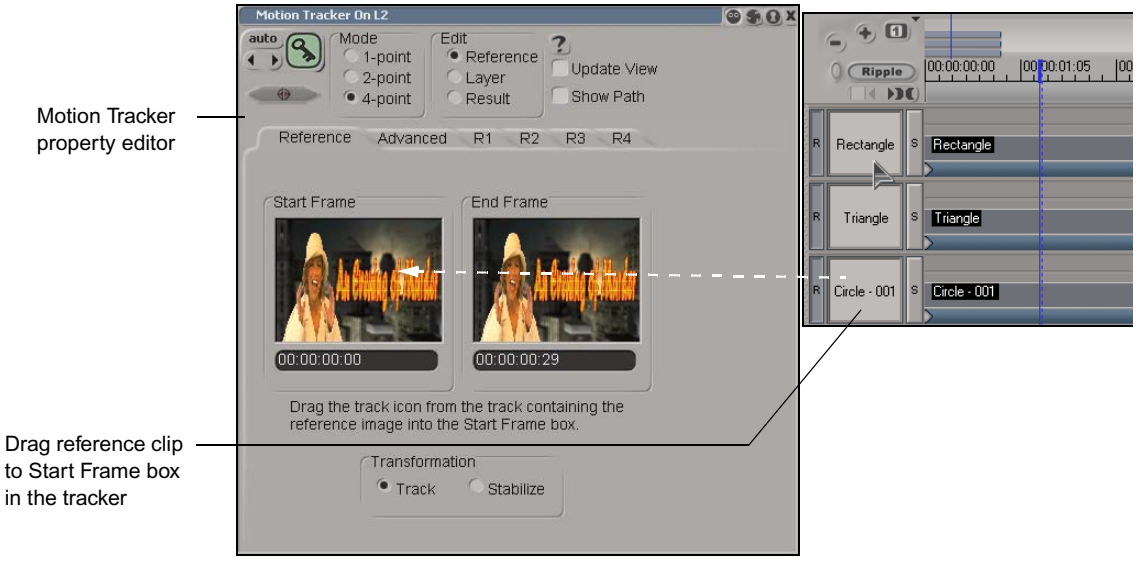
1. From the timeline, select a clip (the bus).
2. Move the position indicator over any frame in this clip.
3.
From the taskbar, click the **Compositing** button.

   A composite container clip is created in which you can layer your clips. The clip automatically becomes the first layer in the composite.
4.
From the view switcher, click the **Avid Explorer** button.
5. In the Avid Explorer, select the other clip in the composite (the banner), and drag it to the timeline ribbon.

   The clip is automatically added as the topmost layer in the Layers view.

***Tip**: The reference image does not have to be used in a layer in the composite. For example, you may need to simulate a motion path created by an object in a clip that is not going to be used in the composite.*

6. On the Layers view, click the **DVE** button of the layer (the banner) that will follow the path created by the tracker (that is, not the reference layer).
7. In the DVE property editor, click the **Track** button to open the Motion Tracker property editor.
8. In the Edit box, select the **Reference** option.
9. From the timeline, click the Track Selector of the track that is used as the reference, and drag it to the Start Frame box in the Reference property page.



The bus image is now displayed in the Start and End Frame boxes. Since this is the image that will be tracked, make sure that it is displayed as the reference image.

10. You can adjust the length of the clip to be used for motion tracking by doing one of the following:
    - Enter a timecode in the **Start Frame** and **End Frame** timecode boxes.
    - Set in and out markers on the timeline.

    The Start Frame and End Frame timecodes are updated in the property editor.
11. Proceed to "Positioning the Reference Tracker" on page 1353.

Using the Tracker in an Effects Tree

If you prefer to work with an Effects Tree, you can use the Tracker tree effect.

To set up the Tracker in the Effects Tree:

1. From the timeline, select a clip (the bus).
2. Place the position indicator over any frame in this clip.
3. From the taskbar, click the **Compositing** button.

A container clip is created and the clip automatically becomes the first layer in the composite.

4. Click the layer (the bus) to activate its Effects Tree.

   Input 1 (the bus) is connected to the output node.

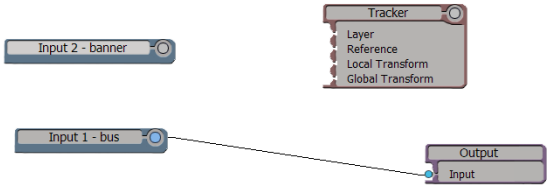
5. From the Avid Explorer, drag the other clip (the banner) to the Effects Tree view.

   The clip is added to the Effects Tree, and is placed on a new track on the timeline. No layer is created for the clip.

6. Right-click an empty area of the Effects Tree and select **Add Effect**.

7. In the Load Preset dialog box, select the **Tracker** effect (\Tree Effects folder).

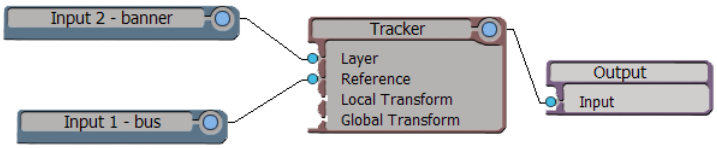
   A Tracker Effect node is added to the Effects Tree view.



Tracker added to Effects Tree.

8. Connect the node to be used as as reference (the bus) to Reference.

9. Connect the node to be used a a layer (the banner) to Layer.



10. Connect the output of the Tracker node to the input of the Output node.

11. Double-click the **Tracker Effect** node.

    The Tracker Effect's property editor is displayed.

12. In the Edit list, select **In 2 - ref**.

The reference (input 2) is displayed in the viewer.

When you switch between In 1-layer and In 2-ref, the General property page's name changes to Input 1 or Input 2.

13. From the Mode list, select **4-pnt**.

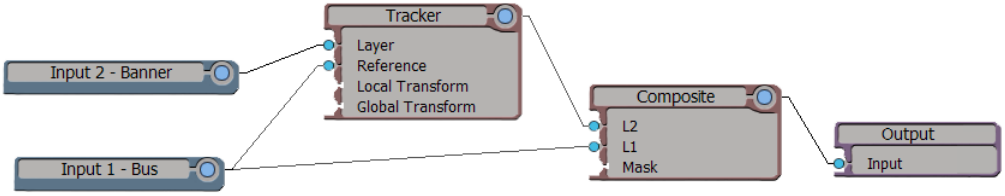
    Four trackers are displayed in each corner of the viewer.

14. Add the **Composite** effect to the tree.

    Since the tracker does not composite images together, you need to add a Composite node in order to composite the banner over the bus image.

15. Connect the nodes as follows:

    - Output of the bus node to L1 on the Composite node.
    - Output of the tracker node to L2 on the Composite node.



16. Proceed to *"Positioning the Reference Tracker" on page 1353*.

Positioning the Reference Tracker

You need to place the reference tracker(s) in the first frame of the clip that is to be tracked. The tracker will then follow the reference point(s) as it moves through the sequence.

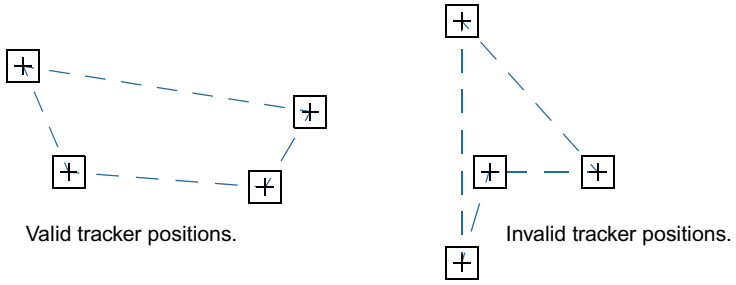
At any time, you can replace the reference clip with another by dragging a new reference clip from the timeline to the Effects Tree and connecting it to Input 2. If you're using the DVE tracker, simply replace the clip on the timeline.

To position the Reference Tracker:

1. On the timeline, scrub through the clip to select the best point to track—see "Selecting a Suitable Reference Point for Tracking" on page 1345.
2. From the Tracker property editor, do one of the following:
   - In the DVE tracker, select **Reference** from the Edit box.
   - In the Tracker tree effect, select **In 2 - ref** from the Edit list.
3. In the Mode box, do one of the following:
   - In the DVE tracker, select the **1**, **2**, or **4-point** option from the Mode box.
   - In the Tracker tree effect, select the **1-pnt**, **2-pnt**, or **4-pnt** option.

   Depending on your selection, one, two, or four trackers are displayed in the viewer. By default, they are located in the corners of the frames in both the reference and layer images, and corresponding property pages for each tracker are displayed in the property editor.

   In 4-point mode, the trackers must always form a convex shape. In a convex shape, one tracker can never be inside the triangle formed by the other three. If you try to drag a tracker inside the triangle, it will stop at the intersection.



***Tip**: When you apply 4-point tracking, crop options become available for cropping the layer image to its tracker polygon, and applying a blur to the cropped image. For more information, see "Cropping Unwanted Parts of Images" on page 1360.*

4. In the viewer, drag the center of a tracker(s) over the object that you want to track.

   The tracker changes to a magnifying glass when you drag it across the viewer. You can change the magnification on the Advanced property page. As you select a tracker, its property page is displayed in the property editor.

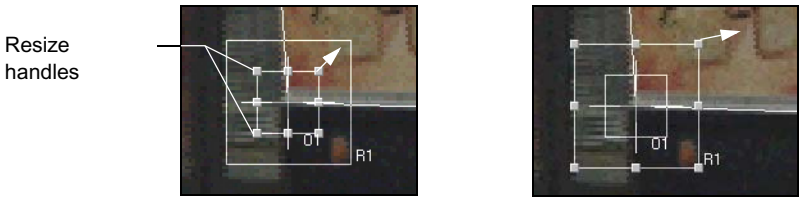
   The tracker displays the magnification in luminance mode, except when you select RGB, so that you can view the contrast when selecting a target. You can change the tracker to read the luminance from a single channel or to display RGB combined, on each tracker's property page.

***Tip**: Press Ctrl and drag a tracker to move both the reference and layer trackers simultaneously.*

Reference trackers

5. You can adjust the size of the target and the search region to increase the sampling size of the target area and/or make the search region larger. In the viewer, click the inner and/or outer boxes of the tracker and drag the resize handles to modify the target and/or search region.

Be sure that the target is completely inside the image. If the target is partly over a gray area of the viewer, the following message will appear: "The tracker's target is not completely inside the image." When this happens, resize or reposition the target.



Resizing the target. Resizing the search region.

6. On each tracker property page (R1-R4), adjust **Threshold** in the Confidence box to define how closely the tracked image must match the target. By default this value is set to 85%.
7. In the **If Below Threshold** box, select one of the following:
   - **Update Target** to update each time the target falls below the threshold.
   - **Continue** to continue tracking even if the target falls below the threshold.
   - Stop to stop tracking if target falls below threshold.
   - **Predict** to predict the motion path of the target until it comes back into view.

Positioning the Layer Tracker

The position in which you place layer trackers depends on what kind of tracking you want to do. For example, if you want to track four points, as in the case of the banner on the bus, you can position the trackers on the four corners of the image. The four corners are "pinned" and the banner is scaled to match the trackers on the reference layer.

You could also crop the banner by placing the four points inside the edges of it. For more information, see "Cropping Unwanted Parts of Images" on page 1360.

When you perform 1-point tracking, you can move the layer's target area to the exact position that will follow the reference tracker, usually the center of the image. When the motion tracking is processed, the layer tracker is mapped directly to the reference tracker. However, if you want to offset the layer, you can move the layer tracker to another position. This lets you perform a DVE transformation directly within the tracker.

To position the layer tracker:

1. In the Tracker property editor, do one of the following:
   - In the DVE tracker, select the **Layer** option from the Edit box.
   - In the Tracker tree effect, select the **In 1 - layer** option from the Edit list.

   The layer image is displayed in the Start and End Frame boxes.
2. Drag the tracker(s) over the portions of the image that you want to follow the motion path that is created in the reference image.

   In this example, the four points at the edge of the banner will be the points that follow the motion path.

3. To see the appearance of the composite, do one of the following:
   - In the DVE tracker, select the **Result** option from the Mode box.
   - In the Tracker tree effect, select the **Output** option from the Mode list.

Starting the Tracking Process

Once you've set up the reference and layer clips in the motion tracker, and positioned and adjusted the trackers, you can start tracking. The reference image on which tracking takes place depends on how the Set Target and Update Always options are set on each tracker's property page:

Set Target	Update Always	Reference image tracked
No	No	The first frame on which tracking is started (forward or backward)
Yes	No	The target time selected
No	Yes	The previous frame tracked

To start tracking:

1. In the Tracker property editor, do one of the following:
   - In the DVE tracker, select the **Reference** option in the Edit box.
   - In the Tracker tree effect, select the **In 2 - ref** option in the Edit list.

   The reference image, where the tracking takes place, is displayed in the viewer and in the property editor viewer boxes.
2. Go to the first frame in the clip where the tracking is to begin.
3. In the Motion Tracker property editor, select the **Update View** option to update the viewer as the tracker advances from frame to frame. Be aware, however, that this option will slow down tracking.
4. Select the **Show Path** option to display the tracker's motion path after the tracking is complete.

5. If you're tracking field-based material, select the **Track in Fields** option on the Advanced property page.

***Tip**: To decrease the time required to track, you can select both the **Bypass** and **View** options.*

6. Click the **Track Forward** button to begin tracking the reference clip.

   You can click **Stop** at any time to stop tracking. You can also click the **Track Backward** button if you want to start tracking from the end of a clip.

   The tracking generates a motion path. Since this is an animation sequence, you can adjust points manually. To remove the tracking, simply delete the animation.

***Tip**: You can also reapply the animation created with the motion tracker on another image by saving the layer DVE as a preset, and then applying it to another clip.*

7. If the tracker fails to locate the target, the tracking may stop depending on the **Confidence** options you have set for the tracker(s). For tips on correcting errors during tracking, see "Correcting Tracker Errors" on page 1382.
8. If the tracking was successful, you can view the result by doing the following:
   - In the DVE tracker, select the **Result** option from the Edit box.
   - In the Tracker tree effect, select the **Output** option from the Edit list.

   The composite is displayed at the current frame.

***Tip**: If you're using the DVE tracker and the reference image is part of the composite, use the Opacity sliders in the Layers view to see both the layer and reference images simultaneously. In the Tracker tree effect, you can adjust the opacity on the General property page.*

   You can also press Ctrl and click Play on the transport controls to display the composite frame by frame. The object that you tracked in the layer image follows the motion of the object you tracked in the reference image.
9. If you're satisfied with the results, process the sequence to view the results in real time.

Avid DS Nitris records the motion path of the reference image and applies a DVE transformation to the layer image based on that motion path.

***Tip**: When you need to pin a moving object in a layer image to a moving object in a reference image, you must first track an object in the layer image, and then separately track an object in the reference image. (both the Reference and Layer property pages each have their own Track button). Avid DS Nitris then maps the motion path created from the layer to the motion path created from the reference.*

Cropping Unwanted Parts of Images

When you apply 4-point tracking to an image, you can crop the unwanted parts of the image to an area on the reference clip. When you do this, any part of the image outside of the polygon is removed from the resulting composite.

To crop a layer to a reference image:

1. From the Motion Tracker property editor, do one of the following:
   - In the DVE tracker, select the **Layer** option from the Edit box.
   - In the Tracker tree effect, select the **In 1 - layer** option from the Edit list.
2. In the Mode box, select one of the following:
   - In the DVE tracker, select the **4-point** option.
   - In the Tracker tree effect, select the **4-pnt** option.

   The trackers appear in the four corners of the viewer.

3. In the viewer, position the trackers over the area that you want to keep.
4. On the Advanced property page, select the **Apply Crop** option.

5. Select the **Crop RGB** option if you want to the RGB channels to be cropped. Otherwise, only the alpha channel is cropped.
6. In the Edit box, select one of the following:
   - In the DVE tracker, select the **Result** option.
   - In the Tracker tree effect, select the **Output** option.

   Verify that this is how you want the composite to look. The layer image is adjusted, so that its tracker polygon aligns with the reference image's tracker polygon, and the resulting composite is displayed in the viewer.

Combining Tracking with Other DVEs

Not available in Avid DS Nitris Editor.

You can combine a motion tracker with other DVE transformations on the same layer or in an Effects Tree. For example, you can apply motion tracking to an image and then scale the image to match the perspective in the reference image.

***Tip**: DVEs are applied in this order: motion tracking, SRT/DVE, and global. For more information, see "Applying a Global DVE in the Layers View" on page 1319.*

DVEs are always applied after the tracker, therefore you will not see the results of a scaled, rotated, or translated image when you perform tracking. If you want to see the image as it will appear after the DVE has been applied, you must select

To apply DVEs on a layer:

1. Close the Motion tracker property editor.
2. To open the DVE property editor, do one of the following:
   - Select a layer to participate in the transformation and click **DVE** to open the tool for that layer.
   - If the DVE is applied on the timeline, double-click the **DVE** effect bar.
3. Interactively transform the DVE in the viewer.
4. To view the results, click **Track** in the Global Controls.

   The Motion Tracker property editor is displayed.
5. In the Edit box, select the **Result** option.

To apply a DVE to an Effects Tree:

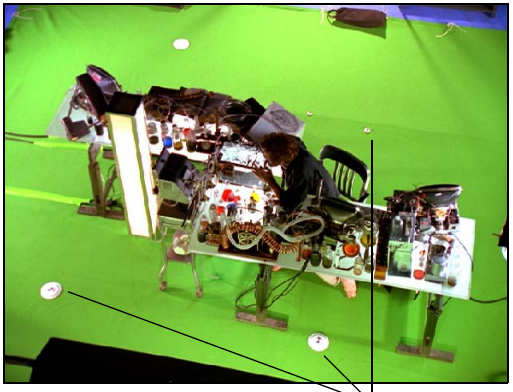
1. In the Tracker property editor, select the **Output** option.

   DVEs are always applied to the result of the tracker.
2. Interactively transform the DVE in the viewer.

Tracking Shapes

Shape tracking is a method of tracking that helps decrease the time required to perform rotoscopy tasks. In the keyers and Matte effect, you can create shapes using the shape creation tools and then track them. You can track shapes as a whole or track individual control points on a shape.

For example, if you want to create a key for an image that scales and moves and contains objects that are difficult to key out, shape tracking lets you create a garbage matte for these shapes and track them to the objects that are difficult to key out.



Objects difficult to key.

Image after scaling.

The shape tracker will track the region for the duration of the stroke. For more information, see “Motion Tracking” on page 1340.

Using the Shape Tracker

When you want to use the shape tracker, you must decide if you want to track a shape or track control points. For example, if you’re tracking a simple shape (like one of the circles in the previous illustration), you can draw a circle over the shape and then track two points. Since these objects both scale and move, they require 2-point tracking.

If you draw a complex shape, around a person for example, then you should track individual control points.

Tracking a Shape

You can draw multiple shapes using the shape creation tools and then track them all at the same time.

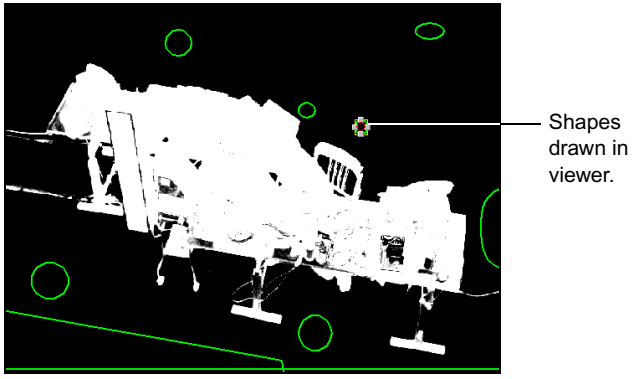
When you draw a mix of shapes and decide to track some using shape tracking and others using control point tracking, you need to track all shape trackers in one pass and then all control point trackers in another pass (or vice versa).

To track a shape:

1. Apply a keyer or the Matte effect to a clip—see "Keying" on page 1217.

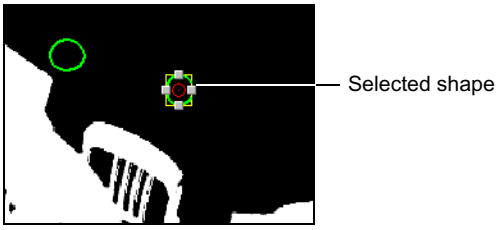
The shape tracker is not available in the HSL or Luma keyers.

2. Create a matte for the clip.
3. On the Shape property page, select a shape creation tool and draw a shape(s) in the viewer.



***Tip**: You can select the **Force Premultiplied** option to verify that your shape(s) covers the entire object you are drawing. For more information, see "Changing the Premultiplication Setting" on page 1156.*

4. From the Shape Transformations box, click the **Select Shape** tool, and then select the shape in the viewer.



A yellow box with handles is displayed around the selected shape.

5. Deselect the **Output Matte** option.

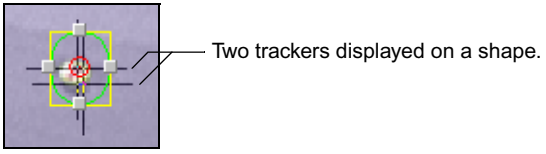
   Since the shape tracker performs tracking on the RGB channels, you need to position the trackers while viewing them in RGB.

6. On the Tracker property page, select the **1-point** or **2-point** option in the Tracking Mode box.

   Depending on your choice, one or two trackers are displayed on the shape. If you don't see the trackers, click the **Show** button.

7. Position the tracker(s) on the shape.

   To switch between the trackers, press the comma (,) or period (.) key on your keyboard. You can also click another area in the viewer to deselect both trackers and then reselect one or the other.



***Tip**: When you position the trackers, be sure to look for an area that contains good contrast. You can change the color space to find a channel that contains the most luminance. For more information, see "Selecting a Suitable Reference Point for Tracking" on page 1345.*

8. Repeat steps 4 to 7 to position the trackers on each shape.
9. Press Shift and click each shape to select it. Each shape that you want to track must be selected.
10. Click the **Show** button.

    The trackers for each shape must be displayed in the viewer in order to track them.

11. If you're tracking field-based material, select the **Track in Fields** option on the Advanced property page.
12. Click the **Track Forward** or **Track Backward** button.

    The tracking is started.

If any tracker fails, a warning box is displayed and tracking. The failed tracker(s) turn red. You can reposition the tracker and continue tracking forwards or backwards.

13. Once the tracking is complete, you can process the effect and play it in real time.

Tracking Control Points

You can draw multiple shapes using the shape creation tools and then track multiple control points on each shape in one pass.

To track control points:

1. Apply a keyer or the Matte effect to a clip—see "Keying" on page 1217.

The shape tracker is not available in the HSL or Luma keyers.

2. Create a matte for the clip.
3. On the Shape property page, select a shape creation tool and draw a shape(s) in the viewer.

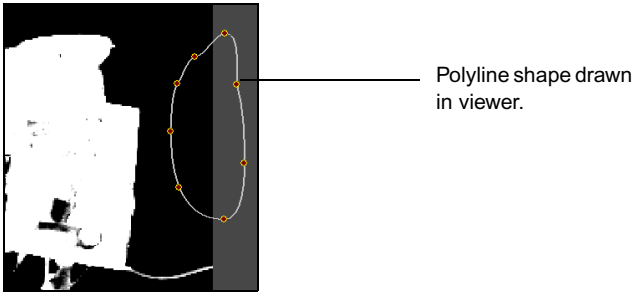
   You can draw multiple shapes and then track control points on each shape at the same time.

If you draw a mix of shapes and then decide to track some of them using shape tracking and others using control point tracking, you need to track shape trackers and control point trackers in separate passes.

Tip: You can switch between the RGB and alpha channel views to ensure that your shape entirely covers the object you are drawing.

4. Click the **Edit Shapes** button.

   The control points of the last shape you drew are displayed. To select the control points of another shape, click the shape in the viewer.



5. Deselect the **Output Matte** option.

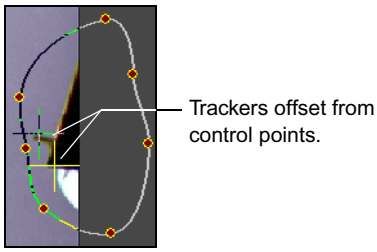
   Since the shape tracker performs tracking on the RGB channels, you need to position the trackers while viewing them in RGB.

6. Select the **Tracker** tab.
7. In the viewer, press Shift and click the control points that you want to track.
8. Click the **Show** button to display each control point in the viewer, so you can track them.

   The trackers are displayed on the control points.

9. Position the tracker(s) on the shape.

Sometimes, when you draw a freehand shape, you may want to track a point that's not in the shape. In this case, you can offset the tracker by pressing Shift+right-click and drag the tracker to another point that you want to track.



***Tip**: When you position the trackers, be sure to look for an area that contains good contrast. You can change the color space to find a channel that contains the most luminance. For more information, see "Selecting a Suitable Reference Point for Tracking" on page 1345.*

To switch between the trackers, press the comma (,) or period (.) key on your keyboard. You can also click another area in the viewer to deselect both trackers and then reselect one or the other.

10. Repeat steps 4 to 9 to position the trackers on multiple shapes.
11. Press Shift and click each control point that you want to track.

    Each shape that you want to track must be selected.
12. Click the **Show** button to display each control point in the viewer, so you can track them.

    The trackers are displayed on the control points.
13. If you're tracking field-based material, select the **Track in Fields** option on the Advanced property page.
14. Click the **Track Forward** or **Track Backward** button.

    The tracking starts. If the tracker fails at any point, the tracker will stop. Simply reposition a tracker and continue to track forwards or backwards.
15. Once the tracking is complete, you can process the effect and play it in real time.

Setting an Offset for the Tracker

It is not always possible to find reference points that appear in every frame, such as when an object moves out of the viewer area. In such cases, you can set an offset for the tracker to follow in frames where the object disappears from view.

The Transform Offset option applies the tracked transformation or scaling to the offset keeping the offset point in the correct position relative to the reference point.

To set an offset point:

1. Go to the frame where the object becomes occluded.
2. Press Shift+right-click and drag the tracker to another point that you want to track.

   This creates an offset point for the tracker to work with.
3. Click the **Track** button to start or continue tracking.

Correcting Tracker Errors when Tracking Shapes Objects

At times, a tracker may not find its target in a frame. If this occurs, an error message is displayed and the tracker that failed is highlighted in red in the viewer. You can correct the error by fine-tuning the tracker's properties.

To correct errors when tracking shapes objects:

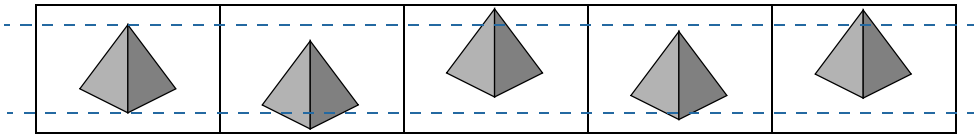
1. Using the transport controls, go to the frame where an error occurred (the frame that contains the red tracker).

   This is usually the current frame, since the tracker will stop when it cannot find its target.
2. Do one of the following:
   - In the viewer, adjust the tracker position, target and search region, and resume tracking (to move the tracker and target press Shift+left-click and drag).
   - In the Tracker property page, adjust the tracker's properties, and resume tracking.

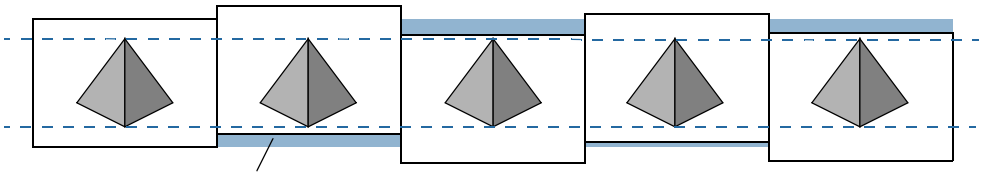
Stabilizing Clips

Stabilizing is a technique that lets you remove unwanted movement, such as camera jitter, from a sequence of images. When stabilizing, a target object in a layer image is forced to remain in the same position, stabilizing the image.

Because of camera jitter, the pyramid appears to move up and down.



Stabilizing moves the frames up or down in the opposite direction, so that the pyramid appears stable.



To stabilize an image, Avid DS Nitris tracks a point that appears in each frame. The tracker creates a path from the movement of the object; this motion path represents the jittering motion in the sequence.

To remove this unwanted movement, Avid DS Nitris uses a DVE transformation to move each frame in the opposite direction of the unwanted movement. Due to the displacement of the image, this may result in a gap around some parts of the image. To correct this, you can scale or crop the image using the SRT DVE (the tracker's "parent" DVE) if you use the DVE tracker, or from the DVE property page of the Tracker tree effect.

Depending on how you prefer to work, you can stabilize a clip by:

- Using the Stabilizer tree effect on a clip or Effects Tree
- Using a DVE tracker on a layer

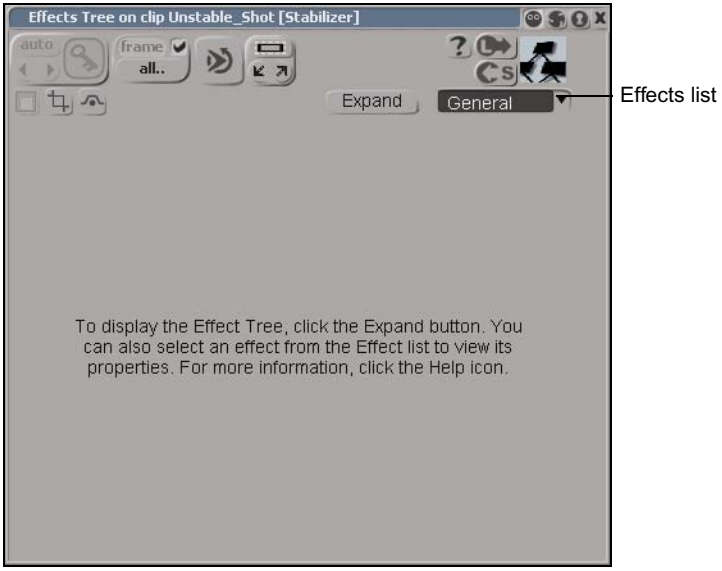
Using the Stabilizer in the Effects Tree

You can apply a Stabilizer tree effect to a clip on the timeline or to an Effects Tree. This effect is a preset of the Tracker tree effect.

To stabilize an image using the Stabilizer effect in the Effects Tree:

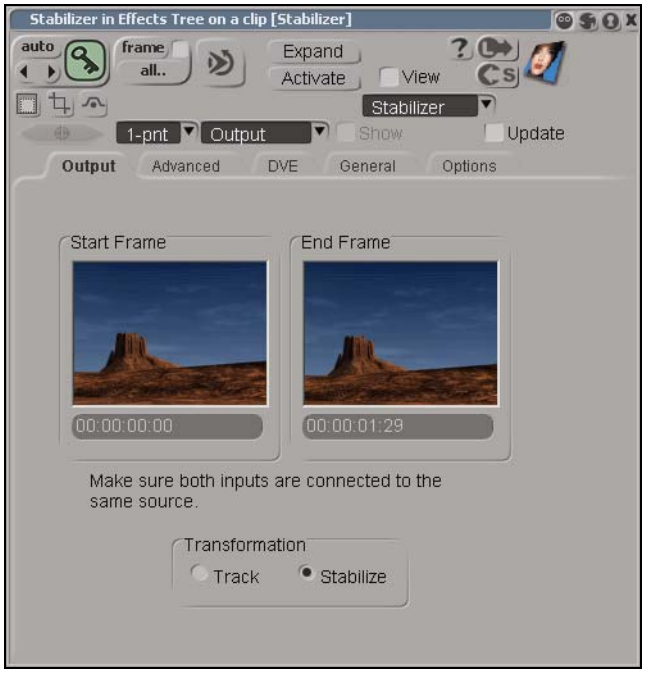
1. From the timeline, select a clip.
2. Right-click the clip and select **Add Clip Effect**.
3. In the Load Preset dialog box, select **Stabilizer** from the \Image Effects folder.

   The Stabilizer effect is applied to the clip and the Effects Tree (Stabilizer) dialog box is displayed.



4. From the Effects list, select **Stabilizer**.

   The Stabilizer property pages are displayed.



5. From the Edit list, select **In 2-ref**.

When stabilizing clips, both the reference and layer clips are the same. However, stabilizing/tracking is always performed on the reference layer (input 2).

6. From the Mode list, select the number of trackers you want to use.

***Tip**: Typically 1-point tracking is adequate, but if you need to remove unwanted rotational movement, use 2-point tracking.*

7. Press Ctrl and drag the reference tracker in the viewer to the point(s) you want to remain stable.

Both the reference and layer trackers are positioned at the same point—see "Positioning the Reference Tracker" on page 1353.

When you select a tracker, its property page is also displayed in the dialog box.

8. On the tracker (R1-R4) property page, select the color space with which you want the stabilizer to follow. Experiment with the color spaces until you find one that has the most contrast.

***Tip**: You can change the size of the tracker's magnification on the Advanced property page.*

9. From the Confidence box, select the settings for the tracker—see "Positioning the Reference Tracker" on page 1353.
10. On the Options property page, specify if your source media is frame or field-based.
11. If you're tracking field-based material, select the **Track in Fields** option on the Advanced property page.

12. Before you begin tracking, make sure the position indicator is on the first frame where the tracking should begin and click the **Track Forward** button—see "Starting the Tracking Process" on page 1358.

    The motion path of the static object is recorded. A DVE transformation is then applied to the image to compensate for the motion path and to stabilize the image.

***Tip**: Due to displacement of the image during stabilizing, you may notice gaps around some parts of the image. To correct this, scale or crop the image using a DVE. For more information, see "Combining Tracking with Other DVEs" on page 1362.*

13. To view the results of the tracking, do one of the following:

    - Select the **Output** option.

      The composite is displayed at the current frame.

    - Press Ctrl and click the position indicator.

      The composite is displayed frame by frame. The object that you tracked in the layer image follows the motion of the object that you tracked in the reference image.

***Tip**: To increase the quality of the tracked image, you can adjust the parameters on the Quality property page*

14. If you're satisfied with the results, process the sequence to view the results in real time.

Using the Stabilizer in the Layers View

If you prefer working with layers, use the Stabilizer in the DVE effect.

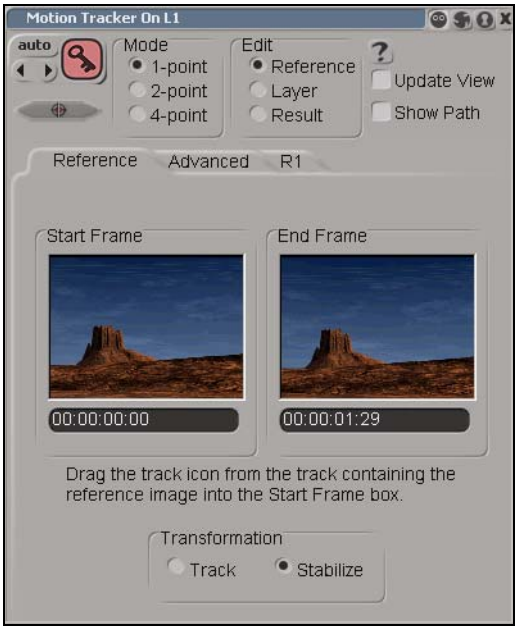
To stabilize an image in the Layers view:

1. From the timeline, select a clip.
2. Place the position indicator over any frame of the clip.
3. From the taskbar, click the **Compositing** button.

   A composite container clip is created and the clip is placed in the Layers view as the first layer. For more information see "Using Composite Container Clips" on page 287 of the *Avid DS Nitris Getting Started Guide*.
4. Click the **DVE** button on the layer that you want to stabilize.

   The DVE property editor is displayed.
5. In the DVE property editor, click the **Track** button.

   The Motion Tracker property editor is displayed.



6. From the Edit box, select the **Reference** option.
7. On the Reference property page, select the **Stabilize** option.

   The Reference viewers display the start and end of clip that you want to stabilize.

In stabilizing mode, the reference image and the layer image are the same.

8. From the Mode box, select the number of trackers you want to use.

***Tip**: Typically 1-point tracking is adequate, but if you need to remove unwanted rotational movement, use 2-point tracking.*

9. Press Ctrl and drag the reference tracker in the viewer to the point(s) you want to remain stable.

   Both the reference and layer trackers are positioned at the same point—see "Positioning the Reference Tracker" on page 1353 and "Positioning the Layer Tracker" on page 1356.

10. On the Options property page, specify if your source media is frame or field-based.

11. If you're tracking field-based material, select the **Track in Fields** option on the Advanced property page.

12. Before you begin tracking, make sure the position indicator is on the first frame where the tracking should begin and click the **Track Forward** button—see "Starting the Tracking Process" on page 1358.

    The motion path of the static object is recorded. A DVE transformation is then applied to the image to compensate for the motion path and stabilize the image.

***Tip**: Due to displacement of the image during stabilizing, you may notice gaps around some parts of the image. To correct this, scale or crop the image using a DVE. For more information, see "Combining Tracking with Other DVEs" on page 1362.*

13. To view the results of the tracking, do one of the following:

    - From the Edit box, select the **Result** option.

      The composite is displayed at the current frame. If you want to view the layer and reference images concurrently, you can use the Opacity slider in the Layers view.

    - Press Ctrl and click the position indicator.

      The composite is displayed frame by frame. The object that you tracked in the layer image follows the motion of the object that you tracked in the reference image.

***Tip**: To increase the quality of the tracked image, adjust the parameters on the Quality property page.*

14. If you're satisfied with the results, process the sequence to view the results in real time.

4-Point Corner Pinning

4-point corner pinning refers to pinning the four corners of one static (usually) image onto another static image. A common example is to pin an image to a TV screen. In Avid DS Nitris, there are several ways to perform 4-point corner pinning. The method you choose depends on how you prefer to work. You can:

- Use a DVE on a layer to pin one layer to another, or
- Use a Corner Pin Effects Tree to pin a clip on a video track to an image below it, or pin one input in an Effects Tree to another. This preset lets you concentrate on corner pinning only. Since it only requires one input, you can apply it to a clip or in an Effects Tree.

To perform 4-point corner pinning in the Effects Tree:

1. Apply the **Corner Pin** preset (\Image Effects folder) to a clip or Effects Tree.

   The Corner Pin property editor is displayed.

To see the composited result, you'll also have to add a Composite effect and connect the output of the Corner Pin effect to input 2 on the Composite effect, and connect the other input node to input 1 of the Composite effect. Lastly, connect the output of the Composite effect to the input of the Output node.

2. From the Effects list, select **Corner Pin**.

   The Corner Pin property pages are displayed, and the corner pins are displayed in the viewer.

3. Position the pins on the image.

To perform 4-point corner pinning on a layer:

1. Apply a DVE on a layer.

   The DVE property editor is displayed.

2. From the DVE property editor, deselect the **SRT** option.

   Since you don't need to scale, rotate, or translate the image, you don't need to select this option. This option must be deselected in order to perform corner pinning.

3. Select the **Track** option beside the Track button.

   The trackers are displayed.

4. From the Mode box, select **4-point**.
5. From the Edit box, select **Result**.

   The corner pins are displayed.
6. Ensure that **Track** is selected from the Transformation box.
7. Position the pins on the image.

Tracking Difficult Shots

When performing tracking, a common question you'll ask yourself is "Why did my tracker fail?" Sometimes it's difficult to determine what went wrong when you tracked an image. There can be several reasons why a tracker fails. For example, a tracker will fail if an object becomes occluded, or if a search region doesn't contain enough contrast.

To help determine how to fix tracking problems, ask yourself the following:

Question	Answer
Did the tracker become occluded?	If yes, offset the tracker or set the tracker to "predict" a path—see "Offsetting the Tracker" on page 1380 and step 6 in "Positioning the Reference Tracker" on page 1353.
Is the reference point outside of the viewer?	If yes, offset the tracker—see "Offsetting the Tracker" on page 1380.
Is there too little contrast in the tracker?	If yes, change the tracker to a different color space—see "Selecting a Suitable Reference Point for Tracking" on page 1345. If your image has little contrast, you can apply a Color Correction clip effect to it, so you can increase the gain and decrease the brightness—see "Workflow: Color Correcting Images" on page 1257. If you only want to affect a certain area in an image, you can also use the Selective Color Correction clip effect—see "Using the Selective Color Correction Preset" in the Help. Once tracking is complete, you can remove the Color Correction or Selective Color Correction effect.
Did the object move outside the search region?	If yes, increase the search region or manually move a target— see step 4 in "Positioning the Reference Tracker" on page 1353
Does the object scale or rotate?	If yes, deselect the **Translation Only** option.
Did the tracker slowly degrade?	If yes, manually correct the tracker.—see "Correcting Tracker Errors" on page 1382.
Is the object moving quickly?	If yes, deinterlace the clip before you stabilize it or track in fields.

Question	Answer
Is my material full resolution and compressed?	If yes, recapture the clips using full resolution and no compression.
Does the background change?	If yes, use the Update Target option in the Confidence box of the tracker—see step 6 in "Positioning the Reference Tracker" on page 1353.
Why do I get the message "The tracker's target is not completely inside the image"?	Part or all of the tracker's target is not positioned in the image on the target frame. It may be just outside the image in an area of the viewer. Resize the target or move it and then try tracking again—see "Positioning the Reference Tracker" on page 1353.
Why do I get the message "Can't track target of uniform color"?	The object you are trying to track contains no contrast. Try finding an object that has more contrast, or change the color space—see "Selecting a Suitable Reference Point for Tracking" on page 1345.

Offsetting the Tracker

At times, it's not possible to find a reference point that appears in every frame. The object, for example, may move out of the viewer area or disappear temporarily behind another object. When this happens, you can set an offset point for the tracker to follow in the frames in which the object disappears from view.

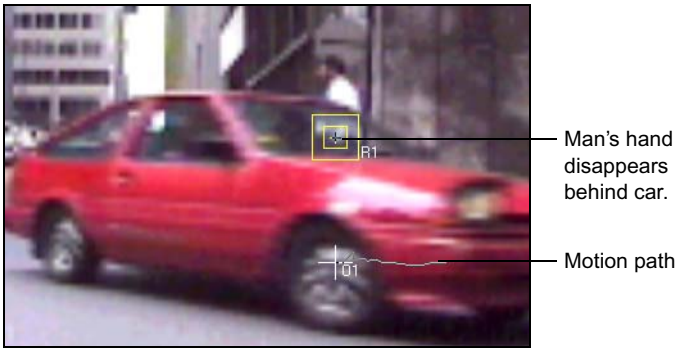
Offsetting can occur when you change your choice of target halfway through the tracking. For example, if the target goes behind a tree for a few frames, you can:

- Track normally until just before it goes behind the tree.
- Find some other part of the object you are following that isn't obscured by the tree, and move the target area to follow that.
- Continue tracking using this offset target until the tree is no longer in the way, and then move the target back to the original object and continue tracking.

Avid DS Nitris automatically adjusts for all offsets of the target to produce a single unbroken motion path.

To set an offset point:

1. Go to the frame where the object becomes occluded.



2. Press Shift+right-click and drag the tracker to another point that you want to track.

   This creates an offset point for the tracker to work with. Notice that the Set Target option in the Motion Tracker property editor shows the timecode where the offset has been set.

3. Click the **Track Forward** or **Track Backward** button to continue the tracking.

   A keyframe is set on the offset curve at the start and end frame. You can adjust the curve using the animation editor.

Correcting Tracker Errors

At times, a tracker may not find its target in a frame. If this occurs, an error message is displayed and the tracker that failed is highlighted in red in the viewer. You can correct the error by fine-tuning the tracker's properties and then tracking backward until you reach a frame in which the tracker doesn't fail.

To correct a tracker error:

1. Using the transport controls, go to the frame in which the error occurred (that is, the frame that contains the red tracker).
2. In the Tracker property editor, do one of the following:
   - In the DVE tracker, select the **Reference** option from the Edit box.
   - In the Tracker tree effect, select the **In 2 - ref** option from the Edit list.
3. Select the tracker that you want to adjust and change its properties. You can also reposition the tracker manually in the viewer, and set a keyframe by clicking the **Animation Key** button to confirm the change.
4. Continue tracking forward.

***Tip**: If you used the Continue or Predict options (Confidence box), you can select the **Remove Keys Below Threshold** option after the tracking is complete. This will remove the incorrect tracker points and interpolate the gaps in the motion path, where necessary, to create a smoother path.*

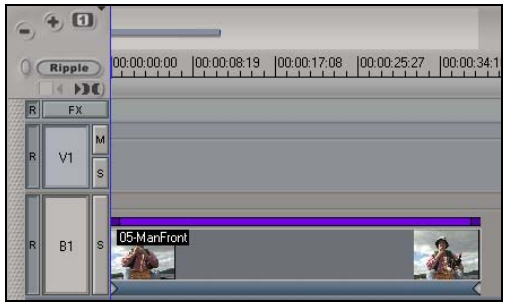
Chapter 7
Painting and 2D Titling

Using the vector drawing tools, you can create images or touch up existing clips without losing the original content. You can also retouch images, remove scratches, animate titles, and import images.

Workflow: Painting and 2D Titling

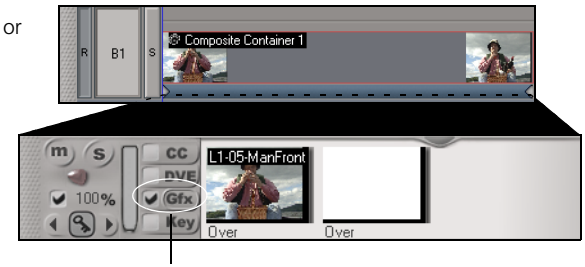
All graphics creation are done in the Graphics layout and Graphics combo view. Avid DS Nitris has two toolsets for creating graphics: paint and titling. They share the same animatable edit tools, color browsers, and paint effects editors. These toolsets let you touch up and add graphics elements to layers, as well as create mattes. All strokes and their properties are vector-based and fully editable, except for when you're working in the raster paint mode.

1 Choose a method to apply graphics.



Apply the Graphics effect to a clip.

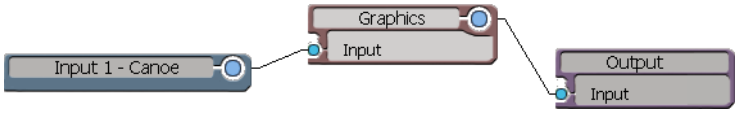
or



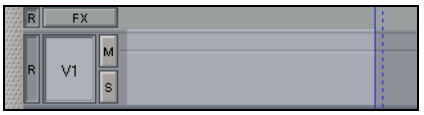
Create a composite container clip and apply graphics to a layer.

or

Apply graphics as a node in an Effects Tree.

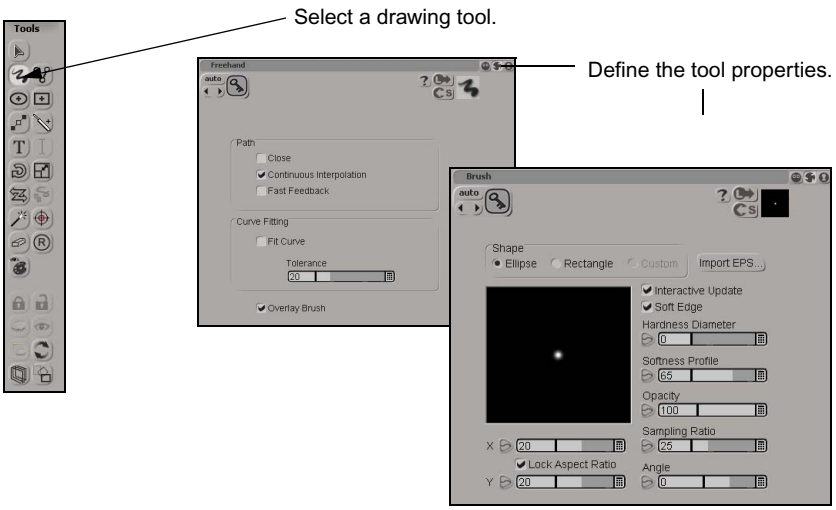


or



Select a region on the timeline and create a source-generated clip for graphics or titles.

2 Select a drawing tool.

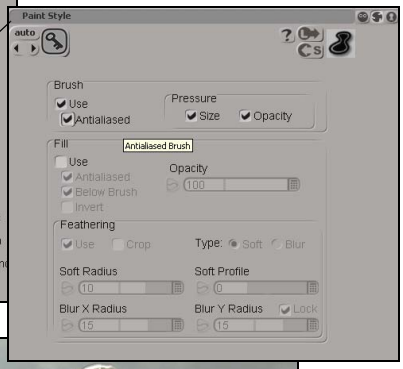


3 Create graphics object.

Draw a stroke or add a title.

4 Edit individual graphics objects.

Select object and edit its properties.



5 Process the graphics objects.

Process the frames where the graphics objects were applied.

Applying Graphics

When creating graphics or titles, you'll be working in a graphics session. A graphics session is the time span over which graphics objects, such as strokes or titles, appear. You can create a graphics session by applying the Graphics effect to a clip or track, a layer inside a composite container clip, or as a node in an Effects Tree.

If you are using the Avid DS Nitris Editor, the floating Graphics combo view is displayed instead of the Graphics layout. For more information, see "Graphics Combo View" in the Help.

Before you begin a graphics session, you'll have to set up the environment in which you're going to create graphics. This includes setting the working resolution and deciding whether you want to apply graphics as an effect, on a layer in a composite, or as a node in an Effects Tree.

Applying graphics as an effect lets you add graphics to a:

- Single clip,
- Video, background, or timeline effect track, or
- Node in the Effects Tree.

You can also paint on a layer in a composite or on a node in the Effects Tree when you want to use graphics as one effect among many. The method you choose depends on the type and complexity of the graphics that you plan to use.

When you apply a Graphics effect to a clip on the video track, the Graphics layout is displayed. In this layout, the viewer displays the graphics you apply to the clip on the video track, but it will not display the final composite. To view the final composite, you must switch back to the Editing layout. You can also use the Reconnect Viewer button or open a floating viewer on the top timeline.

Setting the Working Resolution

Resolution is the amount and degree of detail in a video image. The working resolution that you choose affects the processing speed of your graphics session, as well as the interactivity of the painting and titling process. You can set the working resolution of your graphics session in the Sequence Preferences dialog box.

To set the working resolution:

1. Select **File > Sequence Preferences**.
2. In the Sequence Preferences dialog box, select the **Video** tab.
3. In the Working Video Settings box, set the working resolution.

Click the Help button for detailed information on Sequence Preferences.

Applying Graphics on the Video or Background Tracks

On a video track, you can apply graphics over all or part of a clip, as well as a series of clips on the same track. A background track is where you can apply graphics over all the video tracks on the timeline. You can apply a graphics effect to a clip or track.

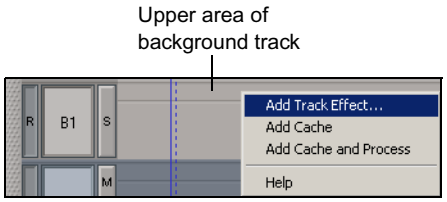
To apply the graphics to a video track:

1. Select the clip or track on which you want to apply graphics.
2. Right-click your selection and select one of the following:
   - **Add Clip Effect** if you selected a clip.
   - **Add Track Effect** if you selected a track.
3. In the Load Preset dialog box, browse through the folders and select the **Graphics** effect from the \Image Effects folder.

   The Graphics effect is applied to the selected clip or track, the position indicator moves to the first frame of the clip or track, and the Graphics layout is displayed.
4. You can now paint or create titles in the viewer.

To apply the Graphics effect on the background track:

1. Right-click the timeline ribbon and select **Create Background Track**.
2. A background track is created between the audio and video tracks.Select the background track or a clip on the background track, and do one of the following:
   - Right-click the clip and select **Add Clip Effect**.
   - Right-click the upper area of the track and select **Add Track Effect**.



3. In the Load Preset dialog box, select the **Graphics** effect from the \Image Effects folder.

   The Graphics effect is applied to the selected clip or track, the position indicator moves to the beginning of the track/clip, and the Graphics layout is displayed.
4. You can now paint or create titles in the viewer.

Applying Graphics as a Source-Generated Effect

On a selected region of a video track, you can create a new clip for applying graphics. When you create a new clip, you can choose Graphics as an effect. This type of effect is called a *source generator* effect. Other source-generated effects include Solid Color, Wood Grain, and others.

Applying graphics as a source-generated effect is useful when you want to apply graphics or titles on a black background.

To create a source-generated clip for graphics:

1. Select a region of a video track.
2. Do one of the following:
   - Press Ctrl+G.

- From the NLE Tools toolbar, click **Generate > Source Generator Clip**.

3. From the Load Preset dialog box, select **Graphics on Black**.

   A clip is created in the region of the track you selected. The Graphics layout is displayed. The Masks property is set to RGBA and the Time Span is set to Start to End.

To create a source-generated clip for titling:

1. Select a region of a video track.
2. From the NLE Tools toolbar, click **Editing > Simple Titling on Black**.

   A clip is created in the region of the track you selected. The Graphics combo view is displayed. The Masks property is set to RGBA, the Time Span property is set to Start to End, and the Text tool is active.

To edit a graphics or titling source-generated clip:

- Double-click source-generated clip on the timeline.

Applying Graphics on the Timeline Effect Track

The timeline effect track is used to apply effects on top of all other effects on the video and background tracks. This track is useful for applying graphics without creating a composite container clip. For example, a title that was created as a graphics effect in the timeline effect track can be moved, scaled, and overlapped with other titles without modifying the underlying tracks.

To apply the Graphics effect on the timeline effect track:

1. On the timeline effect track, drag to select a region.
2. Right-click the highlighted area and select **Add Timeline Effect**.

3. In the Load Preset dialog box, select the **Graphics** effect from the \Image Effects folder.

The Graphics effect is applied to the selected region, the position indicator moves to the beginning of the region, and the Graphics layout is displayed.

4. You can now paint or create titles on the viewer.

Applying Graphics on a Layer

Painting on a layer is useful when you want to create complex effects where paint is used with other tools, and then apply the effects to several layers independently. Here are some of the effects you can apply to a layer:

- Color correction effects,
- DVEs for creating effects, such as transformations,
- Graphics for creating travelling mattes, and
- Keyers for creating a matte to reveal underlying layers.

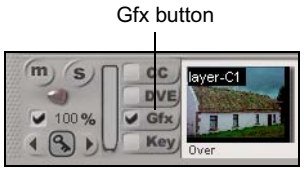
Before you can apply graphics to a layer of a composite, you must first create a composite container clip, which is created from the selected clip on which the position indicator is located.

To apply graphics on a layer:

1. Place the position indicator over the clip that you want to use in the composite.
2. Do one of the following:

   - From the taskbar, click the **Compositing** button.
   - Select the clip and from the taskbar, click the **Create Container Clip** button and select **Create Composite Container Clip**.
   - Right-click the clip and select **Create Composite Container**.

   A composite container clip is opened and the Compositing layout is displayed. The selected clip is automatically placed in a layer in the Layers view.
3. If desired, you can add more clips to the composite.
4. Click the **Gfx** button of the layer on which you want to paint.



The Graphics layout displays.

5. You can now paint or create titles in the viewer.

Applying Graphics in an Effects Tree

Applying graphics in an Effects Tree is similar to applying graphics on a layer. However, with an Effects Tree you can add multiple graphics effects to any input or effect node.

To apply graphics in an Effects Tree:

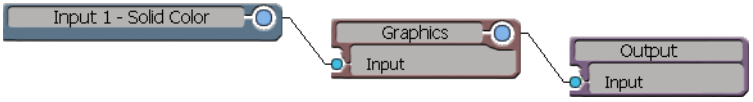
1. Right-click a layer in the Compositing layout and select **Effects Tree (layer)**.

   The Effects Tree view for the layer is displayed.

2. Right-click an empty area of the Effects Tree and select **Add Effect**.
3. From the Load Preset dialog box, select the **Graphics** effect from the \Image Effects folder.

   A Graphics effect node is added to the Effects Tree.

4. Connect the Graphics effect nodes.



5. Double-click the **Graphics** effect.

   The Graphics layout displays. You can now create graphics—see "Working with Graphics" on page 1411.

Using Presets in Graphics

A preset is a customized set of properties for a graphics session, drawing tool, property, stroke, text body, or group. You can use the presets that come with Avid DS Nitris, or you can create your own by saving the properties that you have already set and reusing them in other graphics sessions. Either way, presets let you work more efficiently.

Most graphics-related presets are in the \Dspresets\Paint folder. Graphics session presets are in the \Dspresets\Image Effects\Graphics Sessions folder.

In the Graphics layout, there are presets for:

- Graphics sessions
- Drawing tools (Freehand, Polyline, Rectangle, Ellipse, Magic Wand, and Text)
- Graphics (strokes, text bodies, and groups)
- Paint Style (Brush, Brush Fx, and Fill Fx)
- Titling Style (Face Fx, Edge Fx, and Shadow Fx)
- Masks
- Time Span
- Transformations

Loading and Saving Presets

There are several ways to load and save presets. You can use the property editors, toolbars, Graphics property editor, or the Stroke Preset, Text Preset, or Group Preset button in the Tools toolbar. You can also load a preset by using the pop-up menu in the graphics property tree.

To load or save a preset using a property editor:

1. In the graphics property tree, click a property button.
2. In the property editor, click the **Load Preset** or **Save Preset** button.
3. In the Load Preset dialog box, do one of the following:

   ▶ To load a preset, select a preset.

   The graphics property tree displays the properties of the preset you selected.

- To save a preset, type a name for the preset you're saving.

The preset you saved appears in the folder in which you saved it.

To load a preset using the toolbars:

1. Do one of the following:

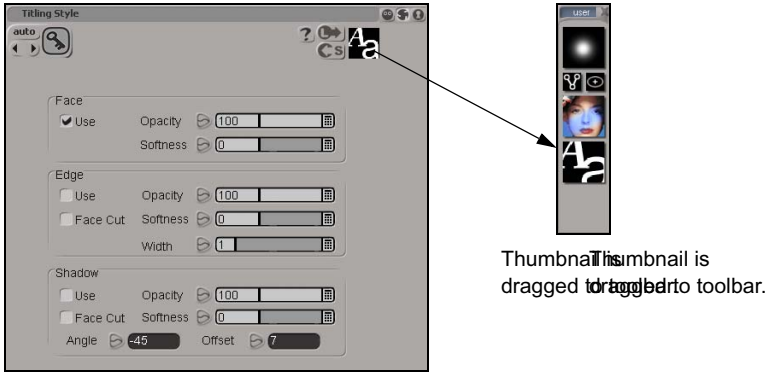
   - From the Tools toolbar, click the **Select** button and select an object on which to apply the preset.
   - From the Tools toolbar, select a drawing tool to set the preset as the default properties before painting.

2. In the Tools toolbar, click **Tools > Import** and one of the following:
   - **Stroke Preset** to load a stroke preset.
   - **Text Preset** to load a text preset.
   - **Group Preset** to load a group preset.

   If you selected a graphics object, the preset is applied to it. If you selected a drawing tool, the preset's properties are loaded into the graphics property tree. When you paint on the viewer, these preset properties will be applied to the graphics you create.

To save a preset using the toolbars:

1. In a property editor, drag the thumbnail to a toolbar.



2. In the Save Preset As dialog box, type a name and description for the preset in the corresponding text boxes.

   A toolbar button is created in the toolbar.

To load a preset using the pop-up menu:

- From the graphics property tree, click a property button and select one of the following:
  - A preset from the menu.
  - **Load** and browse through the folders and select a preset.

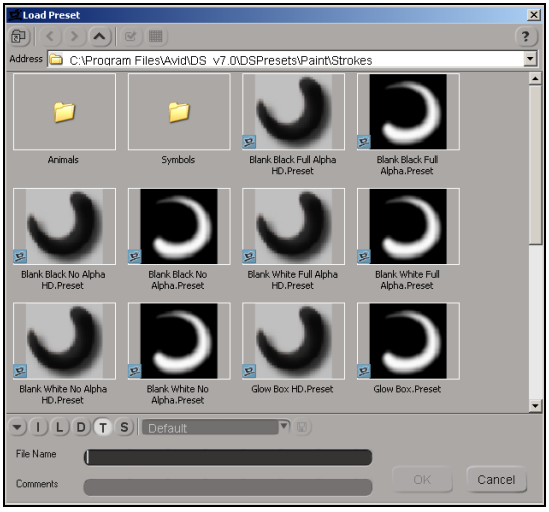
  The preset is loaded into the graphics property tree.

Using Stroke, Text, or Group Presets

A stroke, text, or group preset is a stroke, title, or group that you saved along with all of its properties. Using a preset lets you instantly apply the settings of a stroke, title, or group of any complexity to the current image without having to define any of its properties. Once applied, the stroke, title, or group behaves as a regular graphics object; you can select and edit its properties.

To load a stroke, text, or group preset:

1. From the Tools toolbar, click **Import > Stroke Preset**, **Text Preset**, or **Group Preset**.

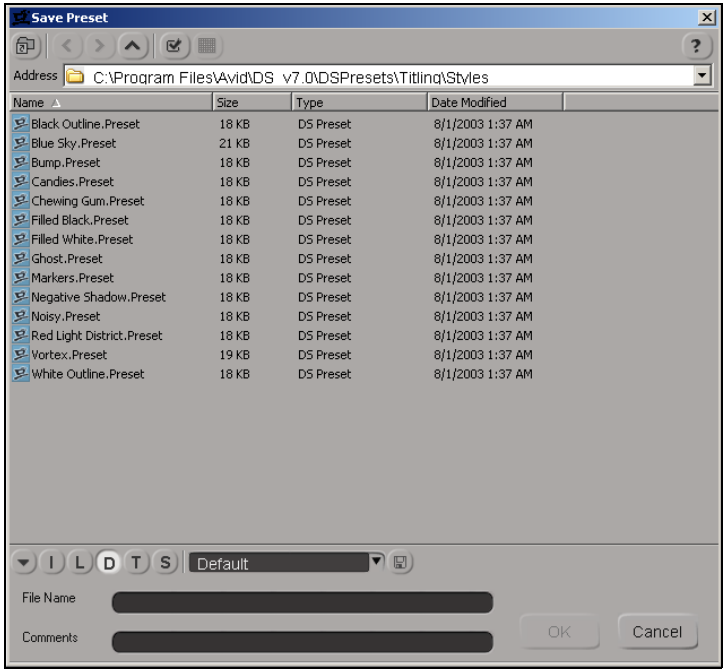


2. In the Load Stroke Preset dialog box, browse through the folders and select a preset.

   The preset is applied to the current frame in the viewer.

To save a stroke, text, or group preset:

1. In the viewer, select an object.
2. In the graphics property tree, do one of the following:
   - Click **Stroke** if you selected a stroke.
   - Click **Titling Body** if you selected a text body.
   - Click **Group** if you selected a group.
3. In the property editor, click the **Save Preset** button.



4. In the File Name text box, type a name.
5. In the Comments text box, type a description.

   The preset is saved with the file name you specified, and can be accessed at any time by clicking the Stroke Preset, Text Preset, or Group Preset button in the Tools or General toolbars. Stroke presets are saved in the \Strokes folder, titling body presets are saved in the \Bodies folder, and group presets are saved in the \Groups folder.

Setting Drawing Tool Properties

Before you create graphics or titles, you must define how the brush strokes or titles will appear. Using the property editors in the graphics property tree, you can set individual brush or text properties.

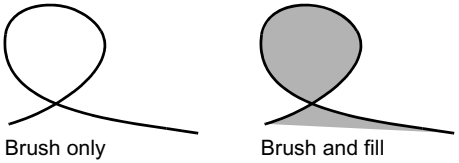
Each time you select a drawing tool from the General or Tools toolbar, its properties are displayed in the graphics property tree. When you click any of the property buttons in the graphics property tree, its corresponding property editor is displayed.

You can set the default properties of the drawing tool before creating an object. When you do this, the new settings become the default properties that are applied to the objects you create. These properties remain in effect until you change the properties of any of the drawing tools. If you decide to create an object before setting its properties, you can select the object you created and then modify its properties. When you do this, only the properties of the selected object are modified.

Graphics property tree

Setting the Paint Style

The paint style properties let you define the *artistic* style of the graphics you create. In the Paint Style property editor, you can specify whether to paint with a brush or a fill, or both.

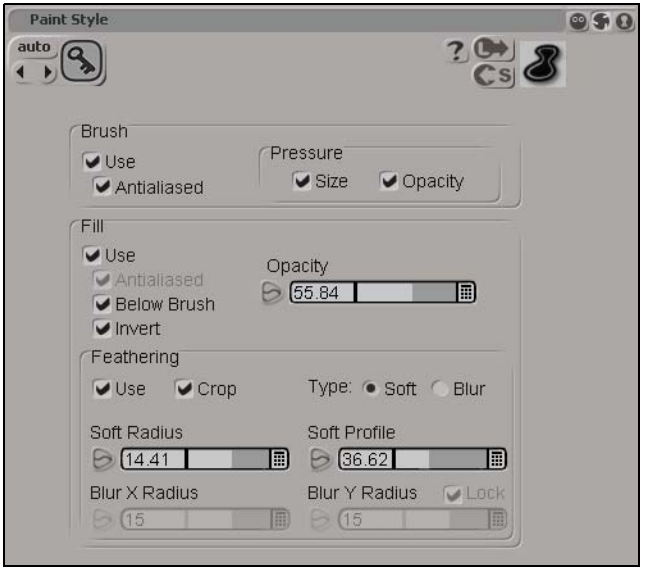


You can also set the fill opacity and appearance of its boundary. If you're using a pen and graphic tablet, you can vary the amount of pressure you apply to the pen. This affects the brush opacity and size.

Make sure your pen is adjusted for pressure sensitivity. For more information, refer to your graphics tablet documentation.

To define the paint style:

1. From the Tools toolbar, select one of the following drawing tools: **Freehand**, **Polyline**, **Rectangle**, **Ellipse**, or **Magic Wand**.
2. From the graphics property tree, click **Paint Style**.



3. On the Paint Style property editor, select the **Use** option from the Brush box to create strokes and apply effects to them.

4. Select the **Antialiased** option to smooth the jagged edges along the lines and curves of strokes.
5. If you're using a pen, select the **Size** and/or **Opacity** options from the Pressure box.

   The opacity and width of strokes respond to the amount of pressure you apply to the pen.
6. In the Fill box, select the **Use** option to fill the object with the effects you specify.

   Freehand and polyline strokes are automatically closed and filled. If you deselect the Fill option, the curve is open.
7. Select the **Below Brush** option to place the fill behind the stroke edge.

   If you deselect this option, the fill is superimposed over the inside edge of the stroke.
8. Select the **Invert** option to invert the fill. When creating a stroke, the area outside of the stroke is filled.
9. Use the **Opacity** controls to adjust the fill transparency.
10. In the Feathering box, select the **Use** option to feather the edges of the fill.
11. Select the **Crop** option to confine the feathered area within the stroke.
12. Adjust the **Soft Radius** controls to define how far inside and outside the stroke edge the feathered area extends.
13. Adjust the **Soft Profile** controls to adjust the fall off rate for the fill.
14. Adjust the **Blur X and Y Radius** controls to adjust the blur in the horizontal and vertical directions.
15. You can now paint or create titles on the viewer.

    The strokes you create are displayed with the properties you specified.

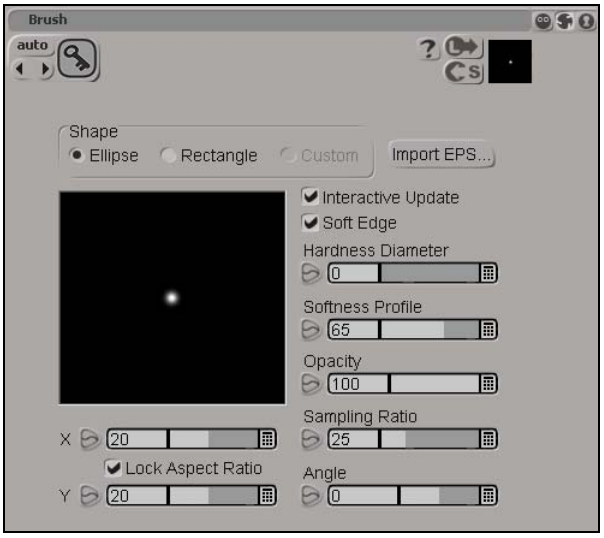
Click the Help button for detailed information on the Paint Style properties.

Setting Brush Properties

The brush properties define the brush's size, shape, smoothness, softness, and opacity. For example, you can simulate a calligraphic stylus by specifying a rectangular brush shape with a slight angle. Or you can simulate an airbrush using the opacity controls to create a round brush with a solid center and a transparent edge.

To define the brush properties:

1. From the Tools toolbar, select one of the following drawing tools: **Freehand**, **Polyline**, **Rectangle**, **Ellipse**, or **Magic Wand**.
2. From the graphics property tree, click **Brush**.



3. In the Brush property editor, select a brush shape from the **Shape** box.

   The brush shape is displayed in the preview box.
4. Use the **X** and **Y** controls to set the width and height of the brush.

***Tip**: When using the Freehand tool, you can interactively resize the brush by pressing Ctrl and dragging in the viewer.*

5. Select the **Lock Aspect Ratio** option to link the X and Y controls, so that when you adjust one, the other increases or decreases proportionally.
6. Select the **Soft Edge** option for a soft brush edge. Deselecting this option gives you a hard brush edge.
7. Use the **Hardness Diameter** controls to adjust the proportion of the brush diameter that is solid.
8. Use the **Softness Profile** controls to adjust the gradient fall-off rate.
9. Use the **Opacity** controls to define the transparency of the brush.

10. Use the **Sampling Ratio** controls to set the distance between each brush stamp in a stroke. The default sampling ratio is 25 for optimum interaction speed.

If you deselect the Continuous Interpolation option in the Freehand Tool property editor, the sampling ratio has no impact on the stroke.

11. Use the **Angle** controls to adjust the rotational angle of the brush.

    The brush's new angle of rotation is displayed in the preview box.

12. You can now paint in the viewer.

    Any strokes that you create use the properties you specified.

Click the Help button for detailed information on the Brush properties.

Creating Custom Brushes

You can create custom brushes using a closed stroke or an Adobe Illustrator EPS file (created with version 8.0 or earlier). You can also save your custom brush as a preset and then reuse it. For more information, see "Importing Encapsulated PostScript (EPS) Files" on page 1475.

To create a custom brush using a stroke:

1. From the Tools toolbar, click the **Select** button and select a stroke or group of strokes from the viewer.

***Tip**: To create a custom brush, the stroke must be a closed shape. You can do this by holding down the C key while drawing the stroke. For more information, see "Drawing Freehand Strokes" on page 1414.*

2. From the Tools toolbar, click **Objects > Make Brush**.

   The brush is loaded with the custom shape. Using one of the drawing tools, you can begin creating strokes in the viewer.

To see the shape of the brush, select a drawing tool and look in the Brush property editor. For more information, see "Setting Brush Properties" on page 1399.

To create a custom brush with an EPS shape:

1. From the Tools toolbar, select a drawing tool.
2. From the graphics property tree, click **Brush**.
3. From the General toolbar, click **Import > Import EPS**.

   In the Open dialog box, select an EPS file to use as your brush.

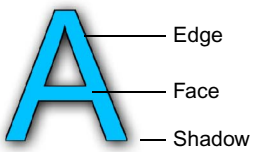
   The brush is loaded with the EPS shape. Using one of the drawing tools, you can begin creating strokes in the viewer.

Not all versions of EPS files are supported.

Setting the Titling Style

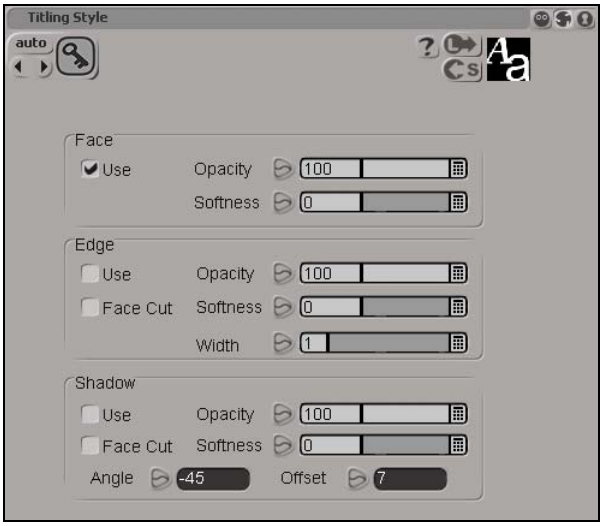
The titling style properties let you define the *artistic* style of graphics. By adjusting these properties, you can define the appearance of a character's face, edge, and shadow. You can also apply numerous visual effects including soft-colored edges, cloned faces, inverted shadows, and more.

Certain properties apply to the entire text body, and others apply only to the words or characters that you select in a text body. You can define the character edge, face, and shadow, and then use masks on the titles you create. A variety of fonts and text formats lets you enhance the appearance of titles. Many of the properties you assign to text can be animated.



To define the titling style:

1. From the Tools toolbar, click the **Text** button.
2. From the graphics property tree, click **Titling Style**.



3. In the Titling Style property editor, set the face, edge, and shadow properties.
4. You can now create a title on the viewer.

   The face, edge, and shadow of each character in the text body changes according to the properties you specified.

Setting the Font Properties

The font properties define the font, style, and size of individual text characters and text in a text body, as well as set the kerning and hinting options. Avid DS Nitris comes with a selection of TrueType fonts. Other fonts, in the \Fonts folder of your operating system, are also available for use. For more information, see the *Avid DS Nitris Installation and Administration Guide*.

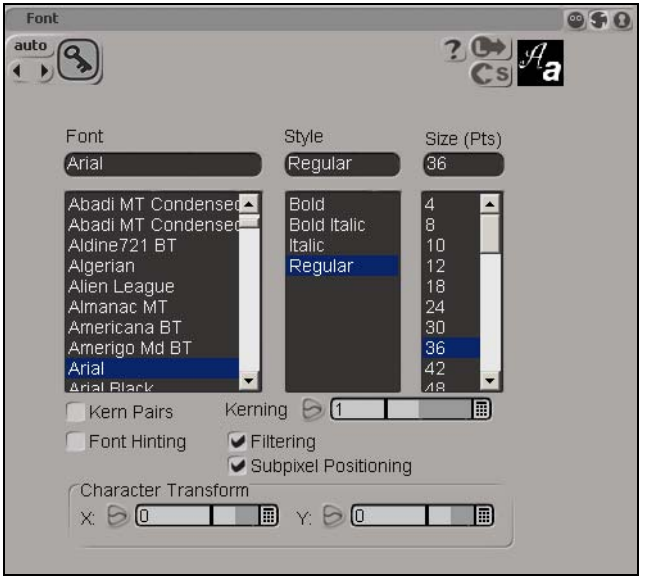
If you notice any missing fonts after restoring a project and opening sequences of that project, check the Avid Event Log for any missing Graphics titling fonts. By checking the log, you'll see exactly which fonts are missing on your system. To access the Avid Event Log, select View > Multi-Instance Views > Avid Event Log.

Missing Graphics titling fonts are logged when you open a sequence, and when you load a Graphics effect preset, Titling Body preset, or Titling Font preset.

When a Graphics Titling Body uses a font that is not installed on the computer, the text will be rendered using a default font. However, in the Graphics Titling Font property editor, the missing font is still specified even if it's not selected in the font list.

To define the font properties:

1. From the Tools toolbar, click the **Text** button.
2. From the graphics property tree, click **Font**.



3. In the Font property editor, select a font, style, and size.
4. Select the **Kern Pairs** option to move a character closer to the previous character in the same word to improve the appearance of the text. (This applies only to certain font types.)
5. Select the **Font Hinting** option to control the display of artifacts, such as blurry edges, when processing. When this option is selected, redraw information is provided to prevent these artifacts from appearing in the viewer and rendered output. This option is not recommended when animating the text.

6. In the Kerning box, you can set the amount of horizontal space between characters, expressed as a percentage of the current font size. You can select individual characters or part of the text body and set the kerning individually. The default value is 1.
7. You can now create a title in the viewer.

Click the Help button for detailed information on the Font properties.

Setting the Masks Properties

The masks properties let you create graphics using a matte (stencil) or a paper grain effect, and choose the channel(s) on which you will create graphics. You can use any of the R, G, B, and alpha channels. If you select only the red channel, for example, only the red component of the image is modified when you paint on it. By using only the alpha channel, you can create a matte, which is a grayscale image that defines the transparency of an image when it's composited over another.

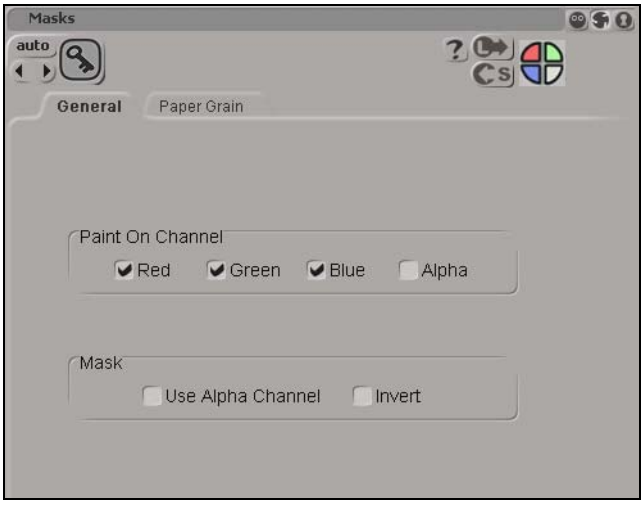
You may want to use a mask when applying graphics to clips. A mask is an image, portion, or component of an image. A matte is defined by the alpha component of an image, and is used differently in the Graphics and Compositing layouts:

- In the Graphics layout, a matte is used as a stencil to protect portions of the image. Where alpha is 0, no paint is applied.
- In the Compositing layout, a matte determines the transparent portions of a layer. Wherever alpha is 0, the image is transparent. Wherever alpha is 100 the image is opaque.

For example, if an object from one clip must appear over a background from another clip, you place the clips on two different layers in the Compositing layout, and then draw a matte on the top layer. The matte defines an opaque object on an otherwise transparent layer. For more information, see "Working with Mattes" on page 1136.

To define the masks properties:

1. From the Tools toolbar, select one of the following drawing tools: **Freehand**, **Polyline**, **Rectangle**, **Ellipse**, **Magic Wand**, or **Text**.
2. From the graphics property tree, click **Masks**.



3. On the General property page, select the channels on which you want to paint from the Paint on Channel box.
4. In the Mask box, select the **Use Alpha Channel** option to use the alpha channel as a matte.

The Alpha and Use Alpha Channel options cannot be used simultaneously.

5. Select the **Invert** option to invert the alpha channel.

Click the Help button for detailed information on the Masks properties.

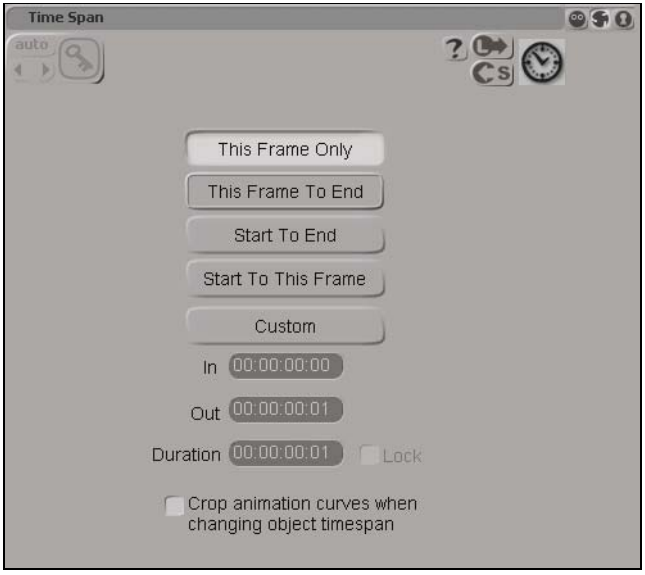
Setting the Time Span Properties

The time span properties define the duration of graphics. You can define the start and end time of an object before you create it. This duration becomes the default time span and is applied to all subsequent objects you create. Or you can create graphics using the default time span, and then change its start, end, or duration time later on.

In the Time Span property editor, the timecode refers to the graphics session time. That is, 00:00:00:00 is the beginning of the graphics session regardless of its position on the timeline.

To define the time span properties:

1. From the Tools toolbar, select one of the following drawing tools: **Freehand**, **Polyline**, **Rectangle**, **Ellipse**, **Magic Wand**, or **Text**.
2. From the graphics property tree, click **Time Span**.



3. In the Time Span property editor, specify the duration by clicking one of the following:

Button	To
This Frame Only	Make the time span one frame.
This Frame to End	Make the time span start at the current frame and end at the last frame of the graphics session.
Start to End	Make the time span start at the first frame and end at the last frame of the graphics session.
Start to this Frame	Make the time span start at the first frame and end at the current frame of the graphics session.
Custom	Specify a custom time span in the Out and Duration timecode boxes. All values must be expressed in SMPTE timecode.

If you're setting the default time span, the In text box is dimmed because Avid DS Nitris defines the start time.

If you're editing the time span of a selected object, the Custom button is always highlighted.

4. If you're editing the time span of a selected object, you can select the **Lock** option to lock the duration.

If you're defining the default time span properties before creating an object, the Lock option is deselected. You must select an object before using this option.

Click the Help button for detailed information on the Time Span properties.

Defining Color

In Avid DS Nitris, color is considered to be an effect that you can apply to an image using the brush or fill properties of a stroke, or the face, edge, or shadow properties of a title. Like any other effect, the Color Blend effect can be substituted for other effects, such as Noise or Smear.

To define colors, you can pick a color from the default palette or from the color wheel, use the color picker to select a color from an existing image, or use other color palettes that are available in the \Palettes folder. If a color is not displayed on the color palette, you can create it by adjusting the RGB values of another color to obtain the exact color you want. You can also create your own color palettes and save them for use on other projects.

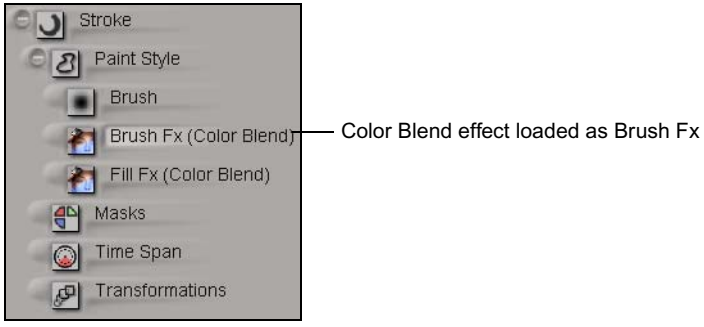
You can apply color to selected strokes or you can define the color properties before you draw a stroke. These properties then apply to all the subsequent strokes you create.

To open the Color Blend property editor:

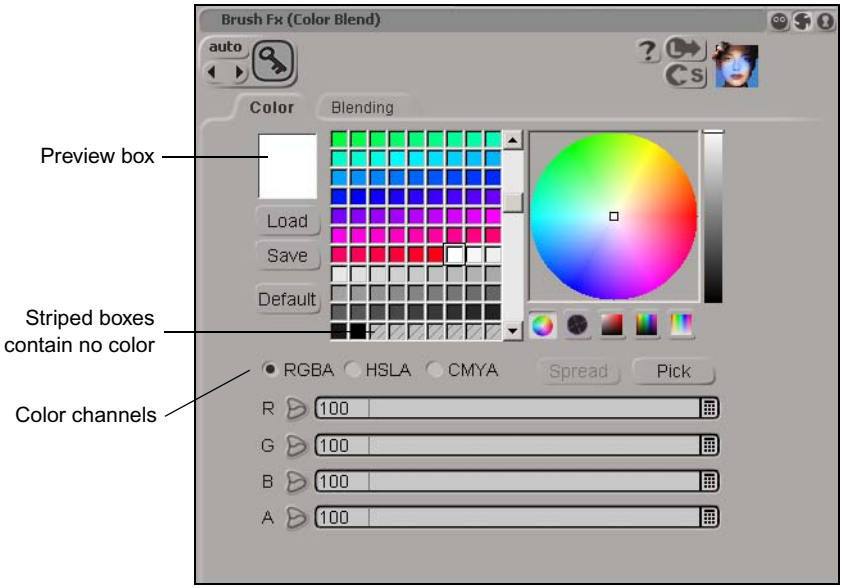
1. From the Tools toolbar, do one of the following:

   - Click the **Select** button and select an object from the viewer.
   - Select a drawing tool to create a new object.
2. From the graphics property tree, right-click one of the following property buttons and select **Color Blend**:
   - For paint strokes: Brush Fx or Fill Fx.
   - For text bodies: Edge Effect, Face Effect, or Shadow Effect

   The Color Blend effect is loaded in the property button that you selected from the graphics property tree.



3. From the graphics property tree, click **Color Blend**.



***Tip**: A quick way to apply color is with the Pick Color tool. Once you have chosen your drawing tool, hold down the 6 key. The pointer turns into an eyedropper. Pick a color from the image in the viewer. You can now paint with this color until you decide to load another color.*

Click the Help button for detailed information on the Color Blend properties.

Working with Graphics

The drawing tools from the Tools toolbar let you create different kinds of graphics objects including freehand, polylines, rectangles, ellipses, and Magic Wand strokes. You can then edit the graphics you create.

You can control the appearance of graphics by using the property editors in the graphics property tree. Property editors let you define characteristics, such as the brush, fill, edge, face, and shadow. When you start to paint in the viewer, the graphics you create are displayed with the default properties.

***Tip**: If the edges of graphics appear jagged, right-click the viewer and select **Square Pixels** to make them appear smooth.*

Checking the Premultiplication Setting

Depending on how you have chosen to apply graphics, it's a good idea to verify the premultiplication setting before creating any graphics. This will ensure that you get the appropriate results. Premultiplication is a mathematical process where the RGB channels of an image are multiplied with their corresponding alpha channel values.

To check the premultiplication setting:

1. From the General toolbar, click the **Graphics Properties** button.
2. Select the **Options** tab.
3. From the Alpha box, select one of the following options: **Auto**, **Premultiplied**, or **Not Premultiplied**.

Click the Help button for detailed information on the Option properties.

Wireframe Mode

While painting, you can activate the wireframe mode to easily see the outline of the strokes you create. This lets you precisely edit and manipulate strokes without being distracted by any of the effects defined for it. Working in wireframe mode also increases the speed of interaction because wireframe objects are not processed.

Freehand object

Freehand object in wireframe mode

To activate or deactivate wireframe mode:

- From the Tools toolbar, click the **Wireframe** button or press Ctrl+W.

  Strokes in the viewer appear in wireframe mode.

Text bodies cannot be displayed in wireframe mode.

Wireframe Preview

When you work with animated graphics objects, you may want to preview the results of the animation without having to process the sequence. This lets you work more quickly and eliminates processing time. When previewing graphics animation, the clip plays back and graphics objects are processed in wireframe over a black background.

To view animated objects in wireframe mode:

- From the Tools toolbar, click the **Wireframe Preview** button or press Ctrl+Shift+W.

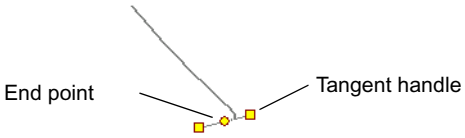
  The sequence plays back and the animated graphics objects appear in wireframe mode. When the clip is finished, the position indicator moves to the first frame at which the preview started.

Drawing Polylines

The Polyline tool lets you draw straight lines, Bézier curves, or a combination of the two.

To draw a polyline:

1. From the Tools toolbar, click the **Polyline** button or press Q.
2. In the graphics property tree, use the property editors to define the characteristics of the polyline—see "Setting Drawing Tool Properties" on page 1397.
3. Depending on the type of curve you want, do one of the following:
   - Click the viewer as many times as needed to add straight line segments to the polyline.
   - Constrain a polyline to a 45 degree angle by holding down the V key.
   - Drag a vertex to display and adjust the tangent handles.



4. When you're done, do one of the following:
   - Press Esc to end the polyline.
   - Press Ctrl and click to close the polyline.

   A polyline is displayed in the viewer with the properties you specified.

Once a polyline is ended, you cannot undo polyline segments. You can undo segments only as you are creating the polyline.

5. From the Tools toolbar, click the **Select** button.

   The stroke is selected.

6. Press Enter or click the **Edit Shape** button to edit the stroke geometry—see "Editing the Shape of a Stroke" on page 1429.

   The stroke's control points are displayed.

***Tip**: To constrain polyline segments to a 45 degree angle, hold down the Alt key.*

Drawing Freehand Strokes

The Freehand tool lets you draw open or close freeform strokes, and simulates the feeling of drawing with a pencil on paper. Use this tool when you want to create a hand-drawn look or quickly sketch on your image.

As you draw freehand strokes, you're imprinting a series of stamps onto your image. By defining the appearance of the brush stamps, you can create a continuous stroke or a stroke with discrete brush stamps.

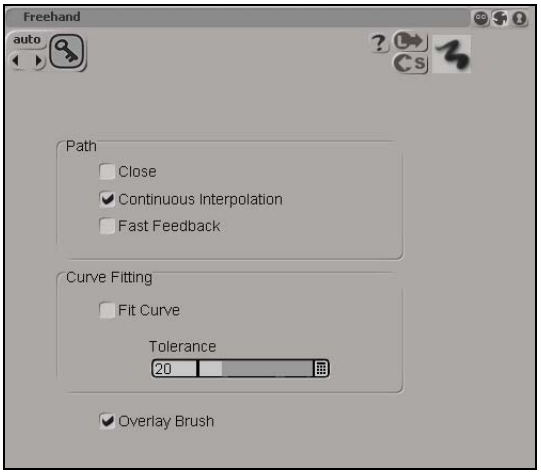
To draw a freehand stroke:

1. From the Tools toolbar, click the **Freehand** button or press W.
2. In the graphics property tree, use the property editors to define the characteristics of the freehand stroke—see "Setting Drawing Tool Properties" on page 1397.

3. From the property tree, click **Freehand**.
4. In the Freehand property editor, select the **Close** option if you want to create a closed freehand stroke.

***Tip**: To create a closed freehand stroke quickly, hold down the **C** key before beginning to draw the stroke.*

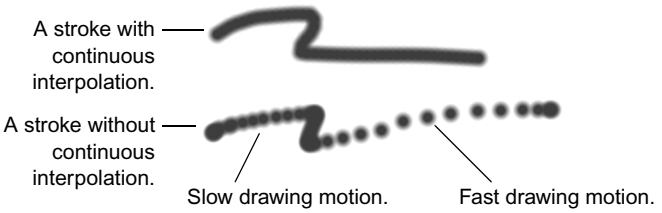
5. Select the **Continuous Interpolation** option to draw a continuous path. The number of brush stamps is based on the sampling ratio defined in the Brush property editor.
6. Select the **Fast Feedback** option to view an outline of the stroke as you draw it, instead of applying the specified effect. This also increases the interaction speed.
7. In the Curve Fitting box, select the **Fit Curve** option to create a freehand stroke with the minimum number of control points.
8. Use the **Tolerance** controls to specify the number of control points the redrawn curve will retain from the original curve.



The Curve Fit option is usually used after the stroke is drawn by selecting the stroke, editing the shape, and selecting the Curve Fit option in the Edit Shape property editor.

9. Select the **Overlay Brush** option to show or hide the outline of the brush while you paint.
10. Create a stroke in the viewer by dragging on the viewer.

    Once you release the mouse or pen, the stroke is complete. The freehand stroke is displayed in the viewer with the properties you specified. If you selected the Fill option in the Paint Style property editor, the freehand stroke is closed and filled.



11. From the Tools toolbar, click the **Select** button to select the stroke.
12. Press Enter or click the **Edit Shape** button to edit the stroke—see "Editing the Shape of a Stroke" on page 1429.

    The stroke's control points are displayed.

Using the Express Tools

The Express tools let you access a set of freehand tool brush effects quickly and easily. By holding down a key that has been assigned to a freehand tool brush effect, you can erase or paint with one keystroke. When you release the key, the previous tool is reactivated. By default, the Express tools represent the Erase, Blur, and Color Blend effects, but you can assign your favorite freehand tool brush effects as well. This is very useful when cleaning up a matte, since you can access the Erase tool without having to change your current tool.

The keys assigned to the Express tools are the numbers 1 through 5 on the upper-left of your keyboard.

To use the Express tools:

1. In the Graphics layout, hold down the key assigned to the Express tool you want to activate.

   A freehand tool brush effect is loaded.

2. While continuing to hold down the key, work in your graphics session.
3. Release the key.

   The tool you were using previous to the Express tool is reactivated.

To customize the Express tools:

1. In the Graphics layout, hold down one of the keys on the upper-left of the keyboard (numbers 1 to 5).
2. Right-click **Brush Fx** in the graphics property tree and load a paint effect, such as Color Blend or Erase.
3. Release the key.

   The key is assigned to the selected freehand tool brush effect.

Drawing Rectangles and Ellipses

The Rectangle tool lets you create rectangular and square shapes, as well as rectangles with rounded corners. The Ellipse tool lets you create oval and circular shapes. After creating a square or round shape, you can edit them to create unique shapes.

To draw a rectangle or ellipse:

1. From the Tools toolbar, do one of the following:

   - Click the **Rectangle** button or press R.

   - Click the **Ellipse** button or press E.

2. In the graphics property tree, use the property editors to define the characteristics of the rectangle or ellipse—see "Setting Drawing Tool Properties" on page 1397.

3. To create one of the following:

   - **Rectangle or ellipse**: Create a stroke in the viewer by dragging in the viewer. To maintain the aspect ratio, press Shift and drag.

     A rectangle or ellipse is displayed in the viewer with the properties you specified.

   - **Rectangle with rounded corners**: From the graphics property tree, click **Rectangle** and set the corner radius in the Rectangle property editor. Drag in the viewer to create a rectangle with rounded corners.

   - **Rectangle with rounded corners**: Hold down the Close Bracket (]) to increase the corner radius or the Open Bracket ([) key to decrease corner radius, and drag in the viewer. When you reach the desired corner radius, release the key.

4. From the Tools toolbar, click the **Select** button.

   The rectangle or ellipse is selected.

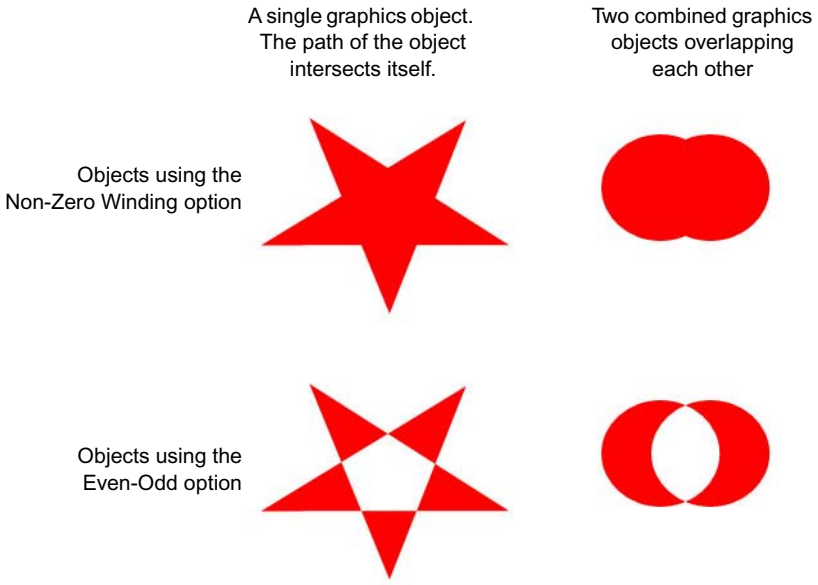
5. Press Enter or click the **Edit Shape** button to edit the stroke—see "Editing the Shape of a Stroke" on page 1429 and "Reshaping a Stroke" on page 1434.

   The stroke's control points are displayed.

***Tip**: To view and move the tangent handles on the control points of a rectangle, press the H key while selecting the control point in Edit Shape mode.*

Filling Shapes

You can determine which areas of a shape are filled or become holes, letting you adjust the appearance of a compound path or a self-intersecting path.



To create self-intersecting shapes that are filled or have holes:

1. From the Tools toolbar, select a drawing tool.
2. In the Paint Style property editor, select the **Fill** option and one of the following Fill Rule options at the bottom of property page:
   - **Even-Odd** to create shapes with holes.
   - **Non-Zero Winding** to create filled shapes.
3. Create one or more shapes. The shapes can intersect themselves.

When combining two filled strokes together, the Fill Rule property can be used to determine which areas of a shape are filled or become holes. When you use the Non-Zero Winding option to fill the intersections, the path direction of both strokes needs to be the same. If not, then you need to reverse the path direction of one of the two strokes; separate the compound stroke, reverse the path direction of one stroke, and then combine the two strokes together.

Using the Magic Wand Tool

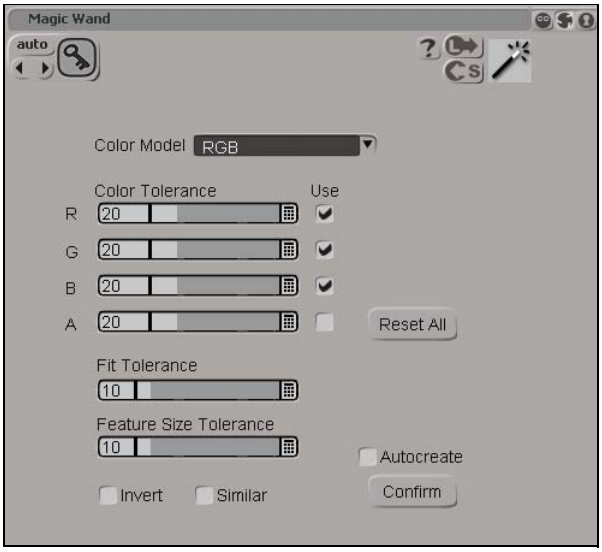
With the Magic Wand tool, you can create a stroke that has the same shape as a selected area of an image. The selection is based on RGBA or HLSA values of an image. Once created, you can edit the stroke.

A shape based on RGB values

To define a stroke:

1. From the Tools toolbar, click the **Magic Wand** button or press Y.
2. In the graphics property tree, use the property editors to define the characteristics of the shape—see "Setting Drawing Tool Properties" on page 1397.
3. Click the viewer.

   A shape is created corresponding to the selected area. Control points are visible along the shape.
4. From the graphics property tree, click **Magic Wand**.



5. In the Magic Wand property editor, select a color model from the Color Model list.
6. In the Color Tolerance controls, select the channels that you want to use to control the range of pixel values included in the selected area.
7. Adjust the **Color Tolerance** controls to set the range of color values for each channel. Continue refining the settings until the desired shape is obtained.

   The shape changes according to the new settings.
8. Use the **Fit Tolerance** controls to adjust the way the edges of the selection are determined.
9. Select the **Invert** option to invert the selection.
10. Select the **Similar** option to select all of the pixels in the color range of the specified range.
11. Select or click one of the following:
    - **Autocreate** to automatically create the stroke when you click the viewer.
    - **Confirm** to create the stroke defined by the shape.

    A stroke is created with the desired shape, and is displayed using the properties you specified.

12. From the Tools toolbar, click the **Select** button.

    The stroke is selected.

13. Press Enter or click the **Edit Shape** button to edit the stroke—see "Editing the Shape of a Stroke" on page 1429.

    The shape's control points are displayed.

Selecting Graphics Objects

You must select an object before you can move it or edit its properties or shape. You can move an object around in the viewer, as well as select single or multiple graphics objects. When you select an object, the graphics property tree displays the properties of that object.

To select graphics objects:

1. From the Tools toolbar, click the **Select** button.

   The graphics object you last created is automatically selected.

2. In the viewer or the Graphics Object View (GOV), click an object to select it.

   A yellow bounding box surrounds each selected object, and the graphics property tree displays its properties.

*When working with many graphics objects, you can hide their bounding boxes by clicking the **Show/Hide Bounding Box** button or by pressing Ctrl+H. The object is still selected and you can edit the properties of the graphics object.*

3. Do one of the following:
   - Press the comma (,) key to select the previous graphics object.
   - Press the period (.) key to select the next object.
   - Press Shift and click each additional object.
   - Press Shift+comma (,) and keep pressing the comma to select multiple objects in descending order.
   - Press Shift+period (.) and keep pressing the period to select multiple objects in ascending order.

   By default, a yellow bounding box surrounds each selected object.

***Tip**: Drag on the viewer to make a rectangular selection. All graphics within the rectangle are selected.*

To select all objects, do one of the following:

- From the Tools toolbar, click the **Select All** button.
- From the menu bar, select **Edit > Select All** or **Graphics > Select All**.
- Press Ctrl+A.

  In the viewer, all objects are selected. Objects whose time span do not cover the current frame will not be selected.

The Select All command in the Edit menu is not available when using the Edit Text tool.

To select objects in Edit Shape mode:

1. From the Tools toolbar, click the **Edit Shape** button.
2. Press Alt and click a stroke to select or deselect it.

Grouping Graphics Objects

By grouping several graphics objects, you can select, manipulate, and edit many objects simultaneously. You can then transform or animate the group as a whole. You can also select a group and temporarily ungroup it, as well as reselect ungrouped objects and regroup them.

Like strokes and text, you can create presets for groups that you want to reuse in other graphics sessions. For more information, see "Using Stroke, Text, or Group Presets" on page 1395.

To group selected objects:

1. From the Tools toolbar, click the **Select** button.
2. Select any number of objects from the viewer or GOV.
3. From the Tools toolbar, click **Group > Group**.

   The selected objects are grouped.

To group all objects in a graphics session:

- From the Tools toolbar, click **Group > Group All - Session**.

  All objects in the graphics session are grouped.

To ungroup a group of objects:

1. Select a group from the viewer or GOV.
2. From the Tools toolbar, click **Group > Ungroup**.

   The selected group is ungrouped. The ungrouped objects temporarily lose the properties of the group until you regroup them.

Regrouping Objects

If you have just ungrouped a group of objects, you can always regroup it immediately and retain the properties of the group.

To regroup objects:

1. Select one or more objects that were in the group.
2. From the Tools toolbar, click **Group > Regroup**.

Selecting Objects in a Group

You can select an object inside a group by holding down the Alt key when clicking an object in the viewer. Or you can select an object by clicking the corresponding bar in the GOV.

To select an object in a group in the viewer:

To	Press this
Select an object inside a group.	Alt+click
Add an object, which belongs to a group, to the current selection.	Alt+Shift+click
Select only the objects that belong to a group and intersect the rectangle.	Alt+Rectangle Selection
Add objects, which belong to a group and intersect the selection rectangle, to the current selection.	Alt+ Shift+Rectangle Selection
Select only the objects that belong to a group and are totally contained in the rectangle.	Alt+Ctrl+Rectangle Selection
Add objects, which belong to a group and are totally within the rectangle, to the current selection.	Alt+Shift+Ctrl+Rectangle Selection

***Tip**: You can also select objects inside a group by using these standard shortcuts:*

Select Next Object: Period (.)
Select Previous Object: Comma (,)
Multi-select Next Object: Shift+Period (.)
Multi-select Previous Object: Shift+Comma (,)

Cutting and Pasting Objects in a Group

To cut an object from a group:

1. From the Tools toolbar, click the **Select** button.
2. From the viewer or GOV, select one or more objects.

You cannot select all of the objects in a group.

3. From the Tools toolbar, click **Group > Cut from Group**.

   The selected objects are removed from the group and placed on the Clipboard.

To paste an object to a group:

1. Select the group to which the object will be pasted.
2. From the Tools toolbar, click **Group > Paste to Group**.

   The objects on the Clipboard are pasted in the selected group and have the same time span as the group.

Locking Graphics Objects

When you're working with overlapping graphics objects, it's useful to lock some of the graphics objects on which you don't need to work. Once an object is locked, you can't select or modify it in any way. Locked objects remain locked when a sequence is closed and reopened. Also, locked objects cannot be selected or edited in the GOV—you can only unlock them. When a graphics object is locked, its bar in the GOV changes to a light gray color.

***Tip**: To see a wireframe outline of locked objects, position the pointer over the graphics bars in the GOV and the shape of the locked objects will be displayed in wireframe in the viewer.*

You can also lock/unlock a graphics object by right-clicking on its corresponding bar in the GOV and choosing a menu command.

To lock graphics objects:

- Select the graphics objects that you want to lock and do one of the following:

  - From the Tools toolbar, click the **Lock** button.
  - Right-click the graphics object in the GOV and select **Lock**.
  - Select **Graphics > Objects > Lock**.

  Locked objects are now represented by a light gray bar in the GOV and are automatically deselected.

***Tip**: You can multi-select graphics objects by holding down the Shift key.*

To unlock graphics objects, do one of the following:

- To unlock all graphics objects on the current frame, select **Graphics > Objects > Unlock All - Frame** or click the **Unlock All - Frame** button in the toolbar.
- To unlock all graphics objects in the current graphics session, click **Graphics > Objects > Unlock All - Session** in the Tools toolbar.

  All locked graphics objects are unlocked.

Hiding Graphics Objects

When you're working with overlapping graphics objects that clutter the viewer, you can hide some of the graphics objects on which you don't want to work. This makes objects temporarily invisible and may improve performance when working on large or complex projects.

Once an object is hidden, you cannot select or modify it in any way, except for trimming. Hidden objects remain hidden when sequences are closed and reopened.

When a graphics object is hidden, its bar in the GOV changes to a light purple color.

***Tip**: To see a wireframe outline of hidden objects, position the pointer over the graphics bars in the GOV and the shape of the hidden objects will be displayed in wireframe in the viewer.*

You can also hide/show graphics objects by right-clicking on its corresponding bar in the GOV and choosing a menu command.

To hide graphics objects:

- Select the graphics objects that you want to hide and do one of the following:

  - From the Tools toolbar, click the **Hide** button.
  - Right-click the graphics object in the GOV and select **Hide**.
  - From the menu bar, select **Graphics > Objects > Hide**.

  Hidden objects are represented by a light purple bar in the GOV and are automatically deselected.

To show graphics objects, do one of the following:

- To show all graphics objects on the current frame, select **Graphics > Objects > Show All - Frame** or click the **Show All - Frame** button in the toolbar.
- To show all graphics objects in the current graphics session, select **Graphics > Objects > Show All - Session** from the Tools toolbar.

  All hidden graphics objects are shown and selected. Any previously selected objects are deselected.

Hiding Bounding Boxes

Hiding the bounding boxes of graphics objects makes it easy for you to see the effect of any adjustments you make to its parameters. You can still select and edit the graphics objects after hiding the bounding boxes.

To show/hide bounding boxes:

- From the Tools toolbar, click the **Show/Hide Bounding Box** button or press Ctrl+H.

Creating Clusters of Graphics Objects and Vertices

Multiselecting graphics objects or vertices can be very convenient when you want to reuse a specific selection. You can build presets of one or more selected graphics objects or vertices.

To create a cluster of graphics objects:

1. From the Tools toolbar, click the **Select** button and select the graphics objects you want to add to the cluster.
2. From the Tools toolbar, click the **Shapes > Build Vertex Cluster** button.

   The graphics objects are assigned to a cluster button.

To recall a graphics object cluster:

- From the Tools toolbar, click **Shapes > Select Vertex Cluster**.

  The graphics objects assigned to this cluster number are selected in the viewer.

To build a cluster of vertices:

1. In Edit Shape mode, select the vertices you want to add to the cluster.
2. From the Tools toolbar, click **Shapes** and one of the **Build Vertex Cluster** buttons.

   The group of vertices is assigned to the cluster button.

To recall a vertex cluster:

- From the Tools toolbar, click **Shapes** and the corresponding **Select Vertex Cluster** button.

  The vertices assigned to this cluster number are selected in the viewer.

Aligning Graphics Objects

Graphics alignment tools allow you to align graphics objects with respect to other graphics objects or the safe action/title area. Absolute alignment tools allow you to align graphics using the safe action/title area as a reference. Relative alignment tools allow you to align graphics object using other selected graphics objects as a reference.

***Tip**: When using the alignment tools, it's useful to display the guides. Right-click the viewer and select **Viewer Properties**. On the Guides property page, select the **Safe Action/Title** option.*

To align graphics objects:

1. In the viewer, select the objects you want to align.
2. From the Tools toolbar, click **Align > *alignment tool***.

   The selected objects are aligned in the viewer.

Editing the Shape of a Stroke

The shapes of all the strokes created by the Freehand, Polyline, Rectangle, Ellipse, and Magic Wand tools are determined by line segments and vertices that indicate a change in line direction. Each vertex in an object has a control point, which you can use to alter its shape. Before you can edit the shape of a stroke, you must select it.

To edit the shape of a stroke:

1. From the Tools toolbar, click the **Select** button and click a stroke in the viewer.

   The selected stroke is surrounded by a yellow bounding box, and the graphics property tree displays the stroke's properties.

2. From the Tools toolbar, click the **Edit Shape** button or press Enter.

   The stroke's contour and control points are displayed, and the Edit Shape tool is activated.

***Tip**: To select or deselect a shape while in Edit Shape mode, press Alt and click a stroke.*

3. From the graphics property tree, click **Edit Shape**.
4. In the Path box, click one of the following:
   - **Open** to open a closed curve.
   - **Closed** to close an open curve.
5. In the Curve Fitting box:
   - Click the **Fit Curve** button to sample all the control points of the original curve.
   - Use the **Tolerance** controls to set the number of controls points that the redrawn curve retains from the original.
6. In the Animation box, use the buttons to set, delete, and navigate between keyframes.

Selecting Control Points

When you select control points on a stroke, they remain selected between frames. You can edit the shape of single or multiple strokes by dragging the control points.

To select control points:

1. From the Tools toolbar, click the **Select** button, and click a stroke in the viewer.

   The selected stroke is surrounded by a yellow bounding box, and the graphics property tree displays the stroke's properties.

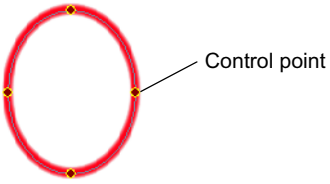
2. From the Tools toolbar, click the **Edit Shape** button or press Enter.

   The stroke's contour and control points are displayed, and the Edit Shape tool is activated.

3. Do one of the following:

   - Click a control point to select a single control point.
   - Hold down the Shift key and click a control point, and then click each subsequent control point.
   - Drag to make a rectangular selection in the viewer, and select multiple points simultaneously.

   The selected control points are highlighted in yellow.



To edit a control point:

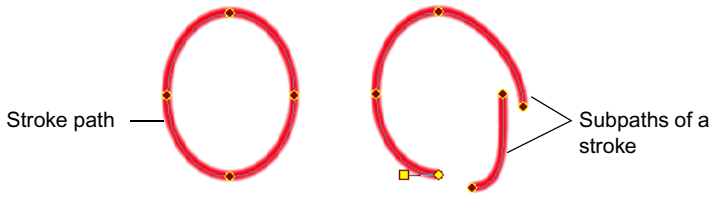
- Press A and click the line or curve segment between two control points to add a control point.
- Click a control point to select it and drag to move it.
- Click a control point and press Delete to delete control points.

To move a control point:

- To move 1 pixel: Press an arrow key on the keyboard number pad.
- To move 10 pixels: Hold down the Ctrl key and press an arrow key on the keyboard number pad.

Breaking and Unifying Strokes

A stroke's path can be broken into any number of subpaths, which you can later reunify. Subpaths remain part of the stroke and cannot be unified with the subpaths of other strokes.



To break or unify a stroke:

- Hold down the K key and drag a control point.

  The stroke path is broken and a subpath is created.

- Hold down the U key and drag one control point and drop it over another.

  The subpaths are unified.

Combining and Separating Strokes

You can combine multiple strokes to create a single compound stroke. Similarly, you can separate compound strokes into individual strokes.

To combine strokes:

1. From the Tools toolbar, click the **Select** button, and select the strokes you want to combine.

   The selected strokes are surrounded by yellow bounding boxes and highlighted in yellow in the GOV.

2. From the Tools toolbar, click **Objects > Combine Strokes**.

   The selected strokes are combined and surrounded by one bounding box, and are shown in the GOV as one compound stroke.

When strokes are combined, they're assigned the properties of the first selected stroke. If you want to retrieve the properties of an individual stroke before it was combined, use the undo operation.

To separate a stroke:

1. From the Tools toolbar, click the **Select** button, and select the stroke you want to separate.

   The selected stroke is surrounded by yellow bounding boxes and is highlighted in yellow in the GOV.

2. From the Tools toolbar, click **Objects > Separate Strokes**.

   The combined stroke is separated into individual strokes.

Morphing Strokes

You can select strokes which exist at different frames and automatically interpolate between them to create interesting effects.

***Tip**: You can also copy shapes and paste them between the start and end frames of the morph. For more information, see "Copying and Pasting Shapes" on page 1453.*

To morph strokes:

1. Using the transport controls, go to the first frame that contains the stroke you want to use at the beginning of the morph.

2. From the Tools toolbar, click the **Select** button and select the stroke that you want to morph.
3. From the General 2 toolbar, click the **Morph Start** button to begin the morph.
4. Using the transport controls, advance to the frame that contains the next stroke you want to add to your morph.
5. Select the stroke.
6. From the General 2 toolbar, click the **Morph Add** button.

   The stroke is added to your morph.

7. Continue adding selected strokes to your morph using the **Morph Add** command.
8. When you're about to add the last stroke, click the **Morph End** button in the General 2 toolbar to end your morph.

   The resulting morphed stroke has an animated shape.

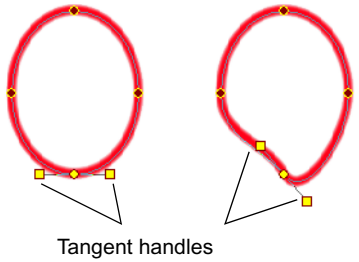
Changing the Slope of a Curve

At any control point, you can change the slope of a curve by changing the length and direction of its tangent handle. You can also create discontinuity in a curve by breaking the tangent handle at a control point.

To change the slope of a curve:

1. Drag a control point or press H to give selection priority to the handles instead of the control point. The tangent handles may sometimes lie under the control point.
2. Drag the tangent handle.

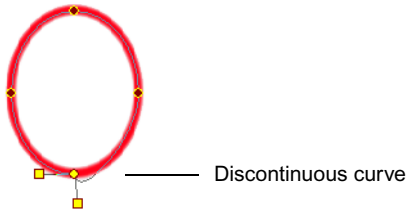
   The shape of the curve changes on both sides of the control point.



To create a discontinuous curve:

1. Click a control point to display its tangent handles.
2. Hold down the B or Alt key and drag a tangent handle.

   The tangent handle breaks in the center, and the slope of the curve changes on one side of the control point.



Changing the Direction of a Stroke

The path of a stroke has a start point and an end point. By reversing the direction of that path, the start point becomes the end point and vice versa. Reversing the direction of a path is useful when working with Handwriting animation. For more information, see "Creating Handwritten and Type-On Animation" on page 1448.

To change the direction of a stroke:

1. From the Tools toolbar, click the **Select** button and click a stroke in the viewer.

2. From the Tools toolbar, click the **Edit Shape** button or press Enter.

***Tip**: To select or deselect a shape while in Edit Shape mode, press Alt and click a stroke.*

3. From the graphics property tree, click **Edit Shape**.
4. In the Path box, click the **Reverse Direction** button.

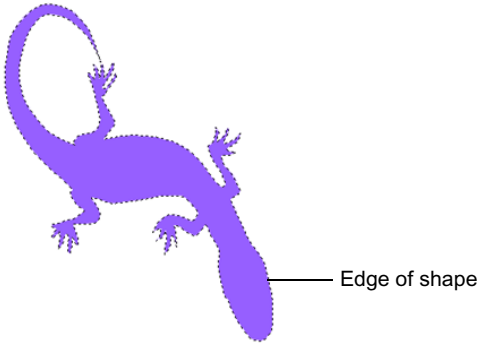
Reshaping a Stroke

There may be times when you want to edit the shape of a stroke using a "freehand" approach. This is especially useful for rotoscoping and animating shapes.

With the Reshaper tool, you can modify the geometry of a stroke without being constrained to the shape's control points. By tracing the edge of a shape, you can interactively reshape a stroke.

In addition, you can chop, scale, rotate, skew, stretch, and move a shape, as well as adjust its opacity. When reshaping a stroke, keyframes are automatically set.

***Tip**: Since it's difficult to reshape overlapping strokes, you can hide or lock graphics objects that clutter the viewer. For more information, see "Locking Graphics Objects" on page 1425 and "Hiding Graphics Objects" on page 1426.*



To trace a shape:

1. Do one of the following:

   - From the Tools toolbar, click the **Reshaper** button or press P.
   - From the menu bar, select **Graphics > Tools > Reshaper**.

2. To trace, do any of the following:
   - Drag along the edge of the stroke.
   - To trace a straight line, hold down the Alt key and trace along the edge of the shape.
   - To trace without moving existing control points, hold down the Shift key while you trace.

***Tip**: To trace more quickly, make sure the shape has a minimum of control points. To reduce the number of control points, use the **Fit Curve** option in the Edit Shape property editor.*

Click the Help button for detailed information on the Reshaper properties.

3. Press Esc to exit the Reshaper tool.

Chopping Control Points

If a shape contains a segment that you'd like to eliminate, you can always chop out the unwanted control points.

Before After: A finger is chopped off.

To chop control points:

- Hold down C and drag along the edge of the shape that you want to chop.

  The area is chopped from the shape.

Moving a Shape

You can move the entire shape to a new location.

To move a shape:

- Hold down A and drag the shape to a new location.

Scaling, Rotating, and Skewing a Shape

When scaling, rotating and skewing a shape, you must first position the point of origin, which is represented by a small red circle in the viewer.

To position the origin:

1. Hold down one of the following keys:
   - S to scale
   - D to rotate
   - F to skew
2. Drag the origin to a new location.
3. To center the origin, right-click the shape.

   The origin is positioned at the center of the stroke's geometry.

To scale a shape:

- Hold down S and drag the shape to scale it.

To scale proportionally, press Shift+S.

To rotate a shape:

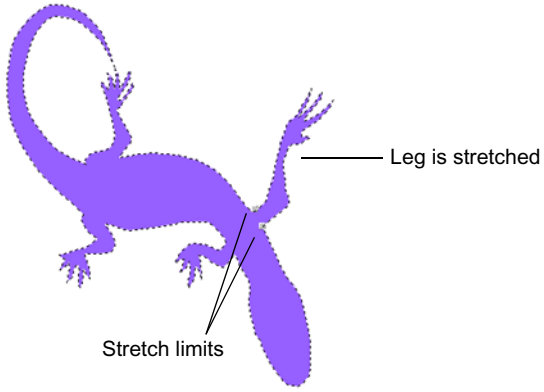
- Hold down D and drag the shape to rotate it.

To skew a shape:

- Hold down F and drag the shape to skew it.

Stretching a Shape

Stretching lets you extend portions of a shape, while maintaining the rest of it. When stretching a shape, you must first position the stretch limits on the edge of a shape. The stretch limits are represented by two small gray squares in the viewer.



To stretch a shape:

1. Hold down G to access the stretch tool.
2. Place each stretch limit at the desired location along the edge of the stroke.
3. Drag the edge of the shape between the stretch limits.

   The segment between the two stretch limits is stretched. The other parts of the shape remain unchanged.

Changing the Opacity of a Stroke

When performing rotoscoping, it’s sometimes helpful to see what's in the image underneath the stroke. This makes it easier to reshape the stroke from one frame to the next.

To change the opacity of a stroke:

- Hold down O and drag the stroke in the viewer.

When changing the opacity, the stroke fill and brush opacity is changed, if they were used. If the opacity is animated, a temporary value is set. If the opacity is not animated, a value is set but a key is not created.

Working with Titles

A text body is a graphics object that consists of a group of words, lines, and paragraphs. You create, edit, and select titles using text bodies in the Edit Text mode.

By default, word wrapping is on when using the Text tool. When the edge of a text body is reached, the text continues on to the next row. However, for crawls, you can fit all the text fit into one long line.

There is no automatic word hyphenation. Line breaks always occur at the end of a word. If a word is longer than the text body, the word breaks at the edge. To prevent the word from breaking, increase the width of the text body.

To create a title:

1. From the Tools toolbar, click the **Text** button or press T.
2. In the graphics property tree, use the property editors to define the properties of the title—see "Setting Drawing Tool Properties" on page 1397.
3. Click the viewer.

   A text box is displayed.
4. Begin typing text in the text body.

5. From the Tools toolbar, click the **Select** button.

   The text body is selected and displays the title with the properties you specified.

6. Press Enter or click the **Edit Text** button to return to Edit Text mode.

   The text body in Edit Text mode is displayed.

To make text fit on one line:

1. Select the text body.
2. From the graphics property tree, click **Titling Body**.
3. From the Titling Body property editor, click the **Fit Text on One Line** button.

   All of the text in the text body fits in one horizontal text body, instead of wrapping to the next line.

Click the Help button for detailed information on the Titling Body properties.

Using Text from Other Applications

You can cut, copy, and paste text to and from any text generation application that uses the Windows Clipboard. Because Avid DS Nitris uses a Rich Text Format (RTF) compatible text engine, you can exchange text with an application, such as Microsoft Word.

Without having to select any of the tools in the Graphics layout, you can directly paste the copied text into a graphics session. The text and much of its formatting will be pasted into a text body. Not all formatting, however, remains intact when you use text from external applications.

Graphics, such as strokes or clip art, cannot be imported or exported.

To use text from an external application:

1. In the external application, cut or copy the text.

   The text is copied to the Clipboard.

2. In the Graphics layout, press Ctrl+V.

   The text and most of its formatting is pasted in a text body.

To copy text to an external application:

1. From the Tools toolbar, click the **Edit Text** button.
2. In a text body, select the text to be copied and press Ctrl+C.

   The text is copied to the Clipboard.

3. In the external application, place the pointer at the insertion point and press Ctrl+V.

   The text is pasted in the external application.

Importing HTML Text

You can import an HTML file and convert it into a text body. As many text properties as possible are retained, such as font, size, and color. This is very useful when setting up rolls and crawls with different styles for headers and names, since you can set up the text before working in Avid DS Nitris.

To import HTML text:

1. From the Tools toolbar, click **Import > Import HTML**.

   The Open dialog box is displayed.

2. Select a file to import and click **OK**.

The text is imported as a text body.

Selecting and Editing Text

While you are creating titles, you can select and edit the text it contains, as well as its format properties. You can edit the properties of the entire text body or individual characters within the text body.

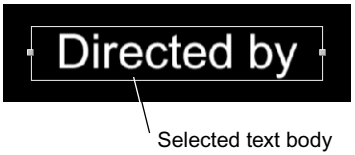
To select a text body:

1. From the Tools toolbar, click the **Select** button and select a text body.

   The selected text body is surrounded by a yellow bounding box.

2. From the Tools toolbar, click the **Edit Text** button.

   You can now edit the text body properties.



To move a text body:

- Do one of the following:
  - While using the Edit Text tool, press Alt and move the text body to a new location.
  - From the Tools toolbar, click the **Select** button and select a text body and move it to a new location.

To edit a text body:

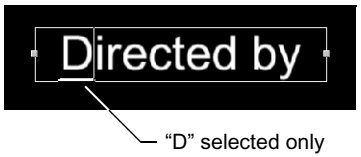
- While using the Edit Text tool, do any of the following:
  - Press Alt and click the text body you want to edit.
  - Press Alt+. (period) to edit the next text body.
  - Press Alt+, (comma) to edit the previous text body.

To select individual text characters:

1. From the Tools toolbar, click the **Select** button and select a text body.

   The selected text body is surrounded by a yellow bounding box.

2. From the Tools toolbar, click the **Edit Text** button.
3. In the text body, select the character that you want to edit by clicking and dragging over it.



   A selection bar appears at the bottom of the selected character.
4. You can now edit the properties of the individual characters.

To select text characters with the same fonts or styles:

1. From the Tools toolbar, click the **Select** button, and select a text body.

   The selected text body is surrounded by a yellow bounding box.
2. From the Tools toolbar, click the **Edit Text** button.
3. Hold down the Ctrl key, drag over a character possessing the style or font you want to select.

***Tip**: You can set your user preferences for titling selection in the User Preferences dialog box. You can select characters that share the same titling style, titling font, or both when you hold down the Ctrl key and select.*

4. You can now edit the properties of the selected text.

To edit the font and kerning:

1. In Edit Text mode, select the text body or individual text.
2. In the graphics property tree, click **Font**.
3. In the Font property editor, select the Font, Style, and Size you want to apply to your text.
4. Select the **Kern Pairs** option to move a character pair closer to each other. This applies to certain fonts only.
5. Select the **Font Hinting** option to prevent blurry artifacts from appearing after processing.

   This option is not recommended for animated titling sequences.

6. To adjust the horizontal spacing between characters, type a value in the Kerning box. The default value is 1.
7. Select the **Filtering** option to reduce the flickering perceived when the text is viewed on an interlaced screen.
8. Adjust the **Character Transform** controls to transform characters in X and Y.

Click the Help button for detailed information on the Font properties.

To increase and decrease the font size:

- Select some characters and do any of the following:

To do this	Press
Increase the font size	• Alt+Up Arrow (normal increment) • Alt+Shift+Up Arrow (minor increment) • Alt+Ctrl+Up Arrow (major increment)
Decrease the font size	• Alt+Down Arrow (normal increment) • Alt+Shift+Down Arrow (minor increment) • Alt+Ctrl+Down Arrow (major increment)

To increase and decrease the kerning:

- Place the cursor between two characters or select several characters and do any of the following:

To do this	Press
Kern left	• Alt+Left Arrow (normal increment) • Alt+Shift+Left Arrow (minor increment) • Alt+Ctrl+Left Arrow (major increment)
Kern right	• Alt+Right Arrow (normal increment) • Alt+Shift+Right Arrow (minor increment) • Alt+Ctrl+Right Arrow (major increment)

Aligning Text

You can specify a justification for a selected text body. By adding character tabs, you can also justify character tabs within a text body.

To justify a text body:

- With the text body selected in Edit Text mode, right-click the left margin of the text body and select a justification from the list.

The text body is aligned as specified.

To add a character tab to the text body:

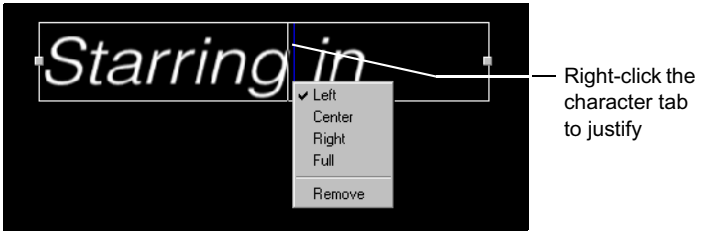
1. With the text body selected in Edit Text mode, hold down the Ctrl key and double-click inside the text body at the point where you want to insert a tab.

   A tab is inserted in the text body.

2. To move the tab around, drag it to a new location.
3. To remove the tabs, right-click and select **Remove**.

To justify a character tab:

- With the text body or individual text selected in Edit Text mode, right-click the character tab, and select a justification from the menu.



Converting Text to Strokes

You can convert a text body into individual strokes that you can then edit individually. You can animate the strokes, edit the characters to create a custom “font”, or use the stroke to create a custom brush.

To convert strokes to text:

1. From the Tools toolbar, click the **Select** button and select a text body.
2. From the Tools toolbar, click **Objects > Text to Strokes**.

   Each character is surrounded by a yellow bounding box and appears as a separate stroke in the GOV.

Searching for Text

When working with large text files, such as credit rolls, it may be difficult to locate text. You can search through a text body for keywords.

To search for a keyword in a text body:

1. With the text body selected in Edit Text mode, click in the text body at the position where you want to begin the text search.
2. Press Ctrl+F.
3. In the Find dialog box, enter a keyword in the String to Find text box.

   The keyword is located and underlined with a selection bar.

Creating Rolls and Crawls

A roll or crawl typically contains the titles or credits of a program. You can create a traditional roll in which a title moves from the bottom of the screen to the top, or a traditional crawl in which a title moves from the right of the screen to the left. Single or multiple titles can be used for a roll or crawl.

You create rolls or crawls by using the Graphics property editor. This lets you quickly and easily create standard rolls or crawls that involve few titles. When you do this, the time span of the titles change to match the duration of the graphics session.

You can also create the animation manually by using the Animation Key button to set individual keyframes. This lets you create a complex roll or crawl that involves many titles that start and end in different locations. You can also include paint strokes in a roll or crawl.

When you create a roll or crawl using the Graphics property editor, the entire duration of the clip is used.

Also, rolls and crawls are real-time effects so you can view the results upon playback without having to first process them.

In rare cases, real-time effects may require processing to ensure that no frames are skipped. For more information, see "Working with Real-Time Effects" on page 898.

To create a roll or crawl:

1. From the Tools toolbar, click the **Text** button to create a text body.
2. From the graphics property tree, open the **Font** property editor and specify the font type, style, and size.
3. Click the viewer and type in some text.
4. When you're done, select the text body.

5. From the Tools toolbar, click the **Graphics Properties** button.
6. In the Graphics property editor, select one of the following from the Motion box:
   - **Roll** to create a roll.
   - **Crawl** to create a crawl.
7. In the Start Position box, select one of the following:
   - **Onscreen** to start the roll or crawl on the screen.
   - **Offscreen** to start the roll or crawl off the screen.
8. In the End Position box, select one of the following:
   - **Onscreen** to end the roll or crawl on the screen.
   - **Offscreen** to end the roll or crawl off the screen.
9. To guarantee optimal quality when building rolls/crawls, select the **Standard Speed** option.
10. Click the **Build Motion** button.

The title's transformation is animated.

11. To apply an automatic fade, roll, and crawl animation to selected graphics objects only, select the **Apply to Selection** option.

Click the Help button for detailed information on the Graphics properties.

12. To modify the transformation properties of the title, select the title, and do one of the following:

    - From the graphics property tree, open the **Transformations** property editor, and modify the values.
    - Select **View > Views > Animation Editor**. Select the **Transformation** property and adjust the function curve.

Creating a Fade

You can automatically create fades by using the Graphics property editor. When you apply a fade to a graphics object, its time span changes to match the duration of the graphics session. In addition, the existing opacity settings for a stroke (brush and fill) and text body (edge, face, shadow) are overwritten with the new fade values.

To fade an object:

1. From the Tools toolbar, select a drawing tool.
2. In the graphics property tree, define the properties for your tool—see "Setting Drawing Tool Properties" on page 1397.
3. Create an object in the viewer.
4. Move the object to the desired fade-in position.

5. From the Tools toolbar, click the **Graphics Properties** button.
6. In the Fade box of the Graphics property editor, set the **In** and **Out** values in frames.
7. Click the **Build Fade** button.

   The object's opacity properties are animated.

8. To modify the opacity properties of the object, select the object and adjust the Opacity controls on the Paint Style, Brush, and Titling Style property editors.

Click the Help button for detailed information on the Graphics properties.

Creating Handwritten and Type-On Animation

You can create animated, scrolling text effects that simulates handwriting or a typewritten effect. You can generate a handwritten type of animation on a single or combined stroke, which is useful for simulating the look of a pen writing across the screen.

You can also generate an animated typewritten effect based on a selected text body, giving it the appearance of a typewriter typing each character. You can specify the direction, beginning, and end of the animation, as well as adjust the spacing of the text body.

To create a handwritten animation:

1. In the Tools toolbar, select one of the following drawing tools: **Freehand**, **Polyline**, **Rectangle**, or **Ellipse**. Create the graphics object on which you want to apply the handwriting animation.
2. Draw a single stroke or multiple strokes in the viewer. Make sure you're using the brush.

***Tip**: Use the **Objects > Combine Strokes** command in the Tools toolbar to combine multiple strokes. For more information on combining strokes, see "Combining and Separating Strokes" on page 1431.*

3. From the Tools toolbar, click the **Select** button and select the stroke to which you want to apply the handwritten animation.

   The stroke is selected and surrounded by a yellow bounding box.
4. In the graphics property tree, set the time span.

You can only create handwritten animation for strokes that have a duration that's longer than one frame.

5. Do one of the following:
   - From the Tools toolbar, click the **Objects > Handwriting** button.
   - In the graphics property tree, click the **Stroke** button.
6. In the Handwriting property editor, click one of the following:

Parameter	Description
Forward	To begin the handwriting animation with the first brush stamp and move towards the last.
Backward	To begin the handwriting animation with the last brush stamp and move towards the first.
Center	To begin the handwriting animation in the center of the stroke and move outwards towards the first and last brush stamps.

7. Use the Custom Settings if you want the animation to begin or end at a specific point. The default is 0 for the head setting and 100 for the tail.

Click the Help button for detailed information on the Handwriting properties.

To create a type-on animation:

1. From the Tools toolbar, click the **Select** button and select the text body to which you want to apply the type-on animation.

   The text body is selected and surrounded by a yellow bounding box.

2. Do one of the following:
   - From the Tools toolbar, click the **Objects > Type-On** button.
   - From the graphics property tree, click the **Titling Body** button.
3. In the Type-On box, click one of the following:

Parameter	Description
Forward	Begin the type-on animation with the first text character entered and move towards the last.
Backward	Begin the type on animation with the last text character and move towards the first.
Center	Begin the type on animation in the center of the text body and move outwards towards the first and last characters drawn.

4. Use the Head and Tail settings if you want the animation to begin or end at a specific point. The default is 0 for the Head setting and 100 for the Tail.

Click the Help button for detailed information on the Titling Body properties.

Manipulating Graphics

Before you can edit an object, you must select it. Then you can use the transformation tools to change the rotational angle, size, and skew of a graphics object. The shape of individual strokes and the contents of a text body can also be modified. Other tools let you reorder selected objects by moving them in front of or behind other objects. Selection tools speed up the editing process since you can simultaneously select, deselect, and delete multiple objects.

Editing Graphics Properties

After you've created graphics, you can edit any of its properties. You can edit the properties of a single object or multiple objects simultaneously. When you edit the properties of a selected object(s), only its properties are changed. The default properties for the drawing tools are not changed.

To change the properties of a single object:

1. From the Tools toolbar, click the **Select** button and click an object in the viewer.

   The graphics property tree displays the object's properties.

2. From the graphics property tree, click a property button.

   The property editor is displayed.

3. Adjust the desired properties.

   In the viewer, the object displays the properties you specified.

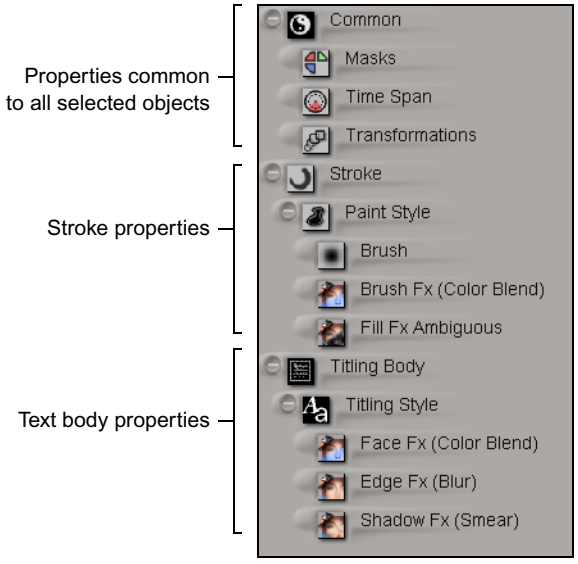
To change the properties of multiple objects:

1. From the Tools toolbar, click the **Select** button and click an object in the viewer.

   The graphics property tree displays the object's properties.

2. Hold down the Shift key and click the objects you want to select.

   The graphics property tree displays the properties of the selected objects.



3. In the graphics property tree, click a property button.
   - If you clicked the Masks, Time Span, or Transformations property button, its property editor displays the properties that are common to the selected objects.
   - If you clicked a stroke property, its property editor displays the properties that are common to the selected strokes.
   - If you clicked a text body property, its property editor displays the properties that are common to the selected text bodies.

When you open additional property editors, they're displayed one on top of the other. Drag the property editor to another location to view multiple property editors simultaneously.

4. In the property editor, modify the properties.

   The selected objects display the properties you specified.

Cutting, Copying, and Pasting Graphics

You can cut or copy objects in the viewer and paste them on the same frame or on another frame. Cut or copied objects are placed on the Clipboard in the system memory and remain there until you perform another cut, copy, or paste operation.

To cut, copy, or paste an object:

1. From the viewer, select an object.

   The object is surrounded by a yellow bounding box.

2. From the Edit menu, select one of the following:

   - **Cut** or press Ctrl+X to cut an object.
   - **Copy** or press Ctrl+C to copy an object.
   - **Paste** or press Ctrl+V to paste an object.

Copying and Pasting Shapes

You can copy the shape of a stroke and apply it to another stroke. The new stroke is deformed into the new shape, but retains its original properties, such as color and time span information. You can only copy and paste one stroke shape at a time.

To copy a stroke's shape:

1. Select the stroke with the shape you want to copy.
2. Do one of the following:

   - From the Tools toolbar, click the **Shapes > Copy Shape** button.
   - Open the Edit Shape property editor and, click the **Shapes > Copy Shape** button.
   - Press Alt+C.

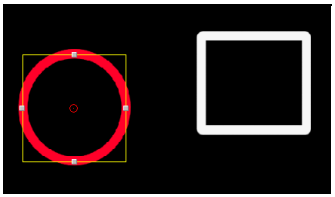
3. Select the stroke to receive the shape.
4. Do one of the following:

   - To paste the shape on top of the first selected stroke, click the **Shapes > Paste at Origin** button from the Tools toolbar.

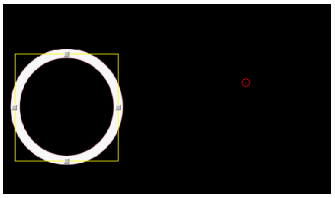
   The shape of the first stroke is applied to the second stroke and is positioned over the first stroke.

   - To paste the shape on top of the second selected stroke, click the **Shapes > Paste in Place** button from the Tools toolbar.

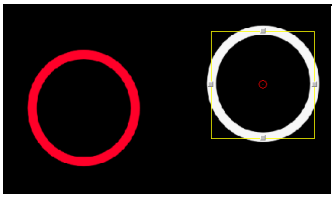
   The shape of the first stroke is applied to the second stroke and is positioned over the second stroke.



Original strokes



After the Paste at Origin command is applied, the rectangle takes the shape of the circle, but retains its color information. The new shape is pasted on top of the first circle.



After the Paste in Place command is applied, the rectangle takes the shape of the circle, but retains its color information. Note that the new shape is pasted on top of the rectangle.

Duplicating Graphics

Duplicating an object lets you copy an object and its associated properties, including the time span. Duplicating an object differs from copying an object in that duplicating takes place within the same graphics session, whereas copying an object lets you copy and paste objects between different graphics sessions or layers. A duplicate of the object is pasted on the viewer, whereas a copy of an object remains in the system memory until you paste it on a frame.

To duplicate an object:

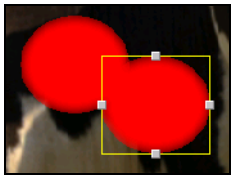
1. From the viewer, select an object.

   The selected object is highlighted by a yellow bounding box.

2. From the Tools toolbar, click the **Duplicate** button or press Ctrl+K.

   The selected object is duplicated and placed on top of the original object. To see the two objects, you must select the duplicate and move it.

Original object



Duplicate object (surrounded by a yellow bounding box)

Deleting Graphics

You can delete graphics objects one at a time or delete them all simultaneously. Objects are deleted over their entire duration. For example, if an object in the current frame has a duration of 5 frames, all 5 frames are deleted.

*Once an object is deleted, it cannot be retrieved except by choosing the **Undo** command from the Edit menu.*

To delete an object:

1. From the viewer, select an object.

   The object is surrounded by a yellow bounding box.

2. Do one of the following:

   - Press Delete.
   - From the menu bar, select **Edit > Clear**.

   The object is deleted.

To delete all objects that intersect on the current frame:

- In the Tools toolbar, click **Objects > Delete All - Frame** or press Ctrl+Delete.

  All objects in the current frame are deleted.

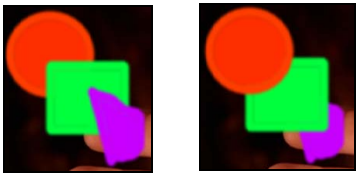
To delete all objects in a graphics session:

- In the Tools toolbar, click **Objects > Delete All - Session**.

Changing the Order of Graphics

Each time you create a graphics object, it's added to the existing graphics session. You can change the order of objects by using the Front, Raise, Lower, and Back tools. The last object you create is placed on top of all other objects.

Graphics applied on layers in a container clip are all part of the same compositing layer.



Reordering three strokes

To reorder objects:

1. From the viewer, select an object.

   The object is surrounded by a yellow bounding box.

2. From the Tools toolbar, click **Order** and do one of the following:

   - **Bring to Front** or press Shift+Pg Up (number pad) to move the object in front of all other objects.
   - **Raise** or press Pg Up (number pad) to move the object up by one level.
   - **Lower** or press Pg Dn (number pad) to move the object down by one level.
   - **Send to Back** or press Shift+Pg Dn (number pad) to move the object to the back of all other objects.

Transforming Graphics

You can transform an object by moving, scaling, rotating, or skewing it. When you do this, objects are surrounded by a yellow bounding box and handles are displayed at its corner and sides. You can manipulate these handles to transform objects.

***Tip**: For interactive updates while moving, scaling, rotating and skewing graphics objects, press Ctrl while you drag a handle.*

Moving Objects

To move graphics objects, you must use the Select tool.

To move an object:

1. From the Tools toolbar, click the **Select** button.
2. In the viewer, click an object to select it.

   A yellow bounding box surrounds the selected graphics object and the graphics property tree displays its properties.
3. Do one of the following:
   - Drag to move the selected object.
   - Use the arrows on the number pad to move the object by 1 pixel.
   - Hold down the Ctrl key and use the arrow keys on the number pad to move the object by 10 pixels.

Scaling Objects

You can modify the height and width of strokes and titles using the Scale tool. The height and width are scalable as independent values or proportionally.

To scale an object:

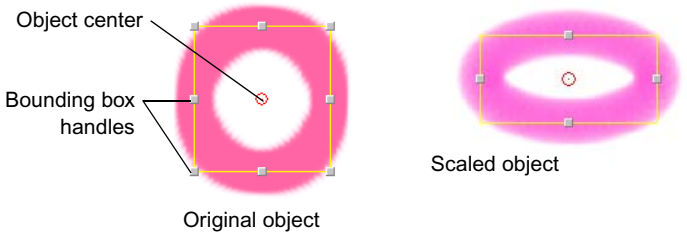
1. From the Tools toolbar, click the **Scale** button.
2. In the viewer, click an object.

   A bounding box with handles surrounds the object, and a red circle marks the object's center.
3. Drag one of the handles.

***Tip**: Press Shift and drag to increase or decrease the height and width of the object proportionally.*

Press Ctrl and drag. One or more of the opposite handles are pinned in place while you drag.

By default the object is scaled according to its center and its transformation properties are set in the Transformations property editor, where you can edit them.



Rotating Objects

You can rotate selected objects around their rotation point. The Rotate tool lets you modify the rotational angle of an object. By default, an object rotates around its center. You can move this center to any position in two-dimensional space. This lets you rotate an object around its corner or around another object in the image.

To rotate an object:

1. From the Tools toolbar, click the **Rotate** button.
2. In the viewer, click an object.

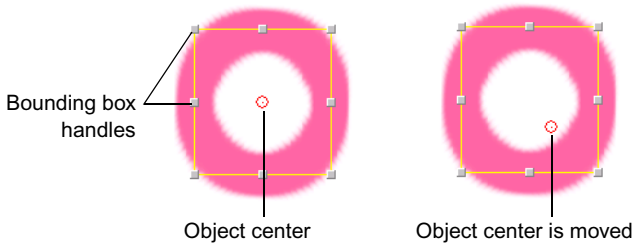
   A bounding box with handles appears at each corner of the bounding box, and a red circle marks the object's center.
3. Drag a handle clockwise or counterclockwise.

   The object rotates around its center and its transformation properties are set in the Transformations property editor, where you can edit them.

To move an object's center:

1. From the Tools toolbar, click the **Select** button.
2. In the viewer, click an object to select it.

   A yellow bounding box surrounds the selected graphics object and the graphics property tree displays its properties. The object's center is displayed as a small red circle.
3. Press Shift and drag the center to a new location.



Skewing Objects

The Skew tool lets you slant an object according to the angle you specify.

To skew an object:

1. From the Tools toolbar, click the **Skew** button.
2. In the viewer, click an object.

   A bounding box with handles surrounds the object.
3. Drag the handles left or right until the required slant is reached.

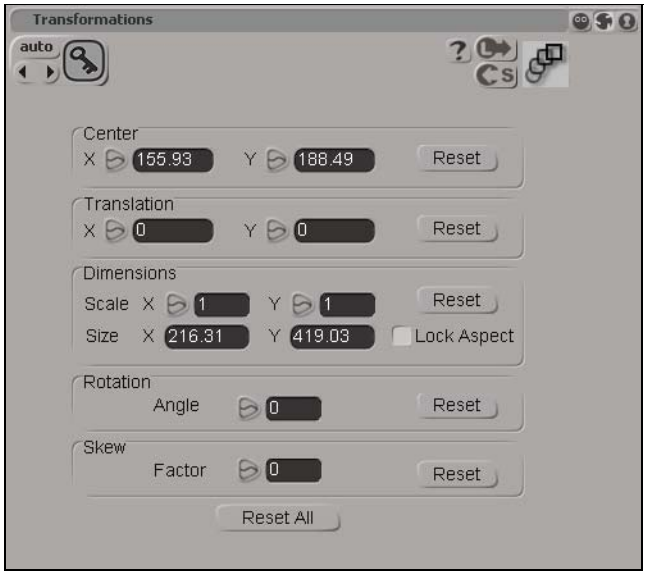
   The bounding box handles for skewing appear on each edge of the bounding box. The object is skewed and its transformation properties are set in the Transformations property editor, where you can edit them.

Setting the Transformation Properties

The transformations properties let you apply transformations, such as translating, scaling, skewing, rotating, and centering the objects you create. The transformation properties appear in the graphics property tree when you select an object.

To define the transformations properties:

1. From the Tools toolbar, click the **Select** button, and select an object from the viewer.
2. From the graphics property tree, click **Transformations**.



3. In the Transformations property editor, set the **Center**, **Translation**, **Dimensions**, **Rotation**, and **Skew** properties.

   The selected object is transformed according to the transformation properties you defined.

Tracking Graphics Objects

Tracking graphics objects can be very useful in rotoscopy tasks. You can track the transformation of a graphics objects over time, as well as track the deformation of shapes. To select an appropriate tracking method, you'll have to decide if it's more effective to track an entire graphics object or its vertices. For more information, see "Tracking" on page 1339.

Transformation Tracking

You can transform a stroke or a text body by applying one or two trackers directly to the entire stroke or text body. When applying only one tracker, the stroke or text body will only translate over time. When applying two trackers, the stroke or text body can undergo translation, rotation, and scaling.

To transform a graphics object using the tracker:

1. From the Tools toolbar, select a drawing tool.
2. Draw a shape that defines the region you want to track.
3. Select the graphics object.
4.
From the Tools toolbar, click the **Tracker** button.

   The Select (Tracker) property editor is displayed.
5. You are now ready to position the trackers, set the tracker options, and begin tracking—see "Using the Shape Tracker" on page 1363.

***Tip**: To help you position and view the trackers, click the **Hide Gfx** button to hide the graphics object.*

Tracking Vertices

You can deform the shape of a stroke by applying trackers to vertices.

To deform a shape using the tracker:

1. From the Tools toolbar, select a drawing tool.
2. Draw a shape defining the region you want to track.

***Tip**: You can use any drawing tool, but the Polyline tool gives you distinct control points. When using other drawing tools, select the **Curve Fit** option in the Edit Shape property page to reduce the number of control points.*

3. From the Tools toolbar, click the **Select** button and select the graphics object.

4. From the Tools toolbar, click the **Edit Shape** button.
5. In the Edit Shape property editor, select the **Tracker** tab.
6. You are now ready to position the trackers, set the tracker options, and begin tracking—see "Using the Shape Tracker" on page 1363.

Working in Raster Mode

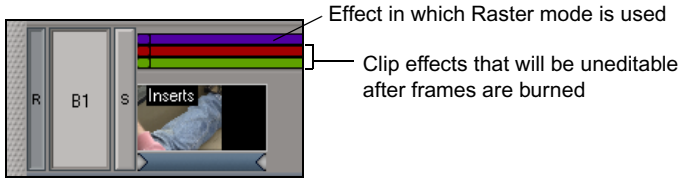
Raster mode (also known as *destructive mode*) lets you perform tedious tasks, such as rotoscoping quickly and effectively. Since this mode is not vector-based, processing is not required. The time required to load and save graphics objects is also dramatically reduced.

As you paint frame-by-frame, the finished (burned) frames are placed in a cache and the original graphics objects are deleted. Working in Raster mode deactivates the recording of graphics objects in the Graphics Objects View (GOV), flattens them, and stores the resulting images on individual frames directly to a cache. You can choose to have the frame you're currently working on automatically "burned" or you can choose to burn frames later when you're satisfied with the results.

When burning frames, keep in mind that clip effects previously applied to a sequence will be no longer be editable. If you want to apply clip effects to your sequence, it's best to use the raster mode to burn your frames first.

Raster mode only works for graphics objects with a duration of one frame.

Also, the files generated by raster paint (.gen files) will not be seen in the Media Tool or Purge dialog box. They will be deleted when the project is deleted and archived when the project is archived.



*When working in raster mode, you cannot undo an operation on a frame that has been burned. You can use the **Delete Burned** command from the Raster Paint toolbar to undo your work on that frame entirely and start over.*

To use the raster mode:

1. From the Tools toolbar, click the **Graphics Properties** button.
2. On the Raster Mode property page, click the **Start** button.

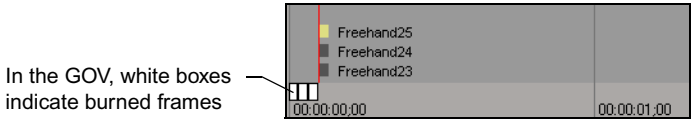
A message box is displayed to warn you that the operation you're about to attempt cannot be reverted.

3. Click **OK** to proceed in the Raster mode.
4. Do one of the following:
   - To automatically burn or "destroy" frames as you advance frames, select the **Burn on Frame Change** option.
   - To burn frames manually, deselect the **Burn on Frame Change** option. Click the **Burn Frame** button in the General 2 toolbar when you're satisfied with your work.
5. To create a copy of the rastered strokes when advancing frames, select the **Copy Burned Strokes** option.
6. If you don't want to work in real time, select the **Non Real-time** option.
7. To deactivate the warning message that appears concerning undo/redo operations when you change frames, select the **Remove Warning When Burning** option.
8. To easily retrieve work done in the raster mode, enter a file name in the **Base Cache File Name** text box. It should not exceed ten alphanumeric characters. If you do not enter a file name, one will be entered by default based on the sequence name. For more information on working with caches, see "Raster Mode Caches" on page 1465.
9. Use the transport controls to advance the clip to a frame where you want to begin using the raster mode.
10. Apply paint strokes to the first frame.

***Tip**: When you've completed the first frame, you can advance to the next one by using the right arrow key on the keyboard.*

11. Advance to the next frame.

    If you selected the Burn on Frame Change option, when advancing to a new frame, the graphics objects applied to the previous frame are burned and saved to a cache. A small white box appears under the timeline in the GOV to indicate that the frame has been burned.



While you're painting frame-by-frame, you may decide to redo a rastered frame. To do this, you must still be in the current graphics session in order to delete the rastered strokes.

To delete burned, rastered strokes:

1. Using the transport controls, advance the clip to the frame on which you want to delete the rastered strokes.
2. From the General 2 toolbar, click the **Delete Burned** button.

   The strokes created before burning the frame are now deleted and the white box disappears for that frame in the GOV.

Raster Mode Caches

When working with paint in raster mode, the finished (burned) frames are placed in a cache and any vector-based paint strokes or graphics objects are "flattened" and saved with the image.

These caches are saved with your project on the disk array, and Avid DS Nitris refers to these caches when playing back your clips.

- The .gen files generated when burning frames are managed on a per project basis, so deleting or not saving sequences that contain burned frames may leave orphaned .gen files. To help track and delete these files, enter a name in the Base Cache File Name text box in the Graphics property page, use the rastered frames tooltips in the Graphic Object View (GOV), or use the Save option when right-clicking on the rastered frames in the GOV. Deleting a project will also destroy all associated burned frames.
- Presets of graphics sessions that contain burned frames cannot be reloaded in sequences that have a different resolution or frame rate.
- The burned frames of graphics sessions become opaque. Changes to any effect underneath a graphics session will be ignored for those frames.
- Burned frames are not visible when a paint sequence is used as a reference clip (Alt-drop from Avid Explorer). To work around this, select the Non Real-Time option on the Graphics property editor and process.

When working in raster mode, you cannot undo an operation once a frame has been burned. You can, however, delete its cache file, but this will also delete any paint strokes that you created on that frame.

Using the GOV in Raster Mode

The GOV provides useful information when working in the Raster Paint mode. The Raster Paint log lets you save a list of the rastered frames in a text file. It provides you with information about the rastered frames, so that you can easily locate them in the cache. The GOV also provides tooltips of the rastered framed, so that you can locate a frame if you want to delete or redo it.

To create and save a Raster Paint log:

1. In the GOV, right-click a small white box and select **Save Raster Paint Log**.

   A dialog box is displayed, prompting you to save the log.

2. Select the folder in which you want to save the Raster Paint Log information. You may want to save your work for different graphics sessions in separate folders.
3. Click the **Save** button.

   A text file is created.

***Tip**: To see the file name of a rastered frame, place the pointer over the frame's white box and a tooltip appears indicating the file name.*

Creating Mattes

A matte is a grayscale image that defines the transparency of an image when it is composited over another. An image can have a matte in its alpha channel (internal matte) or use a matte derived from another image (external matte).

When you use the graphics tools to create a matte, it is created in the alpha channel of the clip or layer that will be composited.

A garbage matte can be used on images in which portions of an image are difficult to key out. This occurs when colors in the foreground image are similar to the background colors that you want to key out. A garbage matte lets you block out areas that cannot be properly keyed.

Creating a Travelling Matte

A travelling matte is used for compositing a part of a foreground image onto the background image. You can then animate the geometry of the shape so that it matches the outline of the object in every frame of the sequence.

***Tip**: When the element you want to rotoscope is a fast moving object, such as a car, you should apply the Deinterlace effect inside the composite container clip, perform the graphics or compositing tasks and then go to the parent timeline to apply the Interlace effect. For more information, see "Applying a Deinterlace Effect" in the Help.*

To create a travelling matte:

1. From the Avid Explorer, drag the background clip to a video track on the timeline.

2. Click the **Compositing** button in the taskbar.

   A composite container clip is created and the Compositing layout is displayed.

3. Right-click the timeline effect track and select **Create Background Track**.
4. From the Avid Explorer, drag the foreground clip to the new background track.
5. Drag the track button for the new video track to the Layers view.

   A layer is created in the Layers view.

6. Make sure the **Autokey** button is deactivated.
7. On the top layer, click the **Gfx** button.

   The Graphics layout is displayed.

8. From the Tools toolbar, click the **Polyline** button.
9. In the graphics property tree, load the Fill Fx property with the **Color Blend** or **Reveal** effect.
10. In the graphics property tree, set the following properties:
    - **Paint Style**: Select the **Fill** option and deselect the **Brush** option.
    - **Fill Fx**: If you're using the Color Blend effect, set the **Alpha** value to 0.
    - **Masks**: On the General property page, select the **Alpha** option, and deselect the **R**, **G**, and **B** options in the Paint on Channels box.
    - **Time Span**: Set a stroke duration.
11. In the viewer, draw an outline of your subject.

12. From the Tools toolbar, click the **Select** button and then click the **Edit Shape** button.

13. Edit the object's shape.
14. Open the Edit Shape property editor, and click the **Set Key** button.

    A keyframe is set at the current timecode.
15. Advance to the next frame, edit the object's shape, and set another keyframe. Repeat these steps until you're done.

16. When you're done, press Esc to exit Edit Shape tool.
17. Process the graphics session—see "Processing Graphics" on page 1483.

    Use the transport controls to play the clip.

18. To view the matte, click the **Layers** button on the view switcher beside the GOV.

Scratch Removal

Avid DS Nitris includes tools for fixing flaws, such as dropouts in video frames or defects in film-originated footage. If the flaw is on one frame, you can isolate it and create a two-frame region using the Scratch Removal tool. The frame that precedes the flawed frame must contain clean material.

When using the Scratch Removal tool, a Graphics (Scratch Removal) effect is applied to the clip you select.

If more than one frame is scratched, you can trim the Graphics effect on the timeline, or apply the Scratch Removal preset on the clip.

You cannot access frames outside of the region you have marked when you are removing scratches.

When using a clip that contains an in-point and out-point, scratch removal will start at the frame before the in-point and end at the frame before the out-point if:

- Both the in-point and out-point intersect the selected clip, and
- The position indicator intersects the in/out time span or is located at the frame immediately before the in-point.

To remove scratches:

1. In the Editing layout, select the clip that contains the flaw(s) that you want to remove.
2. Locate the flawed frame and place the position indicator on that frame.

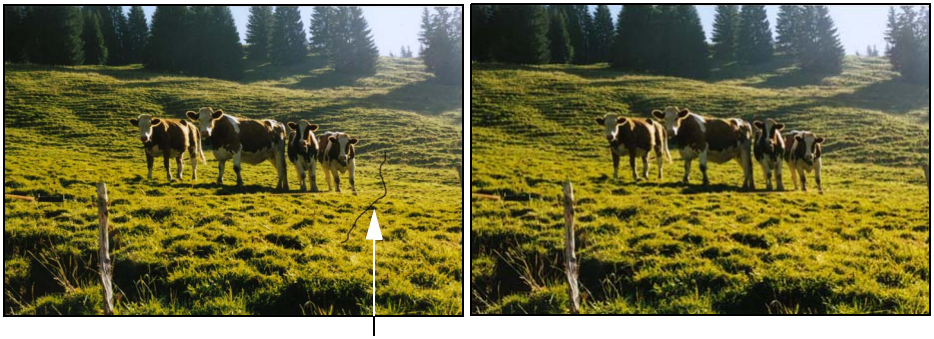
The frame that precedes the flawed frame must contain clean material.

3. From the toolbar, click **Editing > Scratch Removal**.

   A Graphics (Scratch Removal) effect, with a duration of two frames, is applied to the selected clip on the timeline and the Graphics combo view is displayed. The default scratch removal properties are:

   - **Tool**: Freehand with Clone as the brush effect
   - **Source Frame**: Type is Relative and Frame is -1.
   - **Time span**: This Frame Only

4. In the viewer, paint away any scratches or flaws.



You can also use the Noise effect to remove flaws from images. For more information, see “Clone Effect” and “Noise Effect” in the Help.

Blending Frames

When you want to see how a title or graphics object moves from one frame to the next, you can blend the current frames with proceeding and/or successive frames at a specified percentage. You can also specify the number of frames to blend, as well as the opacity of the current frame, the frames before it, and the frames after it.

To blend frames:

1. Right-click the viewer and select **Onion Skin**.

   The specified number of frames, before and after the current frame, are blended with the current frame in the viewer.

2. When you're finished, right-click the viewer again and select **Onion Skin**.

   Only the current frame is visible in the viewer.

***Tip**: The onion skin options are also available from the Viewer Properties property editor. Right-click the viewer and select Viewer Properties.*

Blending Graphics Objects or Titles

When creating graphics objects or titles using the Color Blend paint effect, you can control the way they combine with the background image by using blending modes. These are the same blending operations as those available for blending layers in the Compositing layout.

To blend strokes or titles:

1. In the graphics property tree, do one of the following:
   - **Strokes**: Set the Brush Fx and/or Fill Fx to the Color Blend effect.
   - **Titles**: Set the Face Fx, Edge Fx, and/or Shadow Fx to the Color Blend effect.

   For more information, see "Setting Drawing Tool Properties" on page 1397.
2. Create a stroke or title in the viewer.
3. Select the stroke or title you created.
4. Display the Color Blend property editor of the stroke/title attribute you want to blend with the background.
5. Select the **Blending** property page.
6. Select the **Color Blend** option and then select an operation from the Blending Modes list.

Importing Images

Importing images in your graphics session lets you use images of any size without having to capture them. You can also import images that were created in other paint applications, as well as use the image's alpha. For example, you can import a logo created in Adobe Photoshop or Illustrator, and use it in your graphics session.

When you import an image in Avid DS Nitris, a rectangular stroke is created in the viewer and filled with the image you imported. The original size of the imported image is retained. That is, the image is not scaled or cropped. You can treat the imported image as a graphics object, which means you can edit any of its properties, as well as animate and transform it.

You can also import video sequences. For more information, see "Importing Clips" on page 1477.

The pixel ratio of the image comes from the setting in the"Capture Setting" in the Help.

To import images:

1. From the Tools toolbar, click **Import > Import Image**.
2. From the Import Image dialog box, select an image to import.

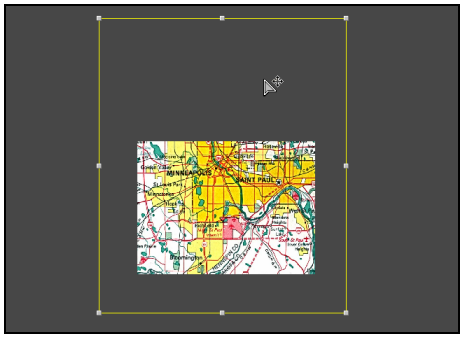
   The image, in its original size, is imported and appears in the lower-left corner of the viewer. The default time span is one frame. If the imported image is small, you can see the entire image in the viewer. If the imported image is large, part of the image will lie outside the viewer.

The imported image, a small logo, is actually a rectangular stroke that is filled with the image you imported. The stroke was scaled and moved to the upper-center of the viewer.

3. To use an image's alpha, select the stroke, open the Fill Fx (Cutout) property editor, and select the **Use Alpha** option.

Tip: If you can't see the entire stroke, zoom out of the viewer by pressing Shift+Z and dragging.

A zoomed out view of a large imported image. Because of its size, only the map portion of the image is displayed in the viewer. The rest of the image lies outside the viewer.



Importing Encapsulated PostScript (EPS) Files

If you have EPS files that you want to use in your current graphics session, you can import them directly into your graphics session. The color information in the EPS files is retained. Once imported, each shape in the EPS file is a separate stroke in Avid DS Nitris.

You can import solid colors, but not gradients.

Avid DS Nitris can import files created with Adobe Illustrator 8.0 or earlier versions. To work with Illustrator 9.0 files, save it as a version 8.0 file.

You can also import EPS files as brushes. For more information, see "Creating Custom Brushes" on page 1401.

To import an EPS file:

1. From the Tools toolbar, click the **Import > Import EPS** button.

   The Open dialog box is displayed.

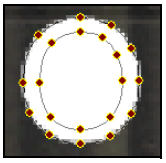
2. Select an EPS file and click the **Open** button.

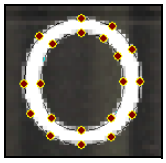
   The EPS file is imported into your graphics session.

   If your EPS file contained closed characters, such as a, b, d, o, p, 6, 8, 9, or 0, their shapes may not appear as expected. That's because each character consists of several strokes. Avid DS Nitris imports each stroke separately and then fills it. For example, the letter "O" consists of two strokes, the

inner and outer shapes; both are filled. To “knock out” the inner shape, select the inner and outer stroke of the character and click the **Combine Strokes** button.

After import, both inner and outer shapes are filled





Combined inner and outer shapes. Inner shape is “knocked out”.

Importing Clips

If you have video clips that you want to use in a current graphics session, you can import them without having to capture them. When you import a video clip in the Graphics layout, a rectangular stroke is created in the viewer and filled with the clip you imported. The original size of the imported clip is retained. That is, the clip is not scaled or cropped. You can treat the imported clip as a graphics object, which means you can edit any of its properties, as well as animate and transform it. You can import clips of any size and resolution.

You can also import images. For more information, see "Importing Images" on page 1474.

The pixel ratio of the clip comes from the setting in the Capture Settings dialog box.

To import a video clip:

1. From the Tools toolbar, click **Import > Import Clip**.
2. From the Import Clip dialog box, select a video clip to import.

   The clip is imported and appears as a rectangular stroke in the lower-left corner of the viewer. The time span of the imported clip is maintained.

To replace a video clip:

1. Select the stroke.
2. From the graphics property tree, click **Fill Fx (Clip Holder)**.
3. Click the **Import Clip** button and select a video clip.

   The video clip is replaced by the one you selected.

Click the Help button for detailed information on the Clip Holder properties.

Importing Subtitles

You can import hundreds of subtitles including international characters, such as Japanese and Chinese, in the current sequence as Graphics On Black generated clips on a new track. Once imported, each subtitle is represented as a titling body that is positioned at the bottom of the safe title area.

The DS Subtitles File

Before you can import subtitles in Avid DS Nitris, you must create a DS Subtitles file that contains all your subtitles along with their respective time spans. This file must be a Unicode-encoded text file. You can use Notepad to create the subtitles file and save it with the Unicode encoding.

The DS Subtitles file contains two distinct sections:

- The header section is optional; it defines general information and rendering properties that are applicable to all subtitles, such as the font, font size, face color, alignment, and so on.
- The subtitles section is mandatory and defines each subtitle and its time span.

To quickly format subtitles, you can use a titling body preset. Just be sure to create the preset before importing the subtitles, and place the preset in the factory default folder for titling presets: \Program Files\Avid\DS_vX.X\DSPresets\Titling\Bodies.

When a line in the DS Subtitles file starts with the @ character, it is considered to be a comment.

To create the DS Subtitles file:

1. Click **Start > Programs > Accessories > Notepad**.
2. If you want to use specific properties, create a header section by typing the desired keywords along with their values—see "The Header Section of the DS Subtitles File" on page 1479.
3. Type: `<begin subtitles>`
4. Add each subtitle along with its time span.
5. Type: `<end subtitles>`
6. Save the DS Subtitles file.

To import subtitles:

1. From the NLE Tools toolbar, click **Generate > Import Subtitles**.
2. In the Import Subtitles dialog box, select a DS Subtitles file and click **OK**.

   A Graphics On Black clip is created for each subtitle in the DS Subtitles file.

To view subtitles:

- To go to the next subtitle, press Shift+Period (.).
- To go to the previous subtitle, press Shift+Comma (,).

The Header Section of the DS Subtitles File

In the header section, the general information and the rendering properties are specified using keywords and values. Each keyword begins with the < character and ends with the > character. A keyword is followed by one or more spaces or tabs, and then by a value. Each keyword must begin on a new line. Keywords are not case sensitive. Most values following the keywords are not case sensitive, except for the values of the following keywords: <font>, <font style> and <preset>.

If a DS Subtitles file doesn't have a header, default values will be used.

***Tip**: Instead of specifying keywords to define the rendering properties of subtitles, you can use the keyword <preset> followed by the name of a Graphics Titling Body preset.*

For the complete of keywords that can be used in the header section, see "Header Section Keywords" in the Help.

The Subtitles Section of the DS Subtitles File

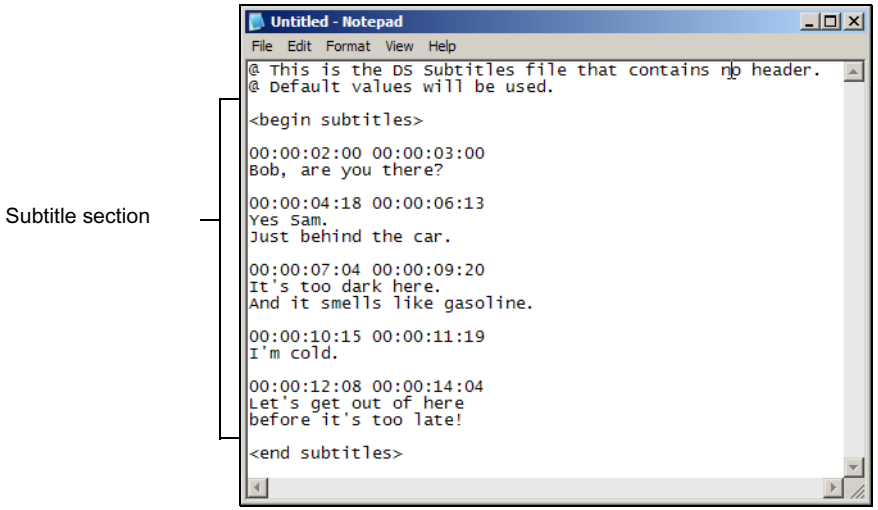
The subtitles section defines each subtitle along with its time span. The subtitles section begins with the keyword <begin subtitles>, followed by all subtitles, and ends with the keyword <end subtitles>.

To define a subtitle, write the start timecode (or in timecode) on a new line, followed by one or more spaces, followed by its stop timecode (or out timecode). Then, write the actual text on the following lines. A maximum of four lines of text is allowed.

Subtitles must be sorted ascendantly according to their time span. Subtitles must be contiguous, that is, they must not overlap.

Examples of DS Subtitles Files

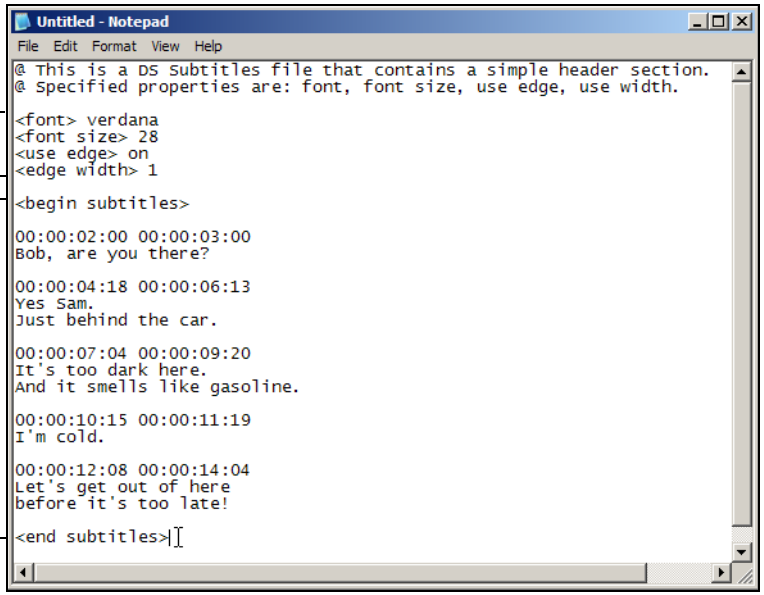
Example 1: No header section



Example 2: Simple header section

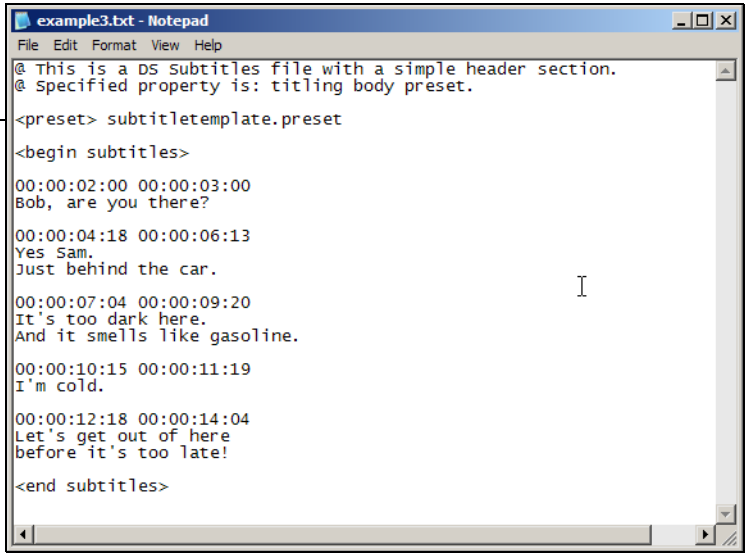
Header section

Subtitle section

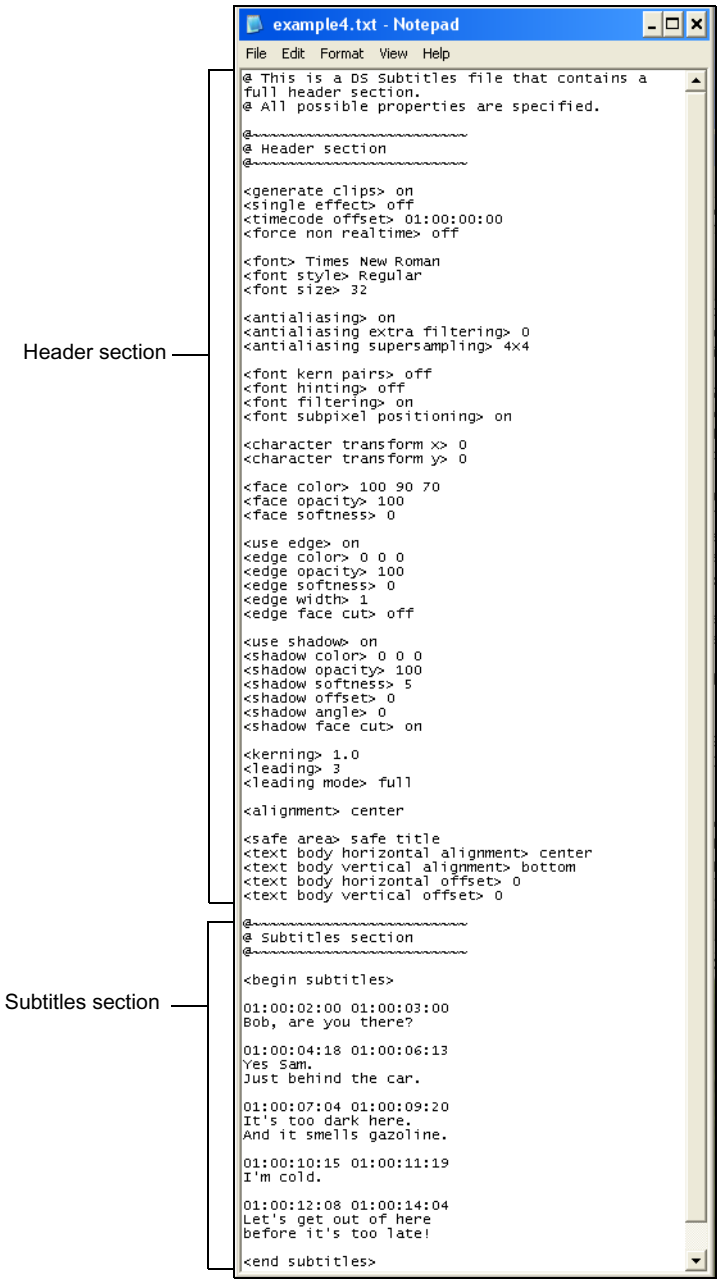


Example 3: Simple header section using a preset

Preset name



Example 4: Full header section



Processing Graphics

Avid DS Nitris lets you play some graphics effects in real time without having to manually process them:

- Airbrush
- Color Blend
- Cutout
- Animations, such as rolls and crawls, when using the above effects

Others cannot be played in real time due to effect properties that demand processing requirements that exceed the system's ability to complete processing on the fly. For example, if there are large graphics objects that cover most of a frame, the system will slow down during playback. In such cases, you need to process the effects before final output.

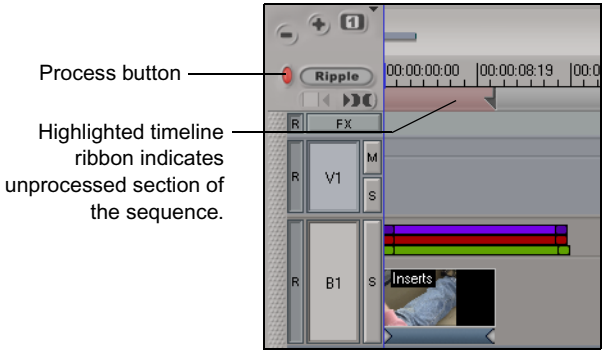
A message is displayed at the bottom of the Graphics property editor to indicate why your session can't be played in real time.

Also, you can select the non-real-time configuration from the Graphics Properties property editor if you do not want your system to play back real-time effects.

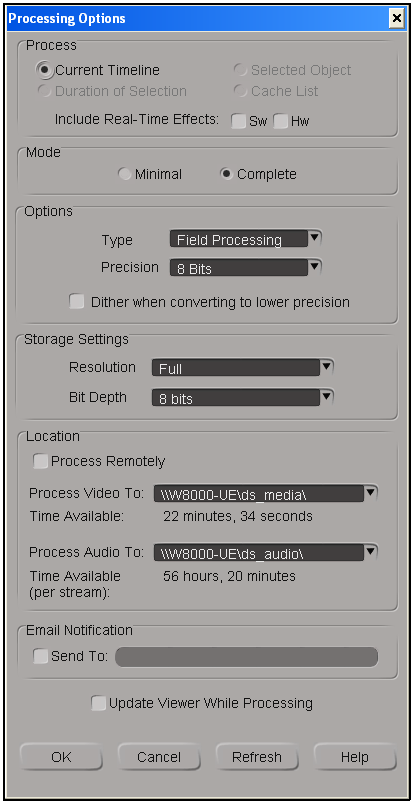
You can process all or part of the timeline, as well as choose different levels at which to process your clips. You can process graphics you have created in full resolution, and view them on playback. The results of the processing is stored in a new media file (cache), so that your source media remains unaltered. For more information on processing, see "Processing Effects" on page 871 of the *Avid DS Nitris Editing Guide*.

To process graphics:

1. In the timeline controls, click the **Process** button.

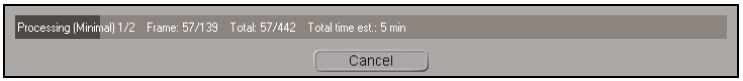


2. In the Processing Options dialog box, select the appropriate options.



3. Click **OK** to begin processing.

   A progress indicator appears on the bottom of the desktop to show the status of the process.



4. Click the **Cancel** button to stop the process at any time.

Click the Help button for detailed information on the Processing Options properties.

Chapter 8
Paint Effects

The paint effects let you apply effects to the brush or fill of paint strokes or text bodies. Paint effects modify the pixels of the image covered by the paint stroke. Some effects, such as Edge or Color Blend, define the appearance of the paint stroke. Other effects, such as Smear and Noise, define how the paint stroke changes the underlying image.

Clone Effect

The Clone effect lets you remove scratches or wires from images by cloning parts of the same image or parts of other images. The frame that contains the image that you want to clone is called the *source*. The source image can be taken from the current frame, another frame from the same clip, or you can set a source frame offset to clone from. You can apply the Clone effect as the brush or fill of a stroke.

The Clone effect is, by default, part of the Graphics combo view (Scratch Removal command). For more information, see "Scratch Removal" on page 1470.

You can also use the Noise and Reveal effects to remove scratches. For more information, see "Noise Effect" on page 1501 and "Reveal Effect" on page 1507.

To apply the Clone effect:

1. From the taskbar, click the **Graphics** button. Make sure the position indicator is over the media on the timeline, otherwise you cannot switch to the Graphics layout.

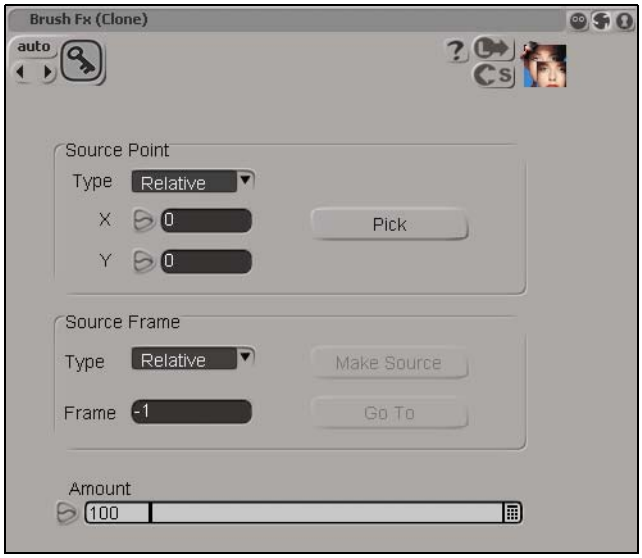
2. From the Tools toolbar, click the **Freehand** button.
3. In the Paint Style property editor, select the **Use** option from the Brush box.
4. In the graphics property tree, do the following:
   - Right-click Masks and select **RGB Only**.
   - Right-click Brush Fx and select **Clone**.

   The Clone effect is loaded as a Brush Fx.

You can also use the fill of a stroke to clone an image. In the graphics property tree, load Fill Fx with the Clone effect.

5. In the graphics property tree, click the **Brush Fx (Clone)** property button.

   The Brush Fx (Clone) property editor displays.



To clone using the current frame as the source:

1. In the Brush Fx (Clone) property editor, select a type of source point to use to define the area of the source image:

Source point type	To
Relative	Define the offset position at a specific distance from the stroke.
Absolute	Define the offset position at an absolute position in the frame.
In-Place	Define the offset at a position under the stroke.

2. From the Source Frame Type list, select **In Place**.
3. To pick an area of the source to clone, do one of the following depending on the type of cloning you selected:
   - **Relative**: Click the **Pick** button and drag the pointer to a distance representing the desired offset. Successive strokes are applied using this offset.

- **Absolute**: Click the **Pick** button and click the area of the image that you want to clone. Successive strokes apply the originally picked area of the source image.
- **In-place**: No picking is necessary since the source is determined by the current position of the pointer.

4. Use the **Amount** controls to adjust the transparency of the clone.
5. You can now paint with the Clone tool.

To clone using a different frame as the source:

1. In the Brush Fx (Clone) property editor, do the following:
   - From the Source Point list, select **In Place**.
   - From the Source Frame list, select **Absolute**.
   - Use the **Amount** controls to adjust the transparency of the clone.
2. Do one of the following:
   - Type the timecode that corresponds to the frame from which you want to clone in the Frame box.
   - Use the transport controls to locate the source frame from which you want to clone and click the **Make Source** button.

   The timing of the current frame is saved and becomes the source for subsequent clone operations.
3. To switch between the current frame and the frame you've chosen to clone from, click the **Go To** and **Go Back** buttons.
4. You can now paint with the Clone tool.

***Tip**: When cloning from another frame, select the **Use Onion Skinning** option in the Viewer Properties property editor. This lets you see the source frame at the same time.*

To clone using an offset frame as the source:

1. Load the Clone effect.
2. In the Brush Fx (Clone) property editor, do the following:
   - From the Source Frame box, select **Relative** from the Type list.
   - Type a value in the **Frame** box corresponding to the number of frames for the offset.
   - This value can be either a positive or negative value.

- Use the **Amount** controls to adjust the transparency of the clone.

3. You can now paint with the Clone tool.

Click the Help button for detailed information on the Clone properties.

Color Blend Effect

The Color Blend effect lets you apply color to your graphics objects. Once you select a color, you can apply it to a graphics object as a color blend or as a tint. You can also set the transparency of the color.

You can apply the Color Blend effect as the brush or fill of a stroke.

Since the Color Blend effect is a real-time effect, you can view the results upon playback without having to first process the effect. In some cases, real-time effects may require processing to ensure that no frames are skipped. For more information, see "Working with Real-Time Effects" on page 898 of the *Avid DS Nitris Editing Guide*.

To select a color:

1. From the taskbar, click the **Graphics** button.

Make sure the position indicator is over the media on the timeline, otherwise you cannot switch to the Graphics layout.

2. On the graphics property tree, right-click Brush Fx or Fill Fx and select **Color Blend**.
3. From the Color Blend property editor, select the **Color** tab.
4. Do one of the following:
   - Click a color from the palette.
   - Click a striped box on the bottom row of the palette, and use the **R**, **G**, **B**, and **A** controls to define a color.
   - Click one of the Color Views and select a color from the displayed color wheel.

   The color is displayed in the Color swatch box, and is either applied to the selected object or becomes the default color which is applied to subsequent objects you create.

To tint an image:

1. In the Color Blend property editor, select the **Type** tab.
2. In the Type box, select the **Tint** option.

3. Select a combination of **Hue**, **Luminance**, and **Saturation** options.

Click the Help button for detailed information on the Color Blend properties.

Setting the Opacity of a Color

The transparency of a stroke is determined by the combination of opacity settings in the Paint Style and Brush property editors.

The transparency of a title is determined by the combination of the opacity settings in the Titling Style property editor. If a Color Blend effect is used, its opacity setting also contributes to the transparency of graphics objects.

To change the opacity of a color:

1. In the Color Blend property editor, select the **Type** tab.
2. Use the Opacity controls to adjust the transparency of the color displayed in the color swatch of the Color property page.

   If you selected an object from the viewer, the object is displayed with the new opacity value.

   If you selected a drawing tool, the opacity value becomes the default property for objects that you subsequently create.

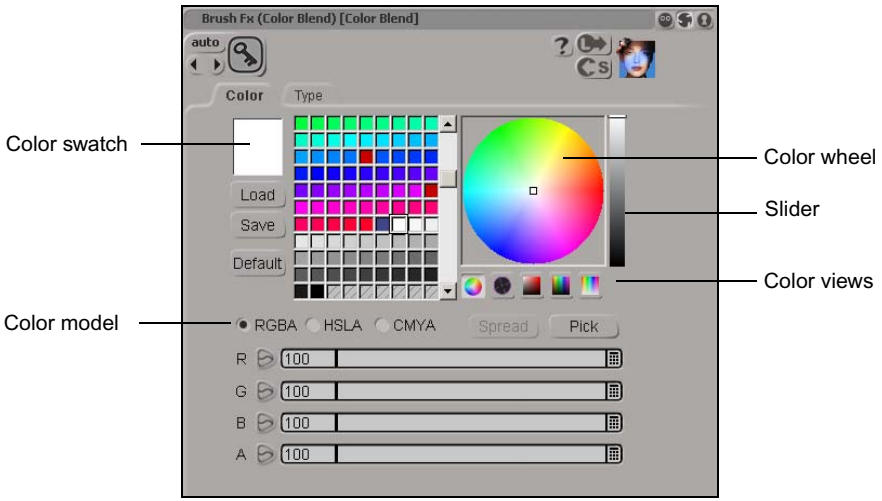
Click the Help button for detailed information on the Color Blend properties.

Defining Color

You can select colors based on the RGB, CMYK, or HLS color models, or by picking a color from the image in the viewer. You can create an entire range of colors in the palette, as well as customize the currently-displayed color palette by selecting a color and modifying its color values.

To define a color using channel controls:

1. In the Color Blend property editor, select the **Color** tab.



2. From the Color Model list, select a color model.
3. Set the color values of each channel by adjusting the **R**, **G**, **B**, and **A** controls for each channel.

   The color swatch displays the color as you adjust the channels.

Picking a Color from an Image

If the color you want already exists in an image, you can select this color and add it to your color palette.

To pick a color from an image:

1. In the Color Blend property editor, select the **Color** tab.
2. Select a color from the color palette. This color will be replaced by the color you select from your image.
3. Click the **Pick** button.

   The pointer changes to the eyedropper cursor.
4. In the viewer, click the color that you want to add to the palette.

   In the palette, the color you picked from the viewer replaces the color you selected from the palette.

***Tip**: A very quick way to apply color is with the Pick Color tool. Once you have chosen your drawing tool, hold down the 6 key. The pointer changes to the eyedropper cursor. Pick a color from the image in the viewer. You can now paint with this color until you decide to load another color.*

To define a range of colors:

1. In the Color Blend property editor, select the **Color** tab.
2. From the color palette, select a color for the start of the color range.
3. Press Shift and click a color for the end of the color range.
4. Click the **Spread** button.

   The color palette changes to a color gradient displaying colors across the range defined by the selected colors.

Loading and Saving a Color Palette

Once you select or create a range of colors, you can save the colors in your own color palette. You can then use this palette on any graphics object you create. When you finish a project, the palette is available for use on other projects.

To load a color palette:

1. In the Color Blend property editor, click the **Load** button.
2. In the Load Preset dialog box, select a palette.

   The selected palette is displayed in the Color Blend property editor.

To save a color palette:

1. In the Color Blend property editor, click the **Save** button.

   The Save Preset dialog box displays.
2. In the File Name text box, type a name for your palette.
3. In the Comments text box, give the palette a brief description and click **OK**.

Cutout Effect

The Cutout effect lets you create a cutout using the drawing tools. The cutout is a bitmap that you can treat as a graphics object; you can cut, copy, and paste it anywhere in your graphics session. It is usually used as a fill effect, but you can apply the effect to the brush of a shape or to the face of titles.

You can also save the graphics object as a stroke or text preset, and use it in a different project. This is particularly useful for elements, such as logos, that must look consistent from project to project.

***Tip**: The Cutout effect is resolution independent if the original cutout was created in full resolution. If you want your cutout to be resolution independent but you originally created it in a lower resolution, switch back to full resolution, select the stroke, and reload the Cutout effect to the cutout you created.*

Since the Cutout effect is a real-time effect, you can view the results upon playback without having to process the effect. In some cases, real-time effects may require processing to ensure that no frames are skipped. For more information, see "Working with Real-Time Effects" on page 898 of the *Avid DS Nitris Editing Guide*.

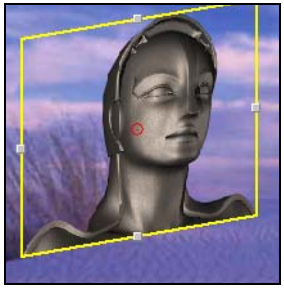
To create a shape cutout:

1. From the taskbar, click the **Graphics** button.

Make sure the position indicator is over the media on the timeline, otherwise you cannot switch to the Graphics layout.

2. From the Tools toolbar, select a drawing tool (Polyline, Freehand, Ellipse, Rectangle, or Magic Wand).
3. From the graphics property tree, click **Paint Style**.
4. In the Paint Style property editor, do the following:
   - Deselect the **Use Brush** option.
   - Select the **Use Fill** option.
5. Use the graphics property tree to set up the rest of the drawing tool properties—see "Setting Drawing Tool Properties" on page 1397.
6. From the graphics property tree, right-click **Fill Fx** and select **Load**.

7. From the Load Preset dialog box, select **Cutout** from the \Paint\Effects folder.
8. From the graphics property tree, right-click **Fill Fx (Cutout)**.
9. In the Cutout property editor, do one of the following:
   - Select the **Transform Image** option to transform the cutout when you transform the stroke.
   - Deselect the **Transform Image** option to reveal the underlying image as you move your cutout on the viewer.

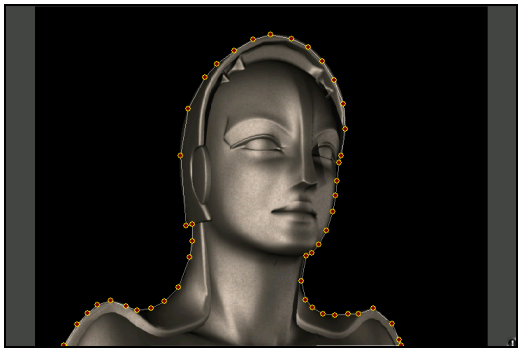


Transform Image option selected.

Transform Image option deselected.

10. In the Transformation Quality box, select one of the following:
    - **Unfiltered** to apply no filter to the image.
    - **Bilinear** to apply a fast, medium-quality filter to the image.
    - **Filtered** to apply a strong filter to the image.
11. Draw on the viewer to create a shape.

    A graphics object is created in the viewer. Since the cutout is placed on top of the area you just cut out, you cannot see it.

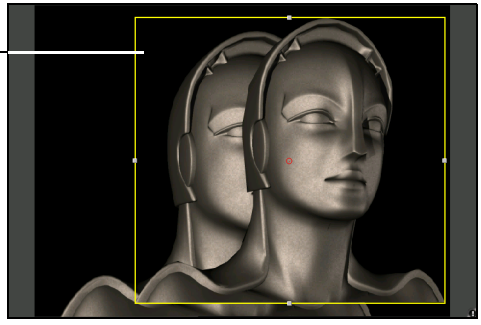


A polyline, drawn around the android, defines the shape of the cutout.

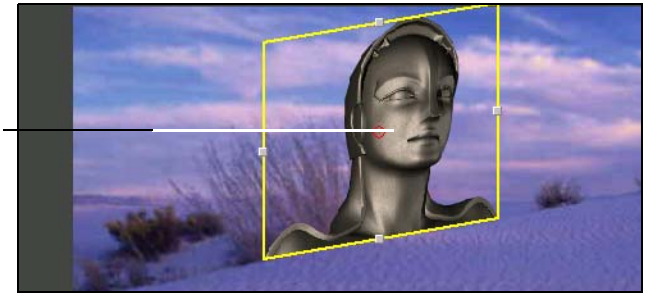
12. From the Tools toolbar, click the **Select** button, and move the object in the viewer.

    The cutout is now visible. You can edit your cutout and save it as a stroke preset if desired. For more information, see "Manipulating Graphics" on page 1451 and "Using Stroke, Text, or Group Presets" on page 1395.

The cutout of the android is selected and moved.



The cutout is pasted, scaled, and skewed in a different graphics session.



Click the Help button for detailed information on the Cutout properties.

Using the Cutout Effect in a Stack

You can use the Cutout effect in a stack just like any other paint effect in Avid DS Nitris. But before you create a stack effect, remember that when you create a stroke that contains a Stack effect as well as the Cutout effect, any property changes you make to the effects preceding the Cutout effect will not be applied to your cutout.

***Tip**: Make sure the Cutout effect is the first effect in your stack or reload the Cutout effect by right-clicking the Cutout effect on the graphics property tree and selecting **Load**.*

For more information, see "Stack Effects" on page 1508.

Comparing the Cutout and Clone Effects

If the Cutout and Clone effects seem similar, be aware that they are quite different. The Cutout effect is used for creating a cutout from an image, whereas the Clone effect is used primarily for touching up images and removing scratches.

These are the differences between the Cutout and Clone effects:

Cutout effect	Clone Effect
A cutout image can be transformed.	A cloned image can be translated, but not rotated, skewed, or scaled.
Since a cutout retains a copy of the entire image from which it was created, a stroke created with the Cutout effect can be saved as a preset for use in other graphics sessions.	The source frame image used by the Clone effect as its source is actually a timecode reference to an image that exists within a graphics session. Because it is only a timecode reference, it is confined to the time span of the graphics session and cannot be used in other graphics sessions.
The Cutout effect does not have image touch-up properties.	The Clone effect has properties (source point and source frame) for quickly touching up or repairing an image.

Dodge and Burn Effect

The Dodge and Burn effect lets you lighten or darken areas of an image by controlling the exposure on specific areas. Exposure is decreased to lighten an area on the image (dodging) or the exposure is increased to darken areas on a image (burning).

To use the Dodge and Burn effect:

1. From the taskbar, click the **Graphics** button.
2. From the Tools toolbar, select a drawing tool.
3. From the graphics property tree, right-click **Fill Fx** and select **Dodge and Burn**.
4. From the Effect list, select the desired effect as follows:

Effect	To
Dodge	Increase the luminosity.
Burn	Decrease the luminosity of the image. This has the inverse effect of the dodging effect.
Saturate	Increase the weight of colors of the image.
Desaturate	Decrease the weight of colors, ultimately yielding a black and white image.

5. Paint on the viewer.

   As you paint on the viewer, the effect you chose from the Effect list is applied.

Click the Help button for detailed information on the Dodge and Burn properties.

Noise Effect

The Noise effect lets you add noise to an image. You can also use this effect to remove noise, such as scratches or wires. While not always useful for large imperfections, the Noise effect can be used to remove small wires. In the Noise property editor, the Median Rank and Selective Rank options are particularly useful for reducing the noise in an image.

You can apply the Noise effect as the brush or fill of a stroke.

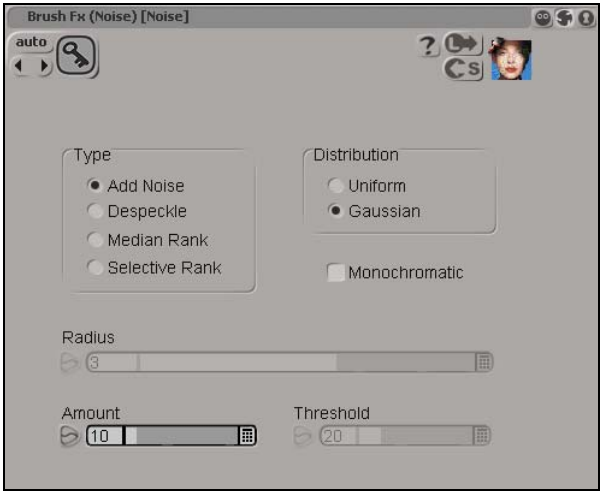
You can also use the Clone and Reveal effects to remove scratches. For more information, see "Reveal Effect" on page 1507.

To use the Noise effect:

1. From the taskbar, click the **Graphics** button.

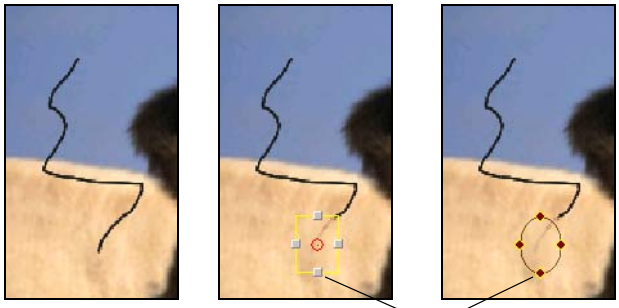
Make sure the position indicator is over the media on the timeline, otherwise you cannot switch to the Graphics layout.

2. From the Tools toolbar, click the **Freehand** button.
3. In the Paint Style property editor, select the **Use** option from the Brush box.
4. In the graphics property tree, right-click **Brush Fx** and select **Load**.
5. From the Load Preset dialog box, select the **Noise** effect.
6. In the graphics property tree, right-click **Brush Fx (Noise)**.



7. In the Noise property editor, select **Median Rank** or **Selective Rank**.
8. From the graphics property tree, right-click **Masks** and select **RGB**.
9. Use the transport controls to locate the frame on which the scratches or wires start, and move the position indicator over it.
10. Paint on the viewer. Adjust the **Threshold** and **Radius** controls in the Noise property editor while you paint.

    As you paint on the viewer, the scratch or wire is removed.



Scratch

Selected stroke with the Noise effect applied to the brush and fill

Click the Help button for detailed information on the Noise properties.

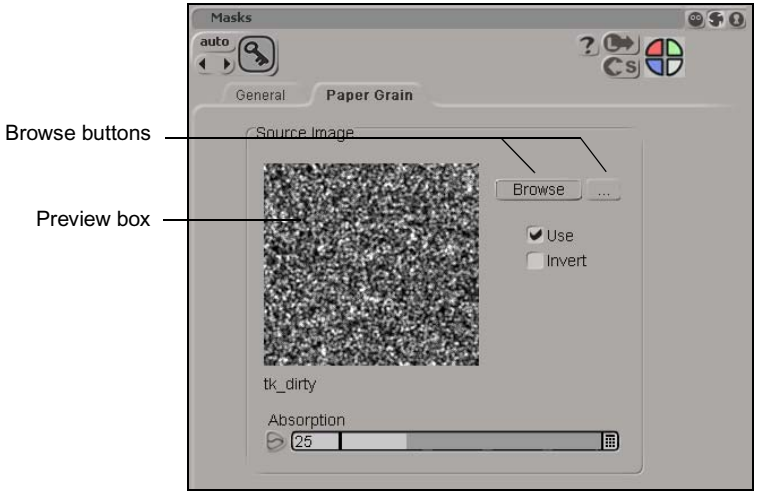
Paper Grain Images

The paper grain images let you apply texture to a stroke, fill, or text body to simulate the effect of painting on a textured canvas. You can apply paper grain images to the brush or fill of a stroke, or to a text body.

Burlap paper grain applied to a stroke.

To apply a paper grain image:

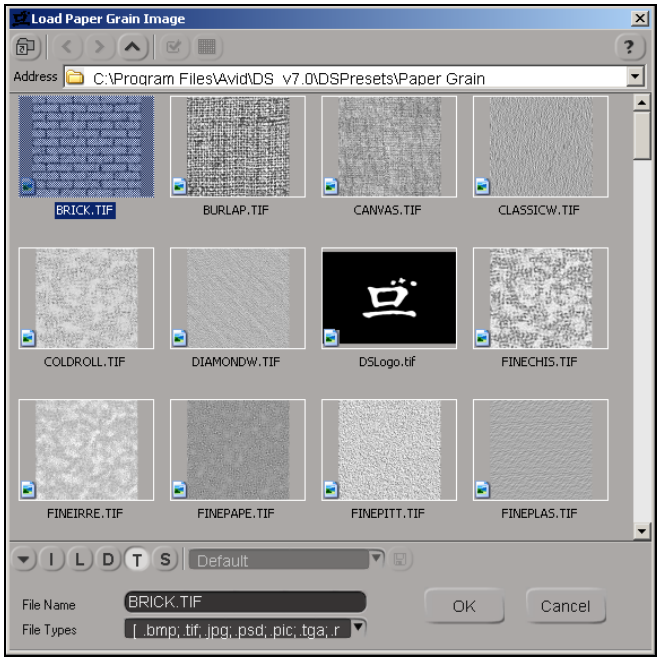
1. From the Masks property editor, select the **Paper Grain** tab.



2. Do one of the following:

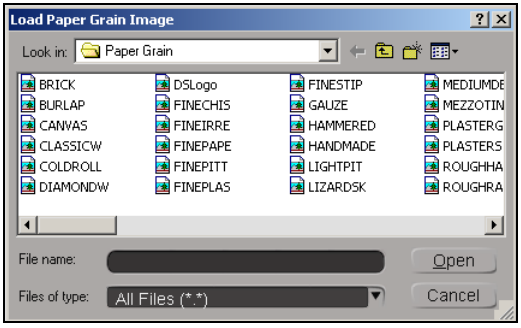
   - Click the **Browse** button to select a paper grain image.

   The Load Paper Grain Image dialog box displays.



- Click the browse (...) button to select a paper grain in any other supported file format.

The Load Paper Grain Image dialog box displays.



3. In the Load Paper Grain Image dialog box, select a paper grain from the \DSPresets\Paper Grain folder.

   The selected paper grain is displayed in the preview box.

4. On the Paper Grain property page, select the **Use** option to apply the paper grain.
5. Select the **Invert** option to invert the paper grain.
6. Use the **Absorption** controls to set the opacity of the paper grain texture.
7. You can now paint or create titles on the viewer.

   The objects you create are displayed with the properties you specified.

Click the Help button for detailed information on the Masks properties.

Reveal Effect

The Reveal effect lets you “paint away” the unwanted portions of a composited image and replace them with another image on an underlying layer. When you paint with the Reveal effect, the opaque areas of the alpha channel become transparent (black), revealing the underlying layer.

You can also use the Clone and Noise effects to remove imperfections and scratches. For more information, see “Clone Effect” on page 1488 *and* *“Noise Effect” on page 1501*.

To apply a Reveal effect:

1. Create a composite.

   The Compositing layout displays.

2. In the Layers view, click the **Gfx** button of the layer on which you want to paint.

   The Graphics layout displays.

3. From the Tools toolbar, click the **Freehand** button.
4. From the graphics property tree, do the following:
   - From the Paint Style property editor, select the **Use** option from the Brush box.
   - Right-click **Brush Fx** and select **Load**.
5. From the Load Preset dialog box, select the **Reveal** effect.
6. In the Brush Fx (Reveal) property editor, adjust the **Amount** controls to control how much of the underlying image is revealed.
7. From the graphics property tree, right-click **Masks** and select **Alpha Only**.
8. Paint on the viewer.

   As you paint, the underlying layer is revealed.

You can also use the fill of a stroke to reveal an image. In the graphics property tree, load Fill Fx with the Reveal effect.

Stack Effects

The stack effects let you replace a brush, fill, face, edge, or shadow effect by a "stack" of any combination of effects. Stack effects let you build complex effects by editing, rearranging, and stacking effects. The effects are processed from the bottom of the stack to the top.

To apply a stack effect:

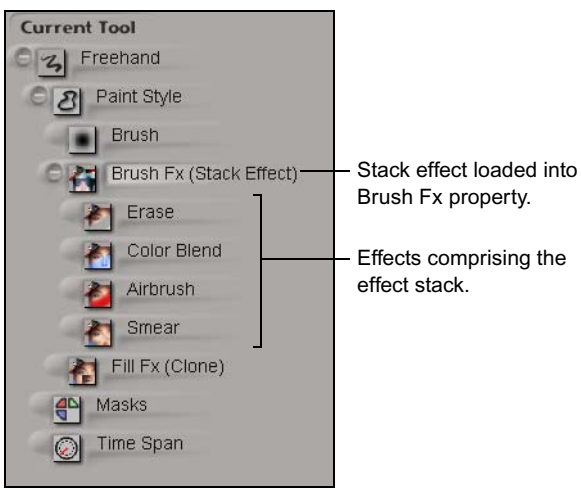
1. From the taskbar, click the **Graphics** button.

Make sure the position indicator is over the media on the timeline, otherwise you cannot switch to the Graphics layout.

2. From the graphics property tree, right-click one of the following and select **Load**:
   - Brush Fx or Fill Fx.
   - Face Fx, Edge Fx, or Shadow Fx

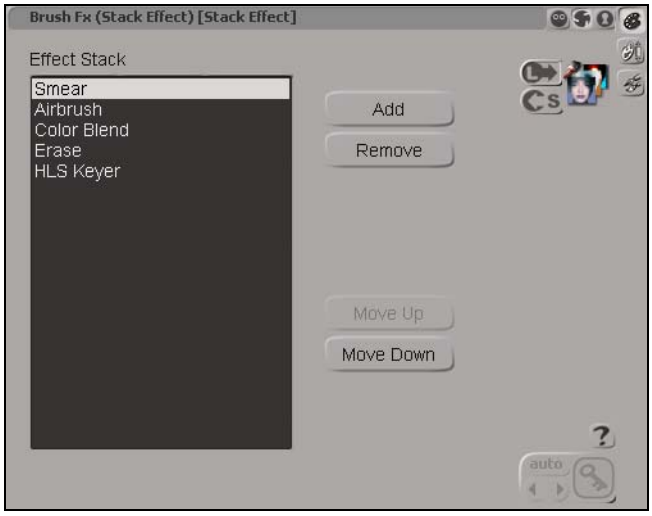
   The Load Preset dialog box displays.
3. From the Load Preset dialog box, select an effect from the \Paint\Stack Effects folder.

   The effect replaces the property you selected in the graphics property tree.



4. From the graphics property tree, click the **Stack Effect** property button.

   Effects that comprise the Stack effect are displayed as subproperties in the graphics property tree. Click any of the effects' property buttons to edit the properties.



To customize the effect stack:

1. In the Stack Effect property editor, click the **Add** button.
2. In the Load Preset dialog box, select an effect.

   The effect is added to the Effect Stack list.
3. To remove effects from the effect stack, select an effect, and click the **Remove** button.
4. To rearrange the order of effects, select an effect and click one of the following buttons:
   - **Move Up** to move the effect up by one level.
   - **Move Down** to move the effect down by one level.
5. To save the effect stack as a preset, click the **Save Preset** button.

Click the Help button for detailed information on the Stack Effect properties.

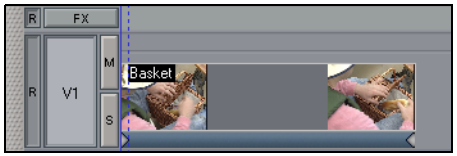
Chapter 9
3D DVE and 3D Titling

This chapter describes how to create and edit 3D DVEs, 3D graphics, and 3D text. You'll also learn how to work with surfaces, materials, lights, and shadows, as well as import and export projects.

Workflow: Creating 3D DVEs

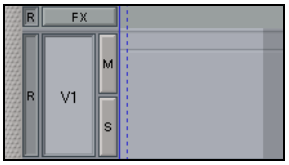
You can create and manipulate 3D DVEs in the 3D DVE layout. The following illustration shows the typical workflow of a 3D DVE session.

1 **Choose a method for creating 3D DVE.**



Select a clip to use as the DVE.

or



Select a region to apply 3D DVE as a source-generated effect. Set properties in 3D DVE on Black property page.

or

Apply 3D DVE as nodes in an Effects Tree.

2 **Decide whether you want to work in Direct View mode.**

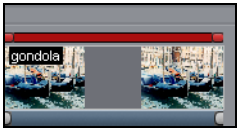
3 **Manipulate the 3D DVE in the viewer.**

4 **Add effects to the 3D DVE.**

Workflow: 3D Titling

You can create and manipulate 2D and 3D titles in the 3D DVE layout. The following illustration shows the typical workflow of a 3D titling session.

1 **Decide whether you want to create a 2D or 3D title.**
Apply the 2D Titling or 3D Titling effect to your clip.



Clip is used as background for titles.
Depending on the effect you selected, either a 2D layer or 3D layer is automatically created in the 3D DVE Layers view.

2 Direct View **Decide whether you want to work in Direct View mode.**

3 **Select the Text tool and set its properties.**

4 **Create a title in the viewer.**

5 **Select the title and edit its properties.**

The word “Venice” was kerned to match the length of the words above it.

Working in the 3D World

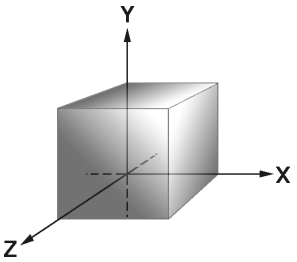
Before you create 3D DVEs, graphics, or titles, you should be aware of some basic 3D concepts, such as three-dimensional space, materials, and lights.

Three-Dimensional Space

It's essential to understand the notion of working within a virtual three-dimensional space using a two-dimensional user interface. To represent the geometry of an object, Avid DS Nitris uses the classical Euclidean/Cartesian mathematical representation of space. It is based on three perpendicular axes X, Y, and Z, intersecting at one point called the *origin*.

XYZ Axes

To remember the direction of the X, Y, and Z axes, use the "right-hand" rule: hold up your right hand so that your palm is facing you, then extend your thumb to the right, hold your index finger up, and point your middle finger towards you. Your thumb is pointing in positive X, your index finger in positive Y, and your middle finger in positive Z. The point of origin is 0, 0, 0. The opposite directions represent negative X, Y, and Z.

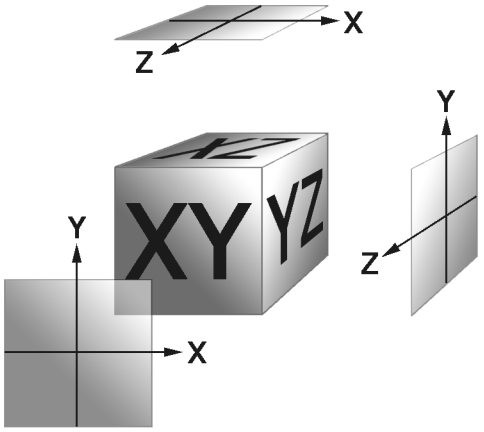


XYZ Coordinates

With the Cartesian coordinate system, you can locate any point in space using three coordinates. For example, if X = +6, Y = –6, Z = +6, a point would be located to the right of, below, and in front of the origin.

XZ, XY, YZ Planes

Since you're working with a two-dimensional interface, spatial planes are used to locate points in three-dimensional space. The perpendicular axes extend as spatial planes: XZ, XY, and YZ. Imagine that the XZ, XY, and YZ planes are folded together like the top, front, and right side of a box. This helps you keep a sense of orientation when you're working.



Global and Local Coordinate Systems

The XYZ coordinate system can be global or local. When you place an object in 3D space, it is inside a world with the origin at (0, 0, 0) of the ground plane in the viewer. Accordingly, the XYZ coordinates that locate the object in relation to the origin are called *global coordinates*.

A local coordinate system is thought of in terms of an object's own point of reference, which is its own center. This center also has three axes: X, Y, and Z.

The center of an object is only a reference—it is not necessarily in the middle of the object because it can be moved (as well as rotated and scaled).

Materials

Once you've created an object, you can apply materials to define its surfaces' appearance. A surface is an area of an object. You can control its visibility and appearance of each surface by applying a set of properties called a *material*.

You can modify the appearance of the various surfaces of an object. For example, you can apply a brick texture to a rectangle to give the appearance of a brick wall, a gradient to a wavy shape that runs along the left edge of the view to enhance a scene, or a reflective texture to the edges of the characters in a word to simulate a chrome outline. For more information, see "Working with Surfaces and Materials" on page 1588.

Lights

Another basic element you will work with is light. Light sources are points in three-dimensional space that emit light, causing objects (with materials that can be affected by light) to appear illuminated. There are three kinds of light sources: infinite, local, and spot.

You specify the location of light sources relative to objects in the scene by using light source objects, which exist above all other objects in the scene. For more information, see "Working with Lights and Shadows" on page 1601.

Setting Preferences

When setting up an animation or creating text, you don't really need to see all the other layers and effects in your sequence. When working with 3D DVEs, there are many ways to improve the responsiveness of Avid DS Nitris. You can use the features you really need and turn off the rest, such as the following:

- Working in Direct View mode—see "Working in Direct View Mode" on page 1519.
- Viewing the background—see "Using a Background" on page 1517.
- Suspending output to the output monitor—see "Suspending Output to the Output Monitor" on page 1520.
- Working in wireframe mode—see "Working in Wireframe Mode" on page 1523.
- Viewing preferences and quality level—see "Setting the Viewer Quality Level" on page 1524.

All of your choices depend on the complexity of the objects you plan on creating in the 3D DVE layout, as well as how responsive you want Avid DS Nitris to be. Just keep in mind that in a typical scenario, Avid DS Nitris processes one entire frame before displaying the output in the viewer and output monitor. As a result, this slows down the responsiveness of Avid DS Nitris.

Using a Background

You'll have to decide whether you want to composite your graphics onto the background inside the 3D DVE or outside. We recommend that you do so within the 3D DVE, so you can see the background while working in the Direct View mode. The background lets you easily place titles or graphics, so that they appear in the correct location relative to the background.

However, if your background is large, it is probably better to leave it outside the 3D DVE. For more information, see "Working in Direct View Mode" on page 1519.

There are two ways to include a background in your 3D DVE session:

- Use a clip on the timeline or
- Select a background image from the 3D DVE/Options property editor.

Using a clip as the background.

Using an image as the background.

To use a clip on the timeline as the background:

1. On the timeline, select a clip and place the position indicator over it.
2. From the toolbar, click **Video Effects** and select one of the following:
   - **2D Titling** to create 2D titles.

     The 3D DVE layout is displayed, the selected clip is used as the background, and a 2D layer is created in the 3D DVE Layers view.
   - **3D Titling** to create 3D titles.

     The 3D DVE layout is displayed, the selected clip is used as the background, and a 3D layer is created in the 3D DVE Layers view.

To use a background image:

1. On the timeline, select a clip and place the position indicator over it, and click the **3D DVE** button on the taskbar.

***Tip**: You can also access the 3D DVE layout in a floating combo view by pressing Ctrl and clicking the 3D DVE button in the taskbar.*

   The 3D DVE layout is displayed.
2. From the 3D DVE/Options property editor, select the **Preferences** tab.
3. Select the **Background** option and then select an image from the list:

   The selected image is centered behind all objects in the viewer and scaled down (if larger than the pixel dimensions of the scene) or padded with a black border (if smaller than the pixel dimensions of the scene).

You can also select an input (from the list) to use the clip on the timeline as the background.

To show or hide the background:

1. From the 3D DVE/Options property editor, select the **Direct View** tab.
2. Select the **View Background** option. For quicker previews of your sequence, hide the background.

The View Background option is for viewing purposes only and does not affect the processed output.

Working in Direct View Mode

Like all other effects in Avid DS Nitris, the 3D DVE layout, by default, displays the results of one entire frame in the viewer. While this may be convenient for viewing the results of your sequence, including the output of the 3D DVE effect, it can be quite slow, reducing the responsiveness of Avid DS Nitris and some or all of the effects before you can see them in the viewer.

If you have a complex sequence, such as the following:

- A 3D DVE effect on the background track that contains a picture-in-picture effect with a spotlight,
- A large blur effect on top of the 3D DVE effect, and
- A background clip in the timeline,

It would be faster not to view all of this while you're working on the 3D DVE portion of the sequence, especially the large blur, which takes time to process.

This is where the Direct View mode comes in handy; it lets you focus exclusively on your 3D DVE session without being slowed down by the processing of other clips or effects in the frame. This improves the performance of Avid DS Nitris, especially when working with text.

The Direct View mode is for viewing purposes only and does not affect the output.

Default mode show the results of your entire sequence in the viewer.

Direct View mode shows only the results of your 3D DVE session.

To work in Direct View mode:

- From the 3D DVE toolbar, click the **Direct View** button.

  The viewer displays only the contents of your 3D DVE session.

Suspending Output to the Output Monitor

By suspending (or not sending) the output of your scene to the output monitor, you can increase the interaction speed when working in the 3D DVE layout.

You can only suspend output to the output monitor when working in the Direct View mode.

To suspend output to the output monitor:

- From the 3D DVE toolbar, click the **Suspend Output** button.

  The output of your scene is not displayed on the output monitor.

Displaying Guides

You can display various guides or hide parts of objects in the viewer to position objects relative to each other and to the edges of the viewable area. Guides are not visible in the final sequence.

Showing the Safe Action/Title Areas

The safe action area is the central area of the viewer where action can occur without having noticeable distortion. The safe title area, also in the central area of the viewer, is where you can safely place graphics and titles without having any of its edges cut off. These areas delineate where action and titles should occur to be fully visible on a television set.

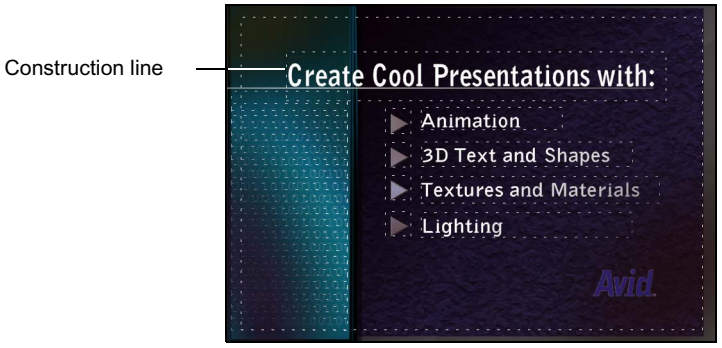
To show or hide the safe action/title areas, do one of the following:

- Right-click the viewer and select **Safe Action/Title**.
- From the 3D DVE toolbar, click the **Safe Action/Title** button.

  The safe action/title guides are displayed. When you move objects near the safe action/title guides, they snap to it. You can, however, still move the objects outside the safe action/title areas.

Showing Construction Lines

Construction lines define the boundaries of objects, such as text and the scene itself. By showing construction lines, you can identify the location and sizes of these types of objects, as well as any that are empty. Construction lines also display the shadow plane for projected shadows. For more information, see “Changing a Shadow’s Location” on page 1607.



To show or hide construction lines:

- From the 3D DVE toolbar, click the **Construction Lines** button.

  Construction lines appear as dashes around the borders of objects.

Showing the Grid

The *grid* consists of evenly spaced points that you can use to align objects to each other or to the sides of a scene. The grid uses a standard 16×12 layout. When you show the grid while in the 3D DVE layout, by default, it's in Snap to Grid mode. For more information, see "Positioning Objects at Specific Locations" on page 1539 and "Aligning Objects Relative to Each Other" on page 1540.

The grid is not visible in the final sequence.

To show or hide the grid:

- From the 3D DVE toolbar, click the **Grid** button.

  The grid appears as points at the intersections of the grid lines.

Showing Objects Viewable Within the Frame

The *frame* of a project is the dimensions of the scene, which represent the output resolution. If there are objects moving in or out of a frame over time, you may want to show or hide those parts of the objects that are "outside the frame". Viewing only the visible portions of objects may make previewing the project less distracting. However, when you're editing objects, you will usually want to see all the objects.

Objects outside of the viewable frame will be hidden only if you have not tumbled the scene.

Although objects may be hidden from view, you can still select them.

Clip to Frame: Selected

Clip to Frame: Deselected

To show or hide all objects within a frame:

- From the 3D DVE toolbar, click the **Clip to Frame** button.

Working in Wireframe Mode

Working in wireframe mode lets you easily see the outline of all the objects in your scene, making it easier to select and edit them. This can be useful when there are objects hidden behind other objects.

You can also precisely edit and manipulate objects without being distracted by any of the effects defined for it. The wireframe mode increases the speed of interaction because wireframe objects are not processed.

To work in wireframe mode:

1. In the 3D DVE/Options property editor, select the **Direct View** tab.
2. Select the **View as Wireframe** option.

   All objects in the viewer appear in wireframe.

***Tip**: For fast animation playback, suspend the output (to output monitor) and press Ctrl-play. The sequence will play back and animated objects appear in wireframe mode.*

Rendering Objects as a Wireframe

You can draw select objects as a wireframe to help you focus on the placement of objects in a scene, and not on how the objects appear.

To render objects in wireframe:

1. Using the Edit tool, select an object.
2. From the Effect property editor, select the **Render as Wireframe** option.

The Render as Wireframe option affects the final sequence.

Rendered normally.

Rendered as a wireframe.

The wireframe is drawn using the object's main material.

Setting the Viewer Quality Level

You can change the processed on-screen quality of objects in the viewer by adjusting the quality level. Increasing the quality level improves the visual accuracy of objects, but at the expense of system responsiveness. Decreasing the quality level makes it faster for you to move and edit objects, but at the expense of visual accuracy and detail. The quality setting does not affect the processing quality.

To set the quality level:

1. From the 3D DVE/Options property editor, select the **Direct View** tab.
2. Adjust any of the following properties that affect the quality of objects rendered in the viewer:
3. From the Antialiasing list, select one of the following:

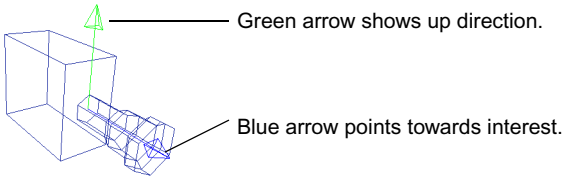
- **None** to apply no antialiasing. This setting produces jagged or aliased edges.
- **Fast 2D** to draw flat objects.
- **Texturing** controls the quality of textured surfaces in proportion to the time required to render the texture onto the surface.
- **Lighting** controls the quality of lit surfaces.
- **Tessellation** controls the smoothness or approximation of curved edges on characters and shapes.
- **Shadowing** controls the quality of soft shadows.
- **Motion Blur** applies a motion blur on fast moving objects.

Working with the Camera

The camera in Avid DS Nitris is similar to a real camera, letting you view objects in the scene from different angles and perspectives. You can create interesting effects, such as camera fly throughs, by animating the camera's parameters. The camera shows you what the scene will look like when you render it.

The main camera in the viewer has two arrows. The blue arrow indicates where the camera is "looking", that is, the direction the lens is facing. This is called the *interest*. The camera is always constrained to the interest. The green arrow indicates the camera's up direction. You can change the camera's direction by rolling the camera.

You can only see the main camera while you're viewing through the alternate camera. For more information, see "Viewing Through the Alternate Camera" on page 1526.



To select the camera, do one of the following:

- In the 3D DVE Object View, click the bar that corresponds to the camera.
- In the 3D DVE Layers view, click the **Camera** layer.
- Click the camera in the viewer.

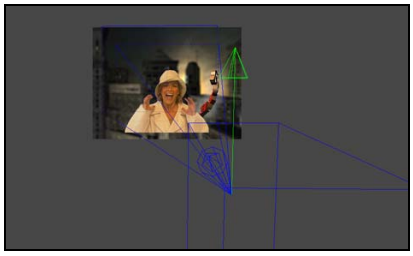
Viewing Through the Alternate Camera

In addition to the main camera, there's also an alternate camera. In many ways, the main and alternate cameras are similar, except that the alternate camera is not an actual object. It's only a tool for viewing and navigating through your scene; it is not displayed in the viewer and does not have any properties for you to edit.

When viewing through the alternate camera, you can see the main camera, and the background, if any, is not visible. You cannot select or animate the alternate camera.

Viewing through the main camera, which is not visible as you are looking through it.

Viewing through the alternate camera. The main camera is visible.



Zoomed out view through the alternate camera.

Snapping the Camera

By snapping the main camera to the alternate camera or vice versa, you can get a different view of your scene.

To snap one camera to the other:

- Click one of the following buttons in the 3D DVE toolbar:
  - Snap Alternate Camera to Main Camera.
  - Snap Main Camera to Alternate Camera.

To toggle the current camera:

- In the 3D DVE toolbar, click the **Toggle Camera** button.

  If you were using the main camera, the view is switched to the alternate camera and vice versa.

Viewing a Scene from Different Angles

Using the alternate camera, you can view the objects in your scene from different angles. This is useful when positioning or animating objects.

Viewing the scene through the alternate camera does not affect the final output of your scene.

To view the scene from different angles:

- From the 3D DVE toolbar, click one of the following:
  - **View Top** to display the scene from above.
  - **View Left** to display the scene from the left.
  - **View Front** to display the scene from the front.
  - **View Right** to display the scene from the right.

  If you were using the main camera, the view is switched to the alternate camera and you can see your scene from different angles.

To tumble the scene:

- From the 3D DVE toolbar, click the **Tumble** button and drag on the viewer.

  A light-colored orientation grid and axis appear in the viewer as you tumble the scene. The X, Y, and Z axes identify the orientation of the frame with Y identifying the top of the frame, and Z identifying the front of the frame.

Manipulating the Camera

It's easier to view your scene when you manipulate the camera by zooming, panning, dollying, or rolling it.

To zoom the camera:

1. From the 3D DVE toolbar, click the **Zoom** button.
2. In the viewer, drag down/left to zoom in or drag up/right to zoom out.

To pan the camera:

- From the 3D DVE toolbar, click the **Pan** button and drag in the viewer.

To dolly the camera:

- Click the **Dolly** button in the 3D DVE toolbar and drag in the viewer.

To roll the camera, do one of the following:

- From the 3D DVE toolbar, click the **Roll** button. In the viewer, drag down/left to roll clockwise or drag up/right to roll counterclockwise.

- In the Camera property editor, set the **Roll** angle. Negative values make the camera roll left and positive values make the camera roll right.

Resetting the Camera

If you've zoomed in and out too much and the perspective on your camera is in need of a refresh, you can always reset it.

To reset the camera, do one of the following:

- In the Camera property editor, click **Reset**.

  The properties of the main camera are reset to the default values.

- In the 3D DVE toolbar, click the **Reset Current Camera** button.

  The properties of the current camera (main or alternate) are reset to the default values.

Setting the Camera Position

The camera's position defines the location of the camera in the scene. These coordinates are local and are not affected when a transformation is applied to the camera.

To set the camera position, do one of the following:

- In the viewer, select the camera and drag it to a new location.

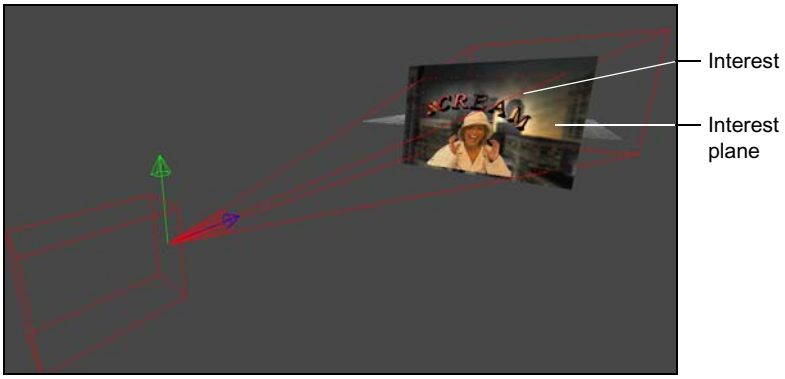
- In the Camera property editor, type values in the **Position** box.

Defining the Camera Interest

The interest, what the camera is always looking at, is at the center of the interest plane. The interest plane is defined as the area visible through the camera. It is represented by a cross, which you can view through the alternate camera.

You can translate and animate the position of the interest as you would any other parameter. By animating the interest, you can keep a certain object in the scene in every frame.

Viewing the interest and interest plane through the alternate camera



To define the camera interest:

- In the Camera property editor, type values in the **Interest** box.

Setting the Clipping Planes

Clipping planes is useful when you want to show or hide specific objects. You can use clipping planes to set the minimum and maximum viewable distances from the camera. Objects outside these planes are not visible. By default, the near plane is very close to the camera and the far plane is very far away, so most objects are usually visible.

To set clipping planes, set the following in the Camera property editor:

- **Near Plane** to set the minimum viewable distance from camera. Objects in front of this plane will not be visible.
- **Far Plane** to set the maximum viewable distance camera. Objects behind this plane will not be visible.

You can reduce processing time by choosing appropriate clipping planes. Smaller ranges of clipping planes take less time to process.

Selecting a Projection Method

When you rotate an object around the X or Y axis or move the object away from the center of the scene, you can control the amount of perspective distortion applied to the object. The perspective distortion simulates the real-world appearance of a rotated or far-away object, where points on the object farther away look smaller than points closer to you.

Depending on the look you want to achieve, you can change the view from an orthographic to a perspective projection. When you select an orthographic projection, objects do not change size as they change distance from the camera. A perspective projection simulates depth and is useful for simulating a real camera.

Orthographic projection | Perspective projection

To set the perspective:

- From the Camera property editor, select one of the following from the Projection box:
  - **Orthographic** perspective in which all camera rays are parallel and objects do not change size as they change distance from the camera.
  - **Perspective** perspective to simulate depth. This projection simulates a real camera. You can also adjust the Vertical Field of View value. Higher values produce exaggerated distortions, and lower values produce subtle distortions.

Setting the Field of View

The field of view is the angular measurement of how much the camera can see at any one time. By changing the field of view, you can distort the perspective to give a narrow, peephole effect or a wide, fish-eye effect.

To set the field of view:

1. From the Camera property editor, set the **Angle** in the Field of View box. Small angles are equivalent to a telephoto lens and large angles are equivalent to a wide angle lens.
2. Select one of the following:
   - **Horizontal** to apply the angle to the horizontal field of view.
   - **Vertical** to apply the angle to the vertical field of view.

About Objects

Objects are the building blocks in your 3D DVE session. An *object* is anything that you can create or manipulate in the viewer while working in the 3D DVE layout. For example, text, two-dimensional graphics (rectangles and circles), and even the background itself are objects.

Some objects can contain subobjects, such as the characters you type in a text body. The 3D DVE session contains all the objects you create while working in the 3D DVE layout. You can modify subobjects separately.

You can create and modify the following types of objects:

- **DVE objects** whose appearances you can deform based on an effect or image you apply to them. For example, you can create spheres, page curls, and ripples—see "Working with Surfaces and Materials" on page 1588.
- **Text objects** contain characters (letters, numbers, and other symbols) that you type. The characters in a text object can be static, move vertically (*rolling text*), or move horizontally (*crawling text*). You create text objects using the Text tool—see "Working with 3D DVEs" on page 1548.
- **Graphics objects** are geometric shapes, such as rectangles and ellipses. You create graphics objects by using the Shape, Rectangle, and Ellipse tools—see "Working with Surfaces and Materials" on page 1588
- **Path objects** or *paths* are shapes onto which you can place or crawl text. You can convert shapes into paths or paths into shapes—see "Placing and Moving Text on a Path" on page 1582.
- **Layers** allow you to create simple two-dimensional effects or more complex three-dimensional effects in which objects can intersect.

About Drawing Tool Properties

The 3D DVE layout is similar to the Graphics layout. That is, before you create titles or DVEs, you must define how the titles or DVE will appear. Using the property editors, you can set the object's properties, such as the color or font.

Each time you select a tool, its properties are displayed in the property editors. You can set the default properties of the drawing tool before creating an object. When you do this, the new settings become the default properties that are applied to the objects you create. These properties remain in effect until you change the properties in any of the drawing tools. If you decide to create an object before setting its properties, you can select the object you created and then modify its properties. When you do this, only the properties of the selected object are modified.

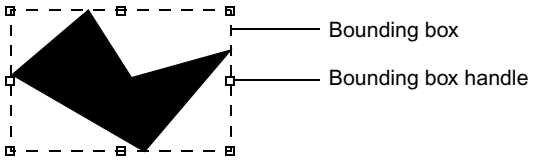
Manipulating Objects

You can select, deselect, arrange, modify, and identify objects. You can copy and move objects around in the scene, and align objects relative to the scene or each other. You can also remove objects you no longer need.

Selecting and Deselecting Objects

Before you can edit an object, you must first select it with the Edit tool. You can select multiple objects and perform the same operation on them, such as changing the color of all the letters in a title.

When you select an object, its bounding box appears, displaying the bounds or extent of the selected object.



To select a single object using the Edit tool, do one of the following:

- In the viewer, click an object or drag a selection box around an object.
- In the 3D DVE Object View or 3D DVE Layers view, click an object's name.

To select multiple objects using the Edit tool, do one of the following:

- In the viewer, press Shift and click the objects.
- In the viewer, drag to make a rectangular selection box around the objects.
- In the 3D DVE Object View or 3D DVE Layers view, press Shift and click the objects.

To select all visible objects in the current frame:

- Using the Edit tool, click the Select All button in the 3D DVE Layer toolbar.

To select characters or a grouped object using the Edit or Rotate tool:

- Alt-click the character or grouped object.

To deselect all objects using the Edit tool, do one of the following:

- Click away from any object in the viewer.
- From the 3D DVE Layer toolbar, click the **Deselect All** button.

Cutting, Copying, and Pasting Objects

You can cut or copy objects in the viewer, and paste them to the same frame or to another frame. Cut or copied objects are placed on the Clipboard and remain there until you perform another cut, copy, or paste operation. At the end of your 3D DVE session, all objects that were cut or copied from the viewer are permanently deleted.

To copy an object to a different location or page:

1. Using the Edit tool, select an object.
2. Select **Edit > Copy** or press Ctrl+C.

   A copy of the selected object is placed on the Clipboard.
3. Pan or zoom to the location in the scene or the time in the project in which you want to copy the objects.
4. Click in the page to activate it.
5. Select **Edit > Paste** or press Ctrl+V.

   The selected objects are pasted in the new location or page. If the original object was locked, the copy of the object is also locked.

To move an object to a different location or page:

1. Using the Edit tool, select an object.
2. Select **Edit > Cut**.

   The selected object is placed on the Clipboard.
3. Move to the location in the scene in which you want to move the object.
4. Select **Edit > Paste** or press Ctrl+V.

   A copy of the Clipboard's contents is pasted.

To remove an object from the scene:

1. Using the Edit tool, select an object.
2. Do one of the following:
   - Press Delete.
   - Select **Edit > Cut**.

   When you use Cut, you can paste the object in another location.
   - Right-click the object in the 3D DVE Layers view and select **Delete**.

Moving Objects

You can move objects freely within the scene, constrained horizontally or constrained vertically. For rotated objects, you can move an object along the local or global axes. You can also prevent objects from being moved accidentally when clicking objects.

If the safe title guide is currently displayed, moving an object near this guide automatically snaps the sides and corners of an object's bounding box to the guide. Subobjects within objects, such as characters in a text body, do not snap to the safe title guide. For more information, see "Showing the Safe Action/Title Areas" on page 1521.

To move an object freely:

- Drag a selected object to a different location.

To move an object horizontally or vertically:

- Hold down the Shift key and drag a selected object. The direction in which you first drag becomes the constrained axis of movement.

To move a selected object by one pixel:

- Hold down the Ctrl key and press one of the arrow keys.

To move a selected object by one-quarter of a pixel:

- Hold down the Ctrl+Alt keys and press one of the arrow keys.

To move a rotated object freely within its rotated, local plane:

- Hold down the Ctrl+Alt keys and drag a selected object.

To move a rotated object horizontally or vertically along its local axes:

- Hold down the Ctrl+Alt+Shift keys and drag a selected object. The direction in which you first drag becomes the constrained axis of movement.

Locking and Unlocking Objects

Locking objects prevents you from moving them accidently when you're working with multiple objects. Once you've locked an object, you can still modify the object's properties using the property editors.

To lock an object:

1. Using the Edit tool, select an object.

2. From the 3D DVE Layer toolbar, click the **Lock** button.

To unlock an object:

1. Using the Edit tool, select a locked object.

2. From the 3D DVE Layer toolbar, click the **Unlock** button.

Reordering Objects

If you want an object to appear in front of or behind another object, such as moving a gradient oval behind some text, or want to draw an object before or after another object, you can reorder them in the viewer or 3D DVE Layers view.

Although objects in a 3D layer are positioned based on their locations along the Z axis, the stacking order of an object still affects perspective and overlap effects.

Also, you cannot reorder characters in a text object.

To reorder objects in the viewer:

1. Using the Edit tool, select an object.
2. Click one of the following buttons in the 3D DVE Layer toolbar:

- **Bring to Front** to move the object to the front of all other objects.
- **Raise** to move the object up one level.
- **Lower** to move the object back one level.
- **Send to Back** to move the object behind all other objects.

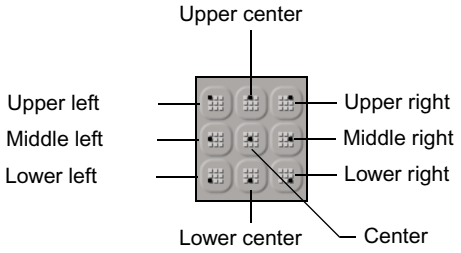
You cannot move an object between layers using these buttons.

Positioning Objects at Specific Locations

You can move objects to specific locations within the scene. Each object has nine common locations (the four corners, four sides, and center) where you can quickly position other objects. If the safe title guide is displayed, you can quickly position objects within it instead of the scene.

To position an object within its boundaries (layer or group):

1. Using the Edit tool, select an object.
2. From the 3D DVE toolbar, click a position button.



Use the Lower Left, Lower Center, or Lower Right buttons for lower-third titles.

Each selected object moves to the selected position within the safe title area. However, note the following behavior:

- If an object is extruded, the object's front face determines how to position the object.
- If an object is rotated, the object is positioned based on the front face of the object.
- If your effect uses perspective projection, objects may appear positioned incorrectly. This is a side effect of perspective projection. Switching to orthographic projection will show the correct positioning of objects—see "Selecting a Projection Method" on page 1531.
- If an object's position on the Z axis is not 0, the object may not be positioned properly.

Aligning Objects Relative to Each Other

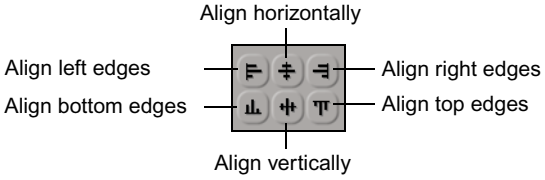
You can align the edges or centers of multiple objects relative to each other to ensure a consistent layout in a scene. You can align objects to their bounding box edges or centers. Objects will align to the safe title guide if it's displayed.

To align objects relative to another object:

1. Using the Edit tool, select the objects to align.
2. Hold down the Shift key and select the object to which all other selected objects will be aligned. This is the reference object, as its bounding box handles are solid instead of hollow.

If you drag on the viewer or use the Select All button to select the objects, the reference object is the frontmost object.

3. To select a different object alignment, click a different **Align** button.



The selected objects align themselves relative to the reference object. Object alignment has the same limitations as object positioning. For more information, see "Positioning Objects at Specific Locations" on page 1539.

Grouping and Ungrouping Objects

If you want to scale or rotate several objects as if they were part of a larger object, you can group the objects together.

To group objects together:

1. Using the Edit tool, select the objects to group.
2. From the 3D DVE Layer toolbar, click the **Group** button.

   The grouped objects appear within a single bounding box.

***Tip**: Hold down the Alt key and click an object in a group to modify the object separately.*

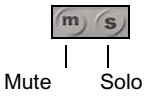
To ungroup grouped objects:

1. Using the Edit tool, select a grouped object.
2. From the 3D DVE Layer toolbar, click the **Ungroup** button.

If you group an animated collection of objects, animate the group, and then ungroup the objects, some of the animation may be lost.

Showing and Hiding Objects

By showing or hiding objects, you can isolate the effect of certain objects or focus your work on specific parts of the scene.



To hide a single object:

- In the 3D DVE Layers view, click the **Mute** button for the object.

To show a single object and hide all others:

- In the 3D DVE Layers view, click the **Solo** button for the object. You can solo multiple objects.

To show all hidden objects:

- From the 3D DVE Layer toolbar, click the **Unhide All** button.

To show or hide objects:

1. Using the Edit tool, select one or more objects.

2. From the Render property editor, do one of the following:
   - Select the **Show Object** option to show the object.
   - Deselect the **Show Object** option to hide the object.

Changing the Visibility of Objects

By controlling the visibility of objects, you can blend or mix objects in a scene to produce subtle effects, such as having objects fade in and out over time.

An object with an opacity of zero still requires rendering.

To change the opacity of an object:

1. Using the Edit tool, select an object.

2. From the Surfaces property editor, adjust the **Master Opacity** value.

   Unlike the opacity settings for each material on an object, this master opacity control determines the appearance of the entire object, including its shadow (if one exists).

Modifying Objects

When you scale and rotate objects, they occur relative to the anchor point, a location on the selected object from which the operation is based.

If you scale or rotate multiple objects, each object is modified independently. To modify a collection of objects as a single entity, you should group them first. For more information, see "Grouping and Ungrouping Objects" on page 1541.

For graphics objects, you can also deform the object. For more information, see "Editing Shapes and Paths" on page 1555.

Adjusting the Anchor Point

When you scale or rotate objects, the objects change based on a point in three-dimensional space called the *anchor point*. Scaling and rotation operations use the same anchor point.

To adjust the anchor point, do one of the following:

- Using the Rotate tool, drag the small *crosshairs* at the intersections of the axes on the rotation sphere to the intended location.

  The anchor point moves along the plane of the crosshair.

- From the Transform property editor, adjust the **Anchor Point** values (X, Y, and Z).

You can adjust the Z value of the anchor point only if the object is extruded.

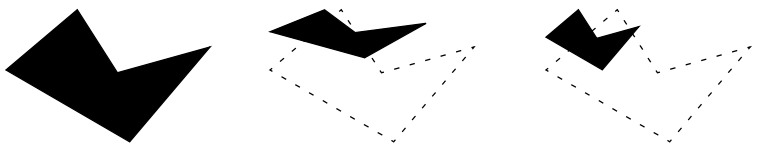
To reset the anchor point, do one of the following:

- Using the Rotate tool, select an object, right-click and select **Reset Anchor Point**.

- In the Anchor Point box of the Transform property editor, type **0** in the X, Y, and Z boxes.

Scaling Objects

Although you can draw an object at a specific size, you can still make the object larger or smaller by scaling it. You can scale an object either independent of or constrained to its original aspect ratio. Also, you can scale an object relative to the opposite bounding box handle or to its anchor point. For more information, see "Adjusting the Anchor Point" on page 1543.



To scale an object:

1. Using the **Edit** tool, select an object.
2. To scale the object, do one of the following:
   - Drag one of the bounding box handles.

     The object scales relative to the bounding box handle on the opposite side or corner of the object's bounding box.
   - To constrain scaling to the object's aspect ratio, press Shift and drag one of the object's bounding box handles.
   - To constrain scaling relative to an object's anchor point, hold down the Shift+Ctrl keys and drag one of the object's bounding box handles—see "Adjusting the Anchor Point" on page 1543.
   - To scale an object in all directions, press Ctrl and drag one of the object's bounding box corner handles.

Resizing Objects

Text boxes and groups are objects that have width, depth, and height dimensions. You can resize an object to any dimensions or fit it exactly around its contents' bounding box. Unlike scaling a object, which scales the contents, resizing an object does not affect the size of its contents.

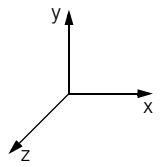
To resize a text box:

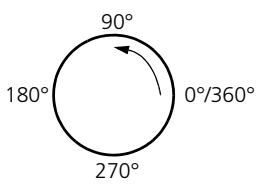
1. Using the Edit tool, select an object.
2. Hold down the Alt key and drag one of the object's bounding box handles.

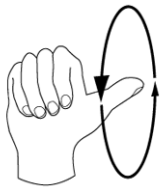
When resizing a text box, the bounding box changes size, but its contents do not.

Rotating Objects

Rotation occurs in three-dimensional space around the X, Y, and Z axes. Angles of rotation increase in the counterclockwise direction around an axis, whereas they decrease going clockwise. Rotation adjustments are applied to objects in the following order: X, Y, and then Z.

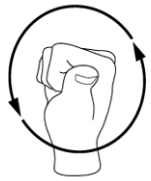






Positive X rotation

Positive Y rotation



Positive Z rotation

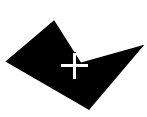
To rotate an object:

1. Using the Edit tool, select an object.

2. From the 3D DVE toolbar, click the **Rotate** button.

   A rotation sphere appears around the selected object.

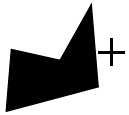
3. Use the controls on the sphere to adjust the anchor point—see "Adjusting the Anchor Point" on page 1543.



Default rotation anchor point.

Object rotated 45 degrees.

Rotation anchor point moved off center.



Object rotated 45 degrees.

4. Rotate the object by doing one of the following:

   - To rotate around a single axis, drag the circle on the rotation sphere corresponding to the axis.
   - To constrain rotations to 15-degree increments, hold down the Shift key and drag an axis circle.

To reset the rotation of a selected object:

1. In the Rotation box of the Transform property editor, type **0** in the X, Y, and Z boxes.

2. Using the Rotate tool, select an object, right-click and select **Reset Rotation**.

Renaming Objects

Each object has a name and optional comment you can assign to it. The layers in the 3D DVE Layers view display these object names. Using unique names will help you differentiate similar objects in a scene, and using comments will remind you of information about an object, such as its purpose in the scene.

To change the name of an object:

1. Select an object in the 3D DVE Layers view or use the Edit tool to select an object in the viewer.
2. Do one of the following:

   - From the Info property editor, type a new name in the **Name** text box.
   - In the 3D DVE Layers view, right-click and select **Rename**, and then type a new name.

To add a comment to an object:

1. Using the Edit tool, select an object.

2. From the Info property editor, type a description in the **Comment** text box.

Setting the Time Span

The time span defines the duration of 3D DVE objects. By default, the time span is from the start of the 3D DVE session to the end. You can make an object appear on one frame only, from the current frame to the end of the session, from the beginning of the session to the end, or from the first frame to the current frame. You can also set custom time spans for specific objects.

In the Time Span property editor, the timecode refers to the 3D DVE session time. That is, 00:00:00:00 is the beginning of the 3D DVE session regardless of its position on the timeline.

To define the time span:

1. Select an object from the viewer or 3D DVE Layers view.

   The corresponding bar in the 3D DVE Object View (3D OV) turns yellow.

2. In the Time Span property editor, specify the duration by clicking one of the following:

Option	Description
This Frame Only	Makes the time span one frame.
This Frame to End	Makes the time span start at the current frame and end at the last frame of the 3D DVE session.
Start to End	Makes the time span start at the first frame and end at the last frame of the 3D DVE session.
Start to this Frame	Makes the time span start at the first frame and end at the current frame of the 3D DVE session.

3. To specify a custom time span, use the In, Out, and Duration timecode boxes. All values must be expressed in SMPTE timecode.

***Tip**: While you're editing the time span of a selected object, you can select the Lock option to lock the duration.*

Working with 3D DVEs

A 3D DVE is an object whose appearance you can deform based on an effect or image you apply to it. Some examples of DVEs are spheres, page curls, and ripples. For some DVEs, you can simulate a displaced surface by applying a grayscale texture known as a *displacement map.*

What's the difference between using a 3D DVE and a simple rectangle? You can extrude rectangles, but not the DVE and you can apply effects to a DVE, such as displacement maps.

You can modify DVEs like other objects, with the following exceptions:

- Editing using the Shape tool
- Profile effects
- Extrusion
- Wireframe rendering
- Converting to a path
- Combining with other shapes or DVEs

Creating DVEs

You can create multiple DVEs within a scene, as well as delete DVEs that you no longer need. DVEs have properties common to all DVE types, as well as properties specific to the effect you're using.

To create a DVE:

1. From the 3D DVE toolbar, click the **Add DVE Node** button.

   A rectangle appears within the current layer and covers the entire scene.

2. Using the Edit tool, select the DVE.

3. To change the effect, open the DVE property editor and select an effect from the Effect list.

   A list of effect-specific properties appears in the Options box next to the Effect list.

To delete a DVE:

1. Using the Edit tool, select a DVE.
2. Press Delete.

Simulating a Textured Surface Using a Displacement Map

In addition to the deformation of an object produced by a DVE, you can also use a texture to define convex and concave areas on its surface. The luminance values of the color in the texture (the alpha channel is ignored) define the convex (raised) and concave (lowered) areas on the surface.

A displacement map cannot be used on the Border DVE.

To use a displacement map on a DVE:

1. Using the Edit tool, select a DVE.

2. From the Surfaces property editor, select the **Enable Lighting** option for the Main surface.

3. From the DVE property editor, adjust the following in the Displacement box:

Option	Description
Texture	Lets you select an image whose grayscale version defines the contour on the surface.
Scale	Sets the magnitude of the displacement.
Offset	Sets the grayscale level in the texture that represents no displacement of the surface.
Softness	Adjusts the smoothness of the surface. You can soften a displacement map to hide irregularities in grayscale levels in the texture.

4. To adjust the detail of the DVE's appearance, adjust the **X** and **Y** values in the Detail box. Lower values produce a less accurate appearance, but rendering is faster and vice versa. For displacement maps, increase the detail of the DVE.

To remove a displacement map from a DVE:

1. Using the Edit tool, select a DVE.

2. From the DVE property editor, select **Default** from the Texture list.

Applying Profile Effects

The outline of characters or shapes is known as its *profile*. You can set the profile to one of the predefined profile effects, such as Bevel, Ridge, or Tube, in one of three thicknesses.

To apply a profile effect to objects:

1. Using the Edit tool, select the objects.

2. From the Effect property editor, select a profile from the Profile list.

An object that uses a profile effect will not have antialiased edges in the viewer. To view antialiased edges, render a preview on screen or output to disk.

For a glow effect, use a colored shadow. For more information, see "Using Shadows to Simulate Glows" on page 1611.

Extruding an Object

By default, new objects are two dimensional. You can change the depth or thickness of an object by extruding it. The extruded surface can use its own material.

To extrude an object:

1. Using the Edit tool, select an object.

2. From the Effect property editor, adjust the **Extrude Depth** value.

For objects that have a profile, adjusting the extrude depth does not affect the profile.

Blurring Moving Objects

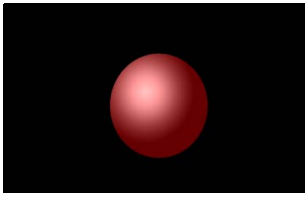
In real life, an object that moves quickly appears blurred. Imagine a camera taking a picture of the moving object. The object in the picture appears blurred because the object moved during the short time that the camera's shutter was open. If the shutter was open for a shorter time, the object would appear sharper.

To apply motion blur:

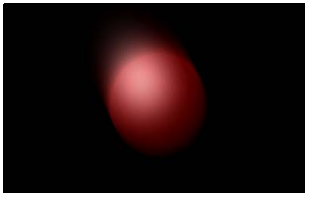
1. From the 3D DVE/Options property editor, select the **Output** tab.
2. Select the **Enable Motion Blur** option.
3. Adjust the **Exposure** value. The blurriness of a moving object depends on how long the camera's shutter is open. The longer the shutter is open, the blurrier the object appears, and vice versa. The exposure time, measured in seconds, represents the duration that the shutter is open.

Motion blur is a very time-intensive effect, especially when you use a long exposure time.

4. If desired, change the quality of the blurred motion by adjusting the **Custom Quality** parameters.



Motion blur (deselected)



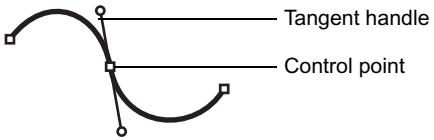
Motion blur (selected)

The motion blur effect applies to all objects in the 3D DVE session, over the duration of the session. Also, if the object changes materials, such as its color or visibility over its duration, these changes will appear faded or smoothed out as a result of the motion blur effect.

Although you can set a maximum quality for blurred objects, objects that move very fast will not simulate blurred motion as well as slower moving objects. You may need to experiment with exposure time and quality settings to get the desired results.

Working with Graphics

A graphics object is made up of control points and tangent handles that define a shape. The portion of a shape between control points is called a *segment*. You can modify the shape of an object at any time.



Creating Graphics

You can use the following tools to create shapes: Rectangle, Ellipse, and Shape. When you create new shapes, they become the frontmost objects in the scene.

You cannot create a shape if a shape is currently selected.

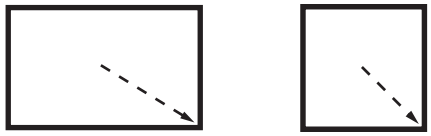
Creating Squares and Rectangles

The Rectangle tool lets you create square and rectangular shapes. For example, you can use this tool to create the basis for a textured backdrop or gradient fill onto which you add text objects.

To create a rectangle or square shape:

1. Click the **Rectangle** button in the 3D DVE toolbar.
2. Do one of the following:
   - To create a rectangular shape, drag diagonally from left to right.
   - To create a square shape, hold down the Shift key and drag diagonally from left to right.

- To create a rectangular or square shape from the center, hold down the Ctrl key and drag (rectangle), or hold down the Ctrl+Shift keys and drag (square) from the intended center of the shape.



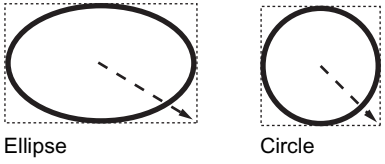
Creating Circles and Ovals

The Ellipse tool lets you create circular and elliptical (oval) shapes.

To create an ellipse or circle shape:

1. Click the **Ellipse** button in the 3D DVE toolbar.
2. Do one of the following:
   - To create an ellipse, drag diagonally from left to right.
   - To create a circle shape, hold down the Shift key and drag diagonally from left to right.

- To create an ellipse or circle from the center, hold down the Ctrl key and drag (ellipse), or hold down the Ctrl+Shift keys and drag (circle) from the intended center of the bounding box.



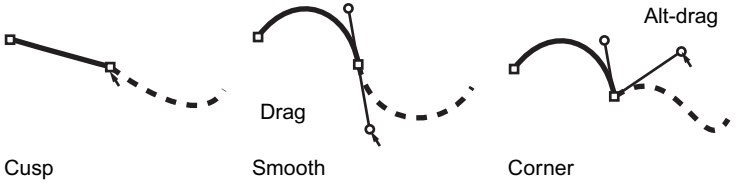
Creating Polylines and Curved Shapes

The Shape tool lets you create polyline shapes, such as polygons and curves.

To create a freehand shape with the Shape tool:

1. Click the **Shape** button in the 3D DVE toolbar.
2. Do one of the following:
   - To create a polyline shape, click at the location where you want to place the starting control point.
   - To start a curved shape, drag from the location of the starting point in the direction you want the curve to point.

3. Place subsequent control points, as follows:
   - To create a straight-line segment, click at the location for the next control point.
   - To create a curved-line segment with a smooth point, drag from the location of the next control point.
   - To create a curved-line segment with a corner (angular) point, drag from the location of the next control point. Then, hold down the Alt key and drag the tangent handle.



4. To create a closed shape, click the first control point you created.
5. To create an open shape, do one of the following:
   - Press Esc.
   - Click the right mouse button.
   - Click a different tool.

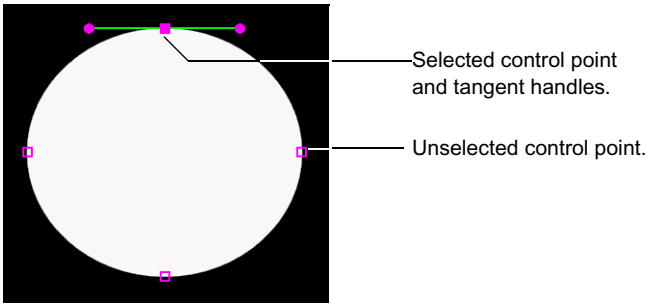
Closed shapes are filled with the default main material. Open shapes cannot be filled.

Editing Shapes and Paths

For shapes and paths, you can modify the actual Bézier points and curves that define the form of the shape.

Selecting and Deselecting Control Points

For many shape-editing operations, you must select a control point first. You can select multiple control points to adjust them at the same time, or deselect control points that you do not want to modify. You cannot select control points on multiple shapes at the same time.



To select a control point:

- Using the Shape tool, click a control point.

To select multiple control points:

1. Using the Shape tool, select a shape.
2. Do one of the following:
   - Hold down the Shift key and click the control points.
   - Drag to select the control points.

To select all control points on a shape:

1. Select a shape.
2. Right-click the shape and select **Select All Points**.

To deselect all control points, do one of the following:

- Click away from a shape.
- Right-click the shape and select **Deselect All Points**.

Editing a Shape

The location of control points and curvature near control points determine the form of a shape. You can add, delete, and move control points, as well as adjust a control point's tangent handles to change a shape's form.

You can modify all selected control points if the pointer is not above a control point at the time you select the command. Simply right-click the shape and select a command. Not all commands apply to multiple control points.

To add a control point, do one of the following:

- Hold down the Alt key and click along a shape's outline.
- Move the pointer above the area of a shape to add a control point, right-click and select **Insert Point**.

To delete a control point, do one of the following:

- Select a control point and press Delete.
- Move the pointer above a control point, right-click and select **Delete Points**.

To move a control point:

- Drag the control point to a new location.

To move a control point on a rotated object:

- Hold down the Shift key and drag the control point. The direction in which you begin dragging becomes the constrained axis of movement.

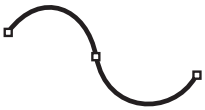
To move a control point horizontally or vertically:

- Hold down the Ctrl+Shift keys and drag the control point. The direction in which you begin dragging becomes the constrained axis of movement.

To change the curvature of a shape near a control point:

- Right-click a shape and select a command.

- Hold down the Ctrl or Alt key and drag a tangent handle. This affects the control point under the pointer. The following table describes the various operations you can perform on control points.

To make a		Do the following
Cusp point		With the pointer above a control point, right-click and select **Make Cusp Points**.
Smooth point		Press Ctrl and drag a tangent handle away from a control point or, with the pointer above a control point, right-click and select **Make Smooth Points**.
Corner point		Press Alt and drag a tangent handle away from a control point.

To extend the length of a single tangent handle:

- Hold down the Shift key and drag the tangent handle.

  The length of the tangent handle is extended and its orientation does not change.

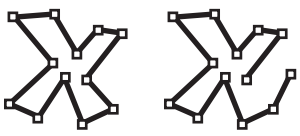
Opening and Closing Shapes

Another way to edit the form of shapes is to open, split, close, or connect them.

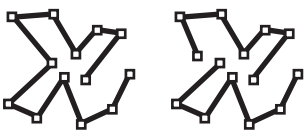
***Tip**: To thicken an open shape, use a Frame, Round, or Tube profile effect.*

To open a closed shape or split an open shape in two:

- Position the pointer above the control point at which you want to open or split the shape, right-click and select **Break Point**.



Before After
Opening a closed shape.

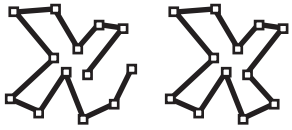


Before After
Splitting an open shape in two.

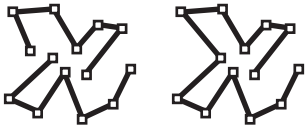
The fill of a closed shape is lost when the shape is opened. Also, if you split an open path in two, the text on the path moves to one of the new paths.

To close an open shape or connect two open shapes:

- Drag an end point onto another end point on the same shape (to close a shape) or onto another shape (to connect the shapes).



Before After
Closing an open shape.



Before After
Connecting two open shapes as one.

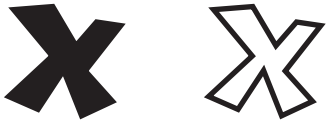
Filling Shapes

You can control the appearance of the interior of closed shapes by specifying whether the shape is filled or not.

Only closed shapes can be filled. When you close an open shape that was not filled, the closed shape is not automatically filled.

To fill a shape:

- Right-click the edge of a shape, and select or deselect **Fill Curve**.



Filled Not filled

Removing Segments

Another way to open a shape or split a shape in two is to remove a segment from the shape.

To remove a segment from a shape:

- With the pointer above a segment, right-click and select **Delete Segment**.

Before

After removing a segment.

After removing a second segment.

If you remove a segment from a closed path, the text on the path adjusts to the new length of the path. If you remove a segment from an open path (splitting the path in two), the text on the path moves to one of the paths.

If a shape has only one segment, such as a line, removing the segment produces two single-point shapes.

Working with Compound Shapes

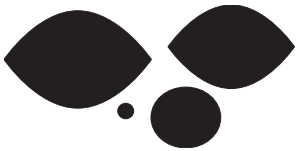
You can combine multiple shapes into a single compound shape to create interesting effects. A compound shape is a single object composed of multiple, individually editable shapes. For example, if you want to create a custom version of a letter, such as a stylized letter A for a company logo, you can define the various pieces of the letter and determine how they're combined.

Compound shapes

Compound shapes are not the same as a group of shapes. All the shapes within a compound shape exist at the same Z position in three-dimensional space. Also, the entire compound shape uses the same surface materials. You cannot modify the material of each shape within the compound shape.

Creating and Separating Compound Shapes

You can combine shapes into a compound shape, make a copy of a shape that is part of a compound shape, and separate all the shapes within a compound shape.



Before combining shapes

After combining and repositioning shapes.

To create a compound shape:

1. Select the shapes. The properties of the last shape you select will be used for the combined shape.
2. From the 3D DVE toolbar, click the **Combine Shapes** button.

   By default, a shape within another shape inverts or "cuts out" the outer shape. If you select a path to combine with other shapes, the text on the path is removed.

To copy a shape that is part of a compound shape:

- With the pointer above a shape, right-click and select **Copy As Shape**.

  The copied shape appears above the original shape.

Any transformations (translation, scaling, and rotation) or animation applied to the compound shape will not be applied to the copied shape.

To separate a compound shape into its individual shapes:

1. Select a compound shape.
2. From the 3D DVE toolbar, click the **Separate Shapes** button.

   The properties of the separated shapes will be the same as those of the original compound shape. However, material properties, such as how a texture is applied to the object, may be altered.

Combining Shapes within a Compound Shape

The way you drew the shapes within a compound shape can affect the appearance of the compound shape. When the shapes of a compound shape do not overlap each other, both shapes appear in the compound shape. However, when shapes of a compound shape overlap, the inner shape "cuts out" or subtracts from the outer shape. However, you can add the overlapping shape to the compound shape instead of subtracting from it.

To control how one shape affects another within a compound shape:

- With the pointer above a shape, right-click and select **Combine Mode** and one of the following:
  - **Subtract** to remove the area where the shapes overlap.
  - **Add** to fill in the area where the shapes overlap.

Reversing the Direction of a Shape

Control points on a shape are numbered sequentially, starting at the first control point on the shape. The route, through sequentially numbered control points, determines the shape's direction. This direction controls how the shape is drawn when it's part of a compound shape, how the profile of the shape is drawn, and how the text on a path is laid out. You can change the default direction for a shape or path.

To reverse the direction of a shape or path:

- With the pointer above a shape or path, right-click and select **Reverse Direction**.

Working with Text

A *text object* contains characters and appears as a text body. There are four types of text objects: static, rolling, crawling, and path text.

Each type of text object can be stationary (static) or have motion over time. You can also control whether the text moves outside the dimensions of the text body. For more information, see "Controlling Rolling, Crawling, and Path Text" on page 1579.

- **Static text** does not move (scroll) within its text body. The text can still move around if you manually move each character. Static text is the default text object.
- **Rolling text** moves vertically within a text object over its duration, starting and ending with no text visible, such as the list of credits that usually appear at the end of television movies and feature films.

  You can create rolling text that moves up and down within a text body. If you enter more text than can fit on one line, the extra words and characters appear on a new line. The lines of text *word wrap*.

- **Crawling text** is a single line of text that moves horizontally, usually from right to left. A stock price ticker or weather warning messages along the bottom of a television screen are common types of crawling text that you see on television or websites.

- **Path text** (or text along a path) is a single line of text that fits to or moves along a straight or curved path, such as letters that follow the contour of a car or words that seem to float in the sky. You can create path text that moves along the path or is fixed on it.

Creating a Text Object

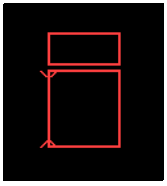
When you want to add text, you create a *text object*, a box into which you type the text or import an ASCII text file. The box can either expand to fit the text you type or remain a fixed size into which the text word-wraps to fill it.

To create a text object:

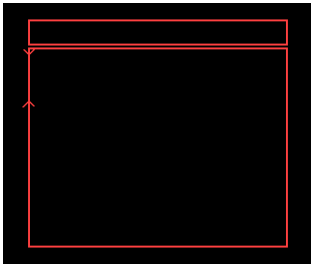
1. Using the Text tool, do one of the following:

   - Click the viewer. If the text cursor is active in an existing text object, click away from the text object.

You cannot create a new text object while you're editing the text in an existing text object.



   - Drag on the viewer to define a text body.



The *cursor* or *insertion point* (a vertical bar) appears in the upper-left corner of the text body.

2. Type in some text.

   By default, text aligns along the left edge of the text body and uses the current text properties in the Text property editor. For more information, see "Aligning Text into Columns" on page 1572.

   The new text object becomes the frontmost object in the scene. Clicking outside the text body or clicking another tool finishes the creation of the text object and allows you to modify the text object or the characters within it.

To enter text along a path:

1. Create a path—see "Creating and Deleting a Path" on page 1582.
2. Using the Text tool, click the path and type in some text.

Using Special or Unicode Characters

You can type a special (extended) character, such as a copyright symbol (©) or any Unicode character into a text body if the font supports the actual character. TrueType fonts work better than Type 1 fonts.

Pasted characters do not take on the font that is displayed in the Font list. You will have to select the character after pasting in a text body and set the appropriate font.

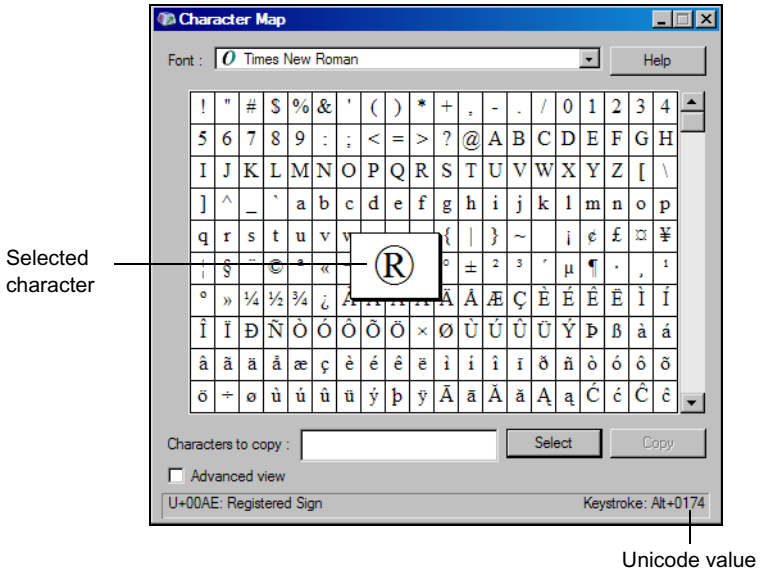
Determining a Character's Unicode Value

Before you can enter special or Unicode characters, you must determine their value. For example, the registered trademark symbol (®) has a Unicode value of 00AE. You can look up the value in the Character Map utility in Windows.

To determine the Unicode value using the Character Map utility:

1. On the Windows desktop, select **Start > Programs > Accessories > System Tools > Character Map**.

   The Unicode Character Map window is displayed.



2. From the Font list, select the font that you intend to use in Avid DS Nitris.
3. Click the character you want to use.

   The Unicode value appears in the lower-left corner of the Character Map window. Use this four-character value in Avid DS Nitris.

Entering Special and Unicode Characters

Once you know the special or Unicode value of the character, you can enter it in a text body in Avid DS Nitris. The hexadecimal Unicode value is used to identify special or Unicode characters; this value appears in the Info property editor.

To enter a Unicode value:

1. Click in a text body.
2. Hold down the Alt key and type the value on the numeric keypad. For example, the registered trademark (®) symbol in the Times New Roman font uses the Alt+0174 key sequence.
3. Release the Alt key.

   The special or Unicode character appears in the text body and its hexadecimal value appears in the Info property editor.

Importing Text

You can import text from an ASCII text file. For example, you can import a previously created text file containing the names in a credit roll.

Only the first 6,000 characters of a text file are imported. Also, if the text file contains binary characters, only the text up to the first binary character is imported.

To import text:

1. Create a text body or place the cursor in an existing text body.

   If a text body is not currently active, the imported text appears in a new text body that is half the width and height of the current text body.

2. From the 3D DVE toolbar, click the **Import Text** button.
3. In the Import Text dialog box, select the ASCII text file to import.

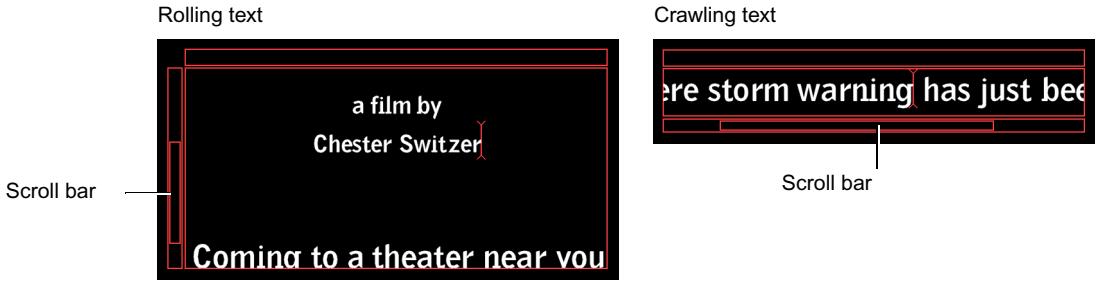
   The text in the selected text file appears in the current text body, using the current object properties.

Text Overflow

When a text object contains more characters than can appear at one time, the text object appears differently when the cursor is active in the text object.

When the insertion point is in a text object, a scroll bar appears along the left edge (for rolling text) or bottom edge (for crawling text) of the text object. The scroll bar allows you to view and edit any part of the text in the text object. A scroll bar does not appear for path text.

***Tip**: If you're currently editing text, press Esc to adjust the scroll bar.*



When the cursor is not in a text object, a scroll bar appears along the left edge (for rolling text) or along the bottom edge (for crawling text and path text) of text objects. The scroll position arrow controls the section of text that is visible at the current point in time, letting you create rolling or crawling text. Also, for rolling and crawling text, small arrows appear along the sides of the text object as you drag the scroll position arrow.

The scroll bar appears when you're editing text, whereas the scroll position slider appears when you're animating the section of text visible over time.

To edit the scroll position property of a text body, select the text body with the Edit tool and adjust the Scroll Position control in the Text property editor.

For more information, see "Controlling Rolling, Crawling, and Path Text" on page 1579.

Placing the Insertion Point

To specify the location where you want to type new text in a text object, place the insertion point (displayed as a vertical bar) at the desired location in the block of text. The following table describes the different ways that you can move the insertion point within the text.

To move to	Press this key
Previous character	Left Arrow
Next character	Right Arrow
Previous line	Up Arrow
Next line	Down Arrow

Resizing a Text Object

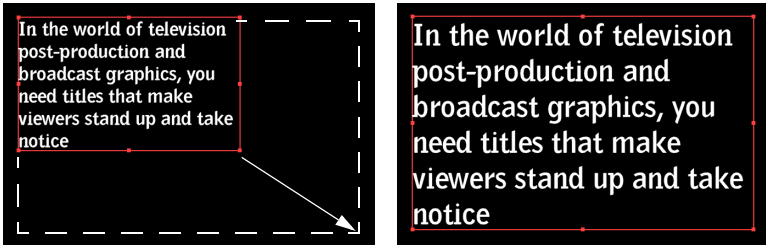
If you resize a text object, you can reformat the text by:

- Scaling the text along with the text object or
- Resizing the text object only, keeping the font size(s) of the text the same.

This is not available for text on a path.

To scale the text as you resize the text object:

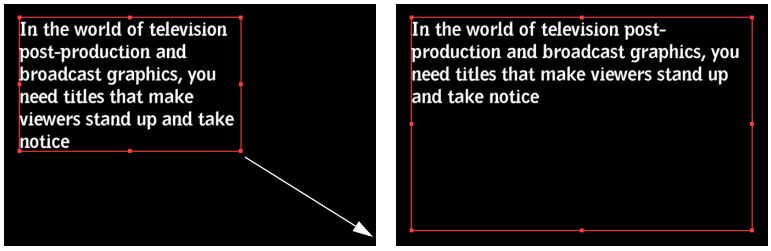
1. Using the Edit tool, select a text object.
2. Drag one of the object's bounding box handles.



Before After

To resize the text object but not the text within it:

1. Using the Edit tool, select a text object.
2. Hold down the Alt key and drag one of the object's bounding box handles.



Before After

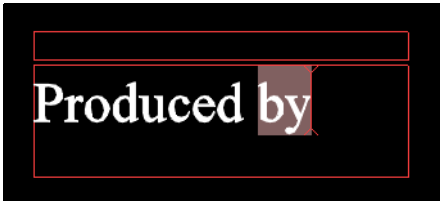
The text within the text object reformats to the new dimensions. For rolling text, the text wraps to fit the text object. For crawling text, you see more or less of the text.

Selecting and Deselecting Text

Before you can modify a block of text (change its font, size, style, or other attribute), you must select the text. You can select text directly in the viewer or in the 3D DVE Layers view if the text is difficult to edit because it's rotated or not visible.

To select a block of text, do one of the following:

- Drag across a block of text.
- With the insertion point at one end of a text block, hold down the Shift key and click at the other end of the text block.



The selected text is highlighted in pink.

To select all the text in a text object:

- With the cursor in a text object, click the **Select All** button in the 3D DVE Layers toolbar.

To select individual letters:

- Using the Edit tool, hold down the Alt key and click a letter at the same time. Now release the Alt key and you can still continue selecting individual letters.

To select multiple letters:

- Using the Edit tool, hold down the Shift key and click the letters you want to select.

  A red bounding box surrounds the selected letter(s), which you can now edit individually. They are, however, still part of the text object.

To deselect selected text, do one of the following:

- Click anywhere in a text object.

- From the 3D DVE Layers toolbar, click the **Deselect All** button.

Editing Text

You can use common cut, copy, or paste operations on text.

To cut, copy, or paste text:

1. From the viewer, select some text.
2. From the Edit menu, select one of the following:
   - **Cut** or press Ctrl+X to cut the text.
   - **Copy** or press Ctrl+C to copy the text.
   - **Paste** or press Ctrl+V to paste the text.

Formatting Text

You can format blocks and columns of text, such as changing the font, font size, as well as adjusting column width and alignment.

Changing Fonts and Font Sizes

Traditionally, a font is a specific typeface (type family) at a specific font size (height), and with specific font styles (visual enhancements). In Avid DS Nitris, a font is defined as a specific typeface. The size and styles are specified separately.

To change the font and font size of text:

1. Using the Text tool, select a block of text.
2. From the Text property editor, select a font from the Font list.

Tip: To try different fonts, display the font list and press the up and down arrow keys on the keyboard.

3. Set the **Size** value.

   You can also change the font size of the text in a text object by scaling the text object itself using the Edit tool—see "Scaling Objects" on page 1543.

Changing the Direction of Text

As you type new characters into a text object, the text cursor moves from left to right by default. You can switch the direction if you're typing in a language that is read from right to left, such as Hebrew. You can switch the direction of a text object at any time.

To change the direction of text in a text object:

- Using the Text tool, right-click in a text object, and select **Direction** and one of the following:
  - **Left-to-Right** to add each new character to the right of the previous character. This is the default direction.
  - **Right-to-Left** to add each new character to the left of the previous character.

The text in a text object that uses the Right-to-Left direction does not automatically switch to right-aligned text.

Aligning Text into Columns

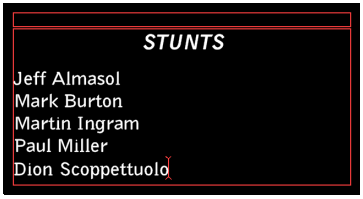
By default, a text object contains a single column of left-aligned text. You can create columns of text, change the width and alignment of text within a column, and remove columns. Columns are useful for tabular information or to save vertical space, such as when using a three-column layout for names in a credit roll. The text within each column should fit within the width of the column.

You cannot animate the number of columns, the width of columns, or the alignment of text within columns over the duration of a text object.

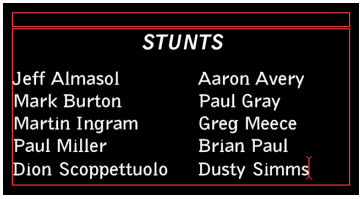
Text alignment does not work for crawling text, including text crawling along a path. However, you can align static text on a path.

Adding a Column

You can add a column to a text body to break a line of text into two separate sections, each of which can have its own text alignment. For example, you can use a two-column layout for ending credits, where the actresses's name is right-aligned in the first column and the character she portrays is left-aligned in the second column.



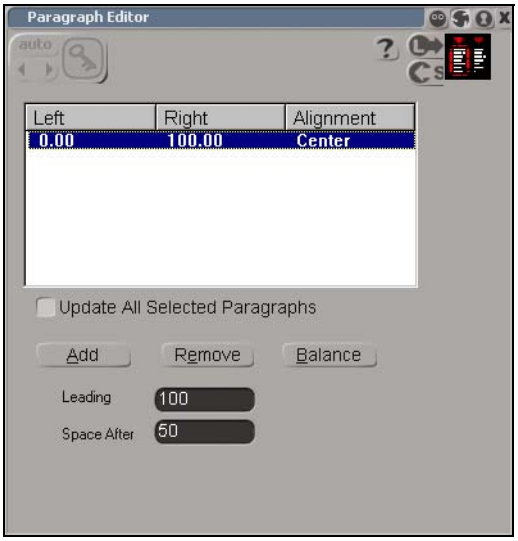
Before



After adding a column and typing text into it.

To add a column:

1. Using the Text tool, place the insertion point in the paragraph that contains the column.
2. From the Paragraph property editor, select the row that corresponds to the column. Each column defined in the current paragraph of the text body appears as a row of the following values:



- **Left**: The left edge of the column.
- **Right**: The right edge of the column.
- **Alignment**: The alignment of the text within the column.

The Left and Right values are numbers between 0 (left edge of the text body) and 100 (right edge). The distance between the Left and Right values defines the width of a column.

3. Select the **Update All Selected Paragraphs** option to apply changes to selected paragraphs only.
4. Click the **Add** button. You can create up to ten columns in a paragraph.

   The existing column's width is split in half.
5. Repeat steps 3 and 4 for each new column that you add.
6. To type in the next column, press Tab. Tab characters are interpreted as a jump to the next column in a paragraph.

Removing a Column

You can remove a column when you no longer need to separate the text alignment for sections of text.

Before (two columns)

After removing the right column and resizing one column to its full width

To remove a column:

1. Using the Text tool, place the insertion point in a text body.
2. From the Paragraph property editor, select the entry that corresponds to the column you want to remove.

You cannot remove the last column of text. Each text object must contain at least one column.

3. Click the **Remove** button.
4. If you want the remaining columns to occupy the space left by the removed column, adjust their widths.

The remaining columns do not automatically widen to occupy the space left by the removed column. For more information, see "Changing a Column's Width" on page 1574.

The text in the removed column moves to the previous column, separated from the previous column's contents by a space. If you remove the first column, the text moves to the next column.

If you change from two columns to one column, the text word-wraps. However, if you start with three or more columns, the text does not word-wrap.

Changing a Column's Width

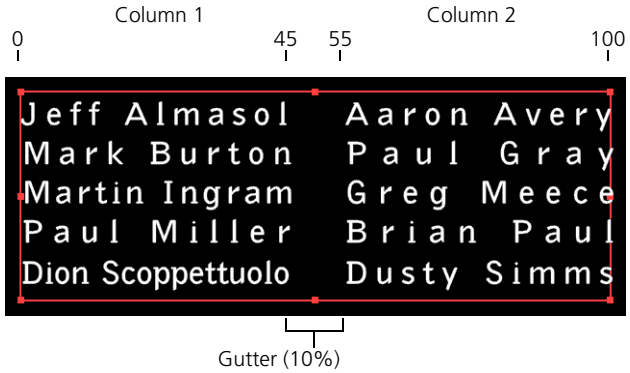
You can change the width of a column to adjust the positioning of text within the column. You can adjust the position of adjacent columns by creating a gap, called a *gutter*, between them. If you're using justified or equally spaced columns, gutters are important to help differentiate the contents in each column. By default, there is no gap between columns.

To change the width of a column:

1. Using the Text tool, place the insertion point in the paragraph that contains the column.

2. From the Paragraph property editor, select the row that corresponds to the column whose width you want to change.
3. To change the left edge of a column, click the **Left** column value, and then change the value in the text body. Press Enter.

   The width of a column is relative to the width of the column's text body, where 0 is the left edge of the text body and 100 is the right edge. Columns cannot overlap.



4. To change the right edge of a column, click the **Right** column value and then change the value in the text body. Press Enter.

   The text in the current column adjusts to the new column width, but long lines of text do not word wrap.

   By changing the left and right sides of adjacent columns, you change the gutter between the columns.

Setting All Columns to the Same Width

Balancing the columns is another way to adjust the positioning of text in multiple columns, so that they use the same width for all the columns on a line. You can also adjust columns after removing a column to make the widths of each column the same.

To set all the columns in a paragraph to the same width:

1. Using the Text tool, place the insertion point in the paragraph that contains the column.
2. From the Paragraph property editor, click the **Balance** button.

Changing a Column's Text Alignment

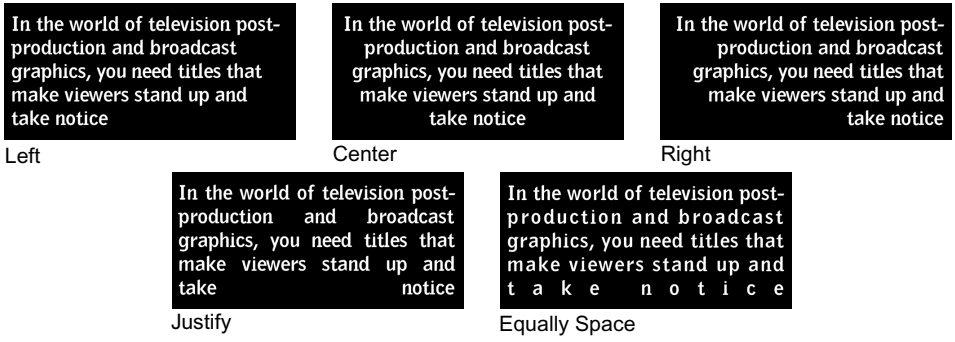
You can change the alignment or positioning of text within a column to make the text more readable or to produce a specific type of effect, such as text that is right-aligned and next to the left edge of a graphic in a scene.

Each column of text can be aligned to either the left or right sides of the column, centered within the column, or aligned to both sides of the column, with extra spacing added either between words or characters.

To change the text alignment in a column:

1. Using the Text tool, place the insertion point in a text body.
2. Right-click in the column of text, select **Align** and one of the following: Left, Center, Right, Justify, or Equally Space.

   The text in the selected column uses the selected alignment.



Adjusting the Kerning

Kerning or character spacing is the horizontal space between characters in a text object. When you adjust character spacing, you're adjusting the space after each selected character, except the last selected character on a line within a justified or equally spaced column. By default, characters are automatically kerned, based on the information in the character's font.

***Tip**: You can create text that expands from the center by using an unclipped text body with Equally Spaced justification and then adjusting the kerning.*

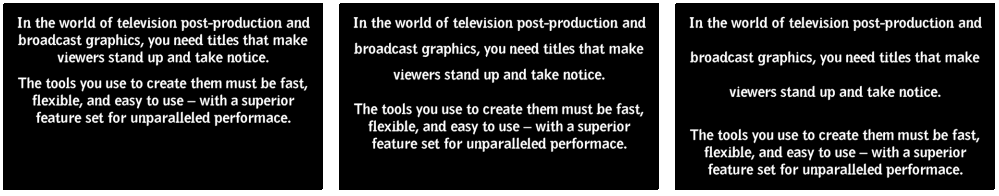
To adjust kerning:

1. Using the Text tool, select a block of characters or place the cursor between two characters to adjust the kerning between them.
2. From the Text property editor, adjust the **Kerning** value.

Kerning = 0 | Kerning = 3 | Kerning = 6

Adjusting the Leading

Leading or line spacing is the vertical space between the lines of a word-wrapped paragraph. When you adjust the leading, you're adjusting the space after each selected line, except the last selected line in a paragraph.



Leading = 100 | Leading = 150 | Leading = 200

To adjust leading:

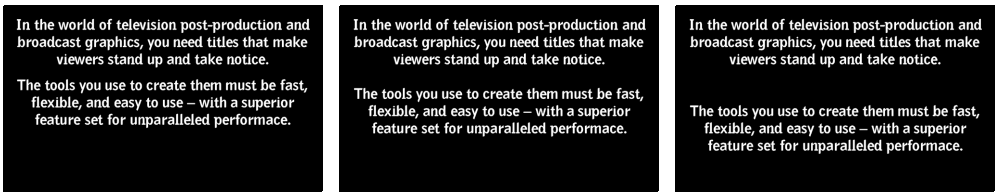
1. Using the Text tool, select or place the cursor in the lines of text you want to adjust.
2. From the Paragraph property editor, change the **Leading** value.

The leading changes in increments of 10 percent of the font size.

***Tip**: A common setting for leading is 120 percent of the font size (that is, the Leading value is set to 120).*

Adjusting the Paragraph Spacing

Paragraph spacing is the vertical space between the last line of one paragraph and the first line of the next paragraph. When you adjust paragraph spacing, you're adjusting the space after each selected paragraph.



Space after first paragraph = 50 | Space after first paragraph = 100 | Space after first paragraph = 200

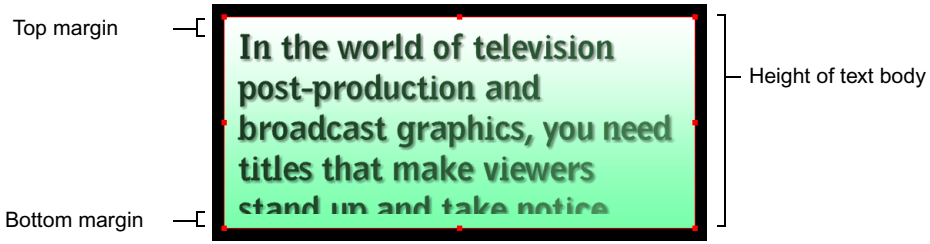
To adjust paragraph spacing:

1. Using the Text tool, either select or place the cursor in the paragraphs you want to adjust.
2. From the Paragraph property editor, change the **Space After** value.

   Paragraph spacing changes in increments of 10 percent of the font size.

Adjusting the Text Margins

By default, the characters in a text body can appear anywhere within the text body's dimensions. However, if you're using a background material and want to offset the text from the sides of the text body and edge of the background material, increase the side's margin. You can specify a margin along the top and bottom of a text body and simulate a margin along the left and right sides by adjusting the text column settings.



To adjust the top and bottom margins of a text body:

1. Using the Edit tool, select a text body.
2. From the Text property editor, adjust the **Top Margin** and **Bottom Margin** values. Adjusting the Top margin moves the text downward. Adjusting the Bottom margin (for rolling text only) crops the text from the bottom of the text body. The Bottom margin value has no effect on static and crawling text.

To simulate the left or right margin:

From the Paragraph property editor, do the following:

- Adjust the **Left** value for the leftmost column in the text body.
- Adjust the **Right** value for the rightmost column in the text body.

For more information, see "Changing a Column's Width" on page 1574.

Controlling Rolling, Crawling, and Path Text

For rolling, crawling, and path text, the text scrolls within the text object over time. The text in a text object is not visible at the start and end of a text object's duration. For example, you may see five lines of text roll by per second or 10 characters crawl by per second.

Creating Rolling or Crawling Text

Creating rolling, crawling, and path text is as simple as selecting an option from the Text pop-up menu. Path text is a variation of crawling text.

To make the text roll or crawl within the text object:

Using the Text tool, right-click in the text body, and select **Motion** and one of the following:

- **Roll** to make the text roll.

The Roll option is not available for text on a path.

The text body's Scroll Position property is automatically set up for a rolling motion from the bottom to the top of the text body.

- **Crawl** to make the text crawl.

A crawling motion is created from right to left (for nonpath text) or from the start to the end of the path (for path text). You can change the speed and direction of the motion by adjusting the Scroll Position property or using the scroll position arrow. For more information, see "Controlling Crawling Speed and Direction" on page 1580.

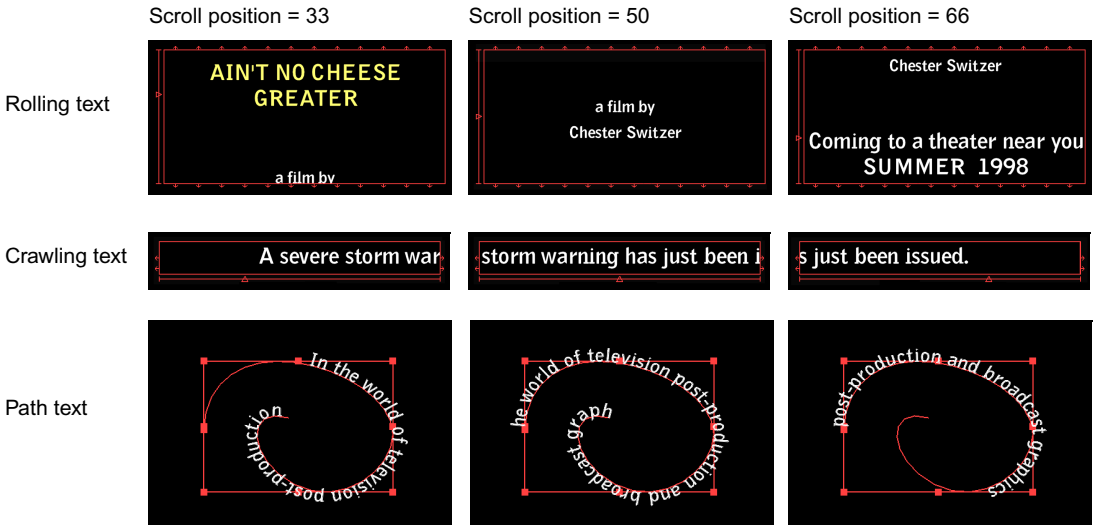
For nonpath text, a scroll position slider appears along the side of the text body. Along the slider is a scroll position arrow that controls the portion of the text visible at the current time.

If you change from Roll to Crawl, the text appears on a single line and word-wrapped lines or paragraphs are ignored but preserved. You may want to shorten the text body to fit the single line of text. If you change from Crawl to Roll, paragraphs are word-wrapped.

If you click the text object or click away from the text body and are at the start or end of the text body's duration, no text appears in the text boxes. This is because, by default, the text in rolling or crawling text bodies moves across the text body over its duration, starting and ending with the text just out of view.

Controlling Crawling Speed and Direction

For rolling and crawling text, you can adjust the speed and direction of the roll or crawl by using the Text property editor (the scroll position does not apply to static text) or the Text tool.



To adjust a text object's scroll speed and direction with the Edit tool:

1. Using the Edit tool, select a text object.
2. From the Text property editor, adjust the **Scroll Position**.

   Higher values move the text upward (for rolling text) or to the left (for crawling text). Lower values move the text downward or to the right.

To adjust a text object's scroll speed and direction with the Text tool:

1. Using the Text tool, click in a text body.
2. Press Esc.

   A scroll position slider and arrow appear for each text object.
3. Drag the scroll position arrow to specify the section of text visible in the text body at the current time.

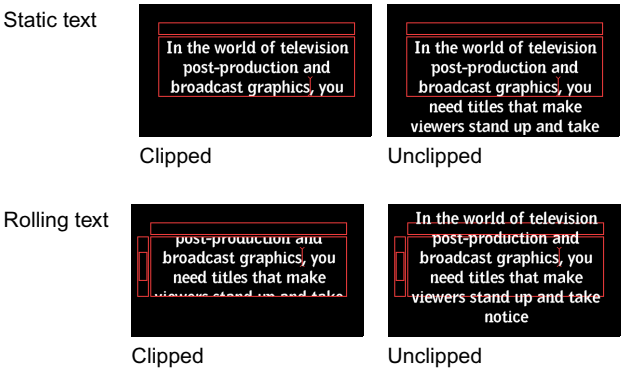
   The scroll position arrow's location in the slider represents the Scroll Position value in the Text property editor.

Clipping Text

The characters in a rolling or crawling text body are, by default, visible only within the dimensions of the text body; characters (or portions of them) are clipped to these dimensions.

Turning off clipping allows characters to appear and move outside of the text body. Unclipped text is useful if you want characters to fly off the screen, or if the text has a shadow that you do not want clipped.

Text that moves along a path is always clipped between characters. The character either appears or does not appear; you will not see a partial character at the ends of a path.



To clip text to the dimensions of the text body:

- Using the Text tool, right-click in the text body and select **Clip to Text Box**.

Clipped rolling text boxes are not clipped on their left and right sides. Clipped crawling text boxes are not clipped on their top and bottom sides.

Placing and Moving Text on a Path

You can place text on and scroll text along straight or curved paths. A path is an object that uses a curved path as the baseline for text, which can crawl along the path. You create and edit paths using the shape drawing tools. Like other objects, you can move, scale, and rotate the path in three-dimensional space.

Creating and Deleting a Path

You can create a path from a shape, convert a path into a shape, and delete a path.

Closed paths are not filled. Also, paths are not drawn when you process the project.

To create a path:

1. Draw a path using any of the shape drawing tools—see "Creating Graphics" on page 1552.
2. From the 3D DVE toolbar, click the **Shape to Path** button.

   The selected shape becomes a path. If you convert a compound shape, the first shape within the compound shape becomes the path.

   A small square along the path indicates the start of the path and, for left-aligned text, the start of the first character.

To convert a path to a shape:

1. Using the Edit tool, select a path.
2. From the Commands toolbar, click the **Path to Shape** button.

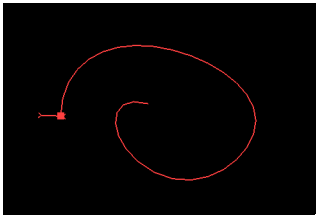
To delete a path:

1. Using the Edit tool, select a path.
2. Press Delete.

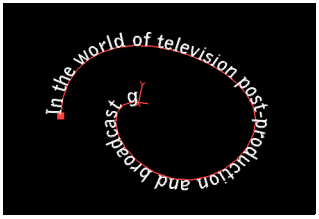
   Any text that was on the path is deleted.

Adding Text to a Path

After you create a path, you can use the Text tool to add text to it.



Before typing text



After typing text

To add text to a path:

1. Using the Text tool, click above a path.

   The pointer changes to indicate that you can enter text on the path.
2. Type in your text.

By default, text on a path is static and left aligned. That is, the text starts at the beginning of the path, but does not scroll along the path.

Removing Text from a Path

Like other text objects, you can remove sections of text from a path. You can also delete the path to remove both the path and the text on it.

To remove text from a path:

- Using the Text tool, delete the text as you normally would for any text object.

  The remaining text readjusts accordingly.

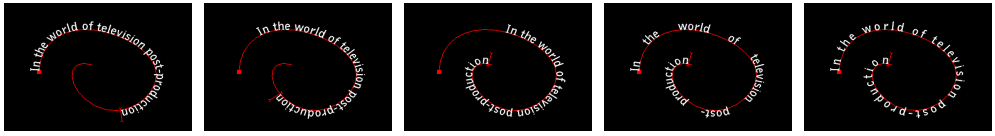
Deleting all the text on a path does not delete the path. The path is empty.

Positioning Text on a Path

Like static and crawling text, you can adjust the position of text on a path. You can also reverse the direction of the text on the path and offset the text from the path.

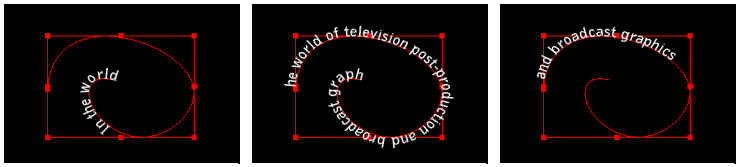
To position text on a path:

- If the text is static on the path, right-click the path, and use the text alignment commands in the menu or the Align buttons on the 3D DVE toolbar—see "Changing a Column's Text Alignment" on page 1576.



Left-aligned | Center-aligned | Right-aligned | Justified | Equally-spaced

- If the text scrolls along the path, adjust the Scroll Position value in the Text property editor—see "Controlling Crawling Speed and Direction" on page 1580.



Scroll Position = 10 | Scroll Position = 50 | Scroll Position = 80

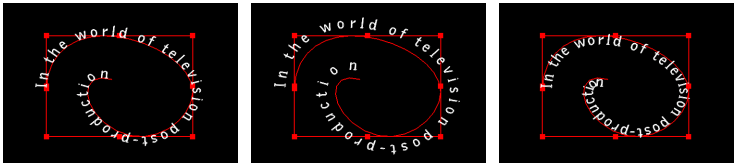
For rectangular paths, the start of the path is the upper-left corner. For elliptical paths, the start of the path is the top of the ellipse. For all other shapes, the start of the path is the first control point you created for the shape.

To reverse the motion of the text on a path, do one of the following:

- From the Text property editor, adjust the **Scroll Position** value.
- Right-click above the shape and select **Reverse Direction**.

To offset the text from a path:

1. Using the Edit tool, select a path. Make sure you do not select the text on the path.
2. From the Path property editor, adjust the **Baseline Offset** value. A value of zero means that the baseline of the text is exactly on the path. Values greater than zero shift the text above the path, whereas values less than zero push the text below the path.



Baseline offset = 0 | Baseline offset = 5 | Baseline offset = –5

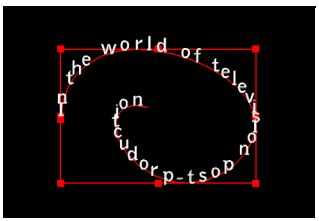
Orienting Text on a Path

By default, characters point in the direction perpendicular to their location on a path. For example, if the text moves along a circular path, the characters point away from the center of the circle. If you prefer to keep the characters upright all the time, adjust the path's orientation.

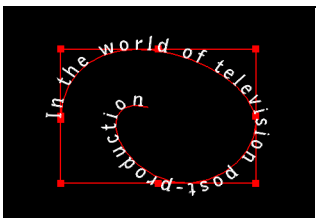
To adjust the orientation of the text on a path:

1. Using the Edit tool, select a path and make sure you do not select the text on the path.

2. From the Path property editor, set the Orientation to one of the following:
   - **Upright** to make the characters stay vertical (to the local Y axis) all the time.
   - **Follow** to make the characters point perpendicular to their locations along the path. This is the default setting.



Orientation = Upright



Orientation = Follow

You can further control the orientation of text on a path by adjusting the individual character's Rotation properties. So, a path that uses Upright orientation, but whose characters have Rotation values other than zero, produces text that is not upright.

Controlling Object Properties Based on Path Position

By default, the properties of characters on a path are dependent on time like all other properties. For example, to change the size of a character over time, you modify the Font Size function curve. However, you can also control the font size (or any property) of a character based on its position along its path. For example, you can easily create characters that gradually increase and then decrease in size as they scroll along their path.

To animate character properties based on their positions along a path:

1. Using the Text tool, click a path.
2. With the pointer above the path, right-click and select **Property Mode** and one of the following:
   - **Time** to base the property values of each character on the current time in the 3D DVE session. This is the default mode.

- **Position** to base the property values of each character on the character's position along the path. The text is left justified while in this mode.

When using the Position mode in text along a path, you must be in Autokey mode.

Position property mode

Font size changes based on the character's position along the path.

Time property mode

All characters use the same font size.

3. Select the characters on the path that you want to modify. In most cases, you will want to select all the characters on the path.
4. Adjust one or more properties of the selected characters at different points in time.

If the text is crawling along the path and the path is in Position property mode, the text may not scroll completely off the path. To ensure that the text scrolls off the path, adjust the Scroll Position value at the end of the path's duration.

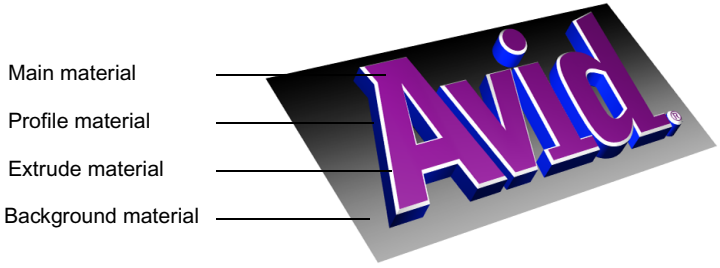
Working with Surfaces and Materials

A surface is an area of an object. You can control the visibility and appearance of each surface by applying a set of properties to it called a *material*.

You can modify the appearance of the various surfaces of an object. For example, you can apply a brick texture to a rectangle to give the appearance of a brick wall, a gradient to a wavy shape that runs along the left edge of the view to enhance a scene, or a reflective texture to the edges of the characters in a word to simulate a chrome outline.

You can apply a material to the following surfaces:

- **Main**: The front and back sides of an object.
- **Profile**: The surface created by the profile effect of an object—see "Applying Profile Effects" on page 1550.
- **Extrude**: The surface created by the extruded sides of an object—see "Extruding an Object" on page 1550.
- **Background**: The area behind all objects in text objects or the reverse side of DVEs—see "Using a Background" on page 1517.



Each material can be one of the following types:

- **Solid color***:* A single color.

Although you can import Avid Marquee® projects that use gradient materials, you cannot create or edit them.

- **Texture**: An image or an input.

In addition, a material can be lit by light sources. For more information, see "Working with Lights and Shadows" on page 1601.

You do not need to create a material to change the appearance of an object. A material is simply a definition or a shortcut way of setting an object's material properties to specific values.

Applying Materials to Objects

You can apply materials to an object or one of its properties to change the object's appearance. You can apply different materials to the front, back, profile, and extruded materials of an object.

All objects have front and back faces, but only extruded objects have an extruded face, and only objects with a profile effect have a profile face. You can specify a material for the background of text objects. For more information, see "Applying Profile Effects" on page 1550.

By default, when the main surface of an object has a material on it, the material appears on the front and back surfaces of the object.

By default, an object uses the main material for the profile and extrude effects.

When you apply a texture to a text body, each character in the text body uses a copy of that texture. If, instead, you want the texture to appear across all the characters in the text body, you must change the texture mapping setting. For more information, see "Editing Materials" on page 1590.

To apply a material to the surface of an object:

1. Using the Edit tool, select an object.
2. From the Surfaces property editor, select a surface from the Surface list, and adjust the material properties.

Using a Custom Material for an Object's Surface

By default, the profile and extrude surfaces of an object use the main surface's material. However, you can set each surface to use a different material.

To enable a surface to use a custom material:

1. From the Surfaces property editor, select the **Enable Surface** option.
2. Adjust the material properties.

Skipping the Drawing of the Back Faces

If you do not intend to show the back faces of an object (for example, you do not intend to rotate the object around the X or Y axis), you can skip the drawing of the back faces. As a result, you can decrease processing time and improve the appearance of transparent three-dimensional objects that are rotated.

To skip drawing of the back faces of an object:

1. Using the Edit tool, select an object.

2. From the Render property editor, select the **Cull Back Faces** option.

   The back faces of the object become transparent.

Editing Materials

A material consists of properties (characteristics) that describe its appearance. For example, you can modify a material's type, color, opacity, and whether it's affected by light sources in the scene. You can modify the material properties of a surface of an object.

To edit a material used by an object:

1. Using the Edit tool, select an object.

2. From the Surfaces property editor, select a surface to edit from the Surface list.
3. Adjust the material properties.

Changing the Type of Material

Materials can be solid colors or textures. You can change a material's type at any time.

To change a material's type:

- From the Surfaces property editor, select a type from the Type list.

Changing a Material's Base Color

For solid-color materials, the base color is the color of the material. If textures are tinted, the base color is the tint color of the material. For more information, see "Tinting a Texture" on page 1599.

To change a material's base color:

- From the Surfaces property editor, click the **Base** color swatch and select a color from anywhere on the desktop. Double-click the color swatch to open the Mini Color editor.

Changing a Material's Opacity

A material's opacity controls how much of the material and the object surface on which it's applied, is visible. Also, if you're saving a matte, the opacity level controls the object's participation in the generation of the matte.

Opacity = 10 Opacity = 40 Opacity = 70 Opacity = 100

To change a material's opacity:

- From the Surfaces property editor, adjust the **Opacity** value.

To use an object's opacity setting to create a matte:

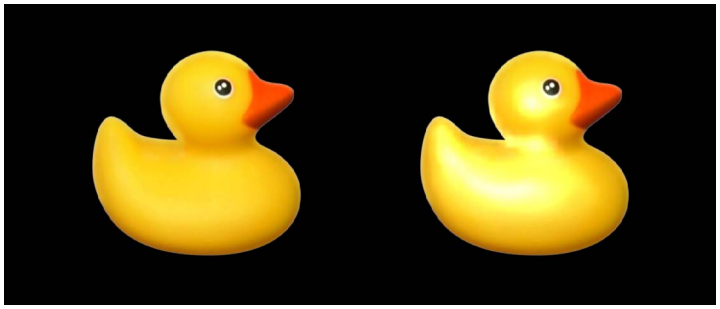
1. Using the Edit tool, select an object.

2. From the Render property editor, select the **Generate Matte** option.

Allowing Material to be Affected by Light Sources

Materials can have two types of finishes:

- **Flat**: A matte finish, which is not affected by light sources. The material appears the same, regardless of the lighting of the scene or the position and orientation of the surface on which the material is applied.
- **Lit**: A glossy finish that is affected by light sources. The material changes appearance depending on the lighting of the scene and the position and orientation of the surface on which the material is applied.



Flat material Lit material

Lit materials are useful for objects that have depth, such as objects that use beveled or extruded profiles. For more information, see "Applying Profile Effects" on page 1550.

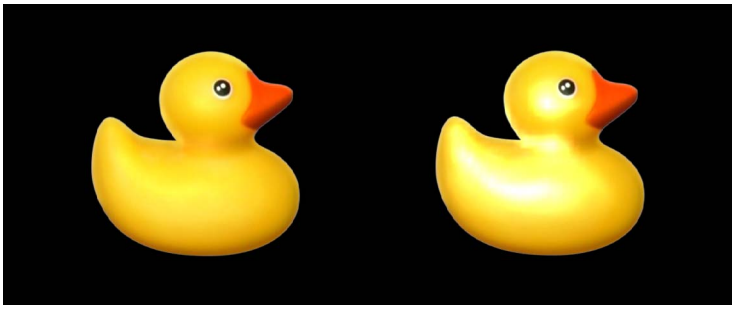
When a material is lit, you can adjust the specular highlight and emissive colors of the material, as well as its shininess. For more information, see "Working with Lights and Shadows" on page 1601.

To allow a material to be affected by light sources:

1. From the Surfaces property editor, select the **Enable Lighting** option.
2. For textures, select the **Tint** option. Textures use the specular and emissive color settings and shininess controls only when the Tint option is selected.

Adjusting the Specular Highlight Color

When a light source shines on a lit material, the region of the surface that reflects the light directly to the observer (a specular highlight) appears brighter. You can control the size of the specular highlight by adjusting the shininess of the material. For more information, see "Adjusting the Shininess of a Material" on page 1594.



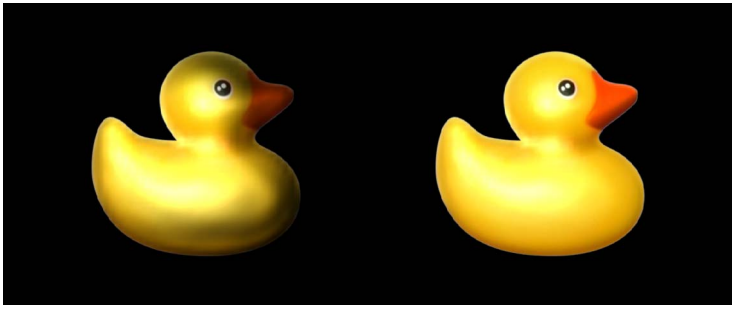
Low specular High specular

To adjust the specular highlight color of a lit material:

- From the Surfaces property editor, click the **Specular** color swatch and select a color from anywhere on the desktop. Double-click the color swatch to open the Mini Color editor.

Adjusting the Emissive Color

When a light source does not shine on a lit material, the material can emit or glow with a specific color, known as its *emissive color*. By adjusting the emissive color, an object can appear red when lit and green when not lit.



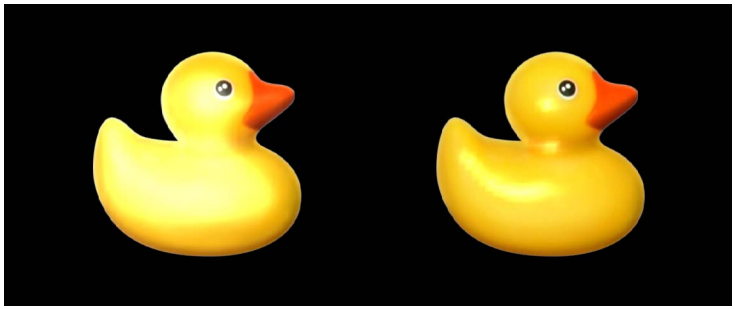
Low emissive High emissive

To adjust the emissive color of a material:

- From the Surfaces property editor, click the **Emissive** color swatch and select a color from anywhere on the desktop. Double-click the color swatch to open the Mini Color editor.

Adjusting the Shininess of a Material

When a light source shines on a lit material, you can control the material's shininess.



Low shininess High shininess

To adjust the shininess of a lit material:

- From the Surfaces property editor, adjust the **Shininess** value. Values closer to 0 simulate a very dull surface (specular highlight area is larger and the light is less focused), whereas values closer to 100 simulate a very shiny surface (specular highlight area is smaller and the light is more focused).

The Shininess value has no effect if the specular color of the material is black. For more information, see "Adjusting the Specular Highlight Color" on page 1592.

Simulating a Reflective Surface Using an Environment Map

When a surface is lit, the specular color appears on the areas of the surface closer to a light source to simulate a highlight. You can also show a texture, called an *environment map*, in the specular highlight areas of the surface. An environment map is similar to a texture in Reflection mapping mode, except that an environment map lets you show a reflection of a texture on an existing texture.

To use an environment map for a material:

- From the Surfaces property editor, select a texture from the Texture list.

To remove an environment map:

- From the Surfaces property editor, click the **R** (reset) button.

Controlling the Appearance of Overlapping Surfaces

When two surfaces of the same object or different objects overlap, the material on one surface does not affect the material on the other surface. However, you can change the appearance of overlapping surfaces by using Boolean operations. For example, you can create two different colored shapes whose intersection or overlapping areas appear in a different color.

When you use Boolean operations, note the following:

- Shadows affect surfaces that use Boolean operations, which may not produce the effect you want.
- Boolean operations do not affect the alpha channel of a scene.
- If an object intersects another object at a higher position, the Boolean operation will not be apparent. Although objects in a 3D layer are positioned in three-dimensional space, their relative depths affect the order in which they are drawn in the scene.
- Boolean operations do not produce results that appear correct when you're viewing the current layer only or when you tumble the scene.

To control how a surface's material is affected by the materials of other surfaces:

- From the Surfaces property editor, select an effect from the Overlap list.

When you use a Boolean operation on an object, the object does not appear antialiased in the viewer. Also, semitransparent surfaces appear opaque.

Boolean operation	Example	Description
Normal		The surface is not affected by other surfaces under it. This is the default setting.

Boolean operation	Example	Description
Invert		The color of each pixel under the surface is reversed or inverted. Changes to the surface's opacity and type do not affect the result. You can achieve the best results by using this effect on a solid surface.
And		The color of each pixel under the surface appears tinted. Changes to the surface's type affect the result. A solid white surface does not produce any change to the underlying surfaces. You can achieve good results using opaque solid colors, but not as good as when combining gradients or textures with other gradients or textures or using semitransparent solid colors.
Exclusive Or		The color of each pixel under the surface is reversed or inverted in a way similar to the Invert overlap effect, except that the surface's appearance affects the result. Changes to the surface's type affect the result. You can achieve good results using opaque solid colors. Results are not as good when you combine textures.

Boolean operation	Example	Description
Not Or		The color of each pixel under the surface is reversed or inverted in some combinations and tinted in other combinations. Changes to the surface's type affect the result. A solid white surface produces black. A solid black surface produces an effect similar to the Invert overlap effect. You can achieve good results using opaque solid colors. Results are not as good when you combine gradients or textures with other gradients or textures.

Positioning and Tiling a Texture on a Surface

When you first apply a texture to a surface, the texture is centered on the surface. You can, however, position (offset) the texture.

To position a texture on a surface:

- From the Surfaces property editor, adjust the **X** and **Y** values in the Offset box.

  A texture is offset from its original mapping on a surface. Texture offsets are not based on the scene's dimensions.

To tile a texture on a surface:

1. From the Surfaces property editor, select the **Tile** option.

2. From the 3D DVE/Options property editor, select the **Preferences** tab. Select the **Allow Tiling For DS Inputs** option.

If a material is tiled, the texture is repeated on all sides. Otherwise, the texture appears only once.

Scaling a Texture on a Surface

When you first apply a texture to a surface, the texture covers the entire surface. However, you can scale the texture up or down by using the controls in the Surfaces property editor.

To scale a texture on a surface:

- From the Surfaces property editor, adjust the **X** and **Y** values in the Scale box.

  A texture is scaled based on its original size, as mapped onto a surface. Texture scale factors are not based on the scene's dimensions.

***Tip**: If you reduce a texture on a surface, you can see another copy of the texture next to it if you use the Tile option.*

Cropping a Texture on a Surface

If you want to use only a region of a texture, you can crop the edges of the texture before it's mapped to the surface. Cropping is useful for removing black lines at the borders of textures captured from a video source. Cropping is equivalent to a combined action of offsetting and scaling a texture. You can do one or the other, but not both.

To crop a texture on a surface:

1. From the Surfaces property editor, click the **Texture Crop** button.

   The Crop controls are displayed.

2. In the Texture Crop box, adjust the top, left, right, and bottom values.

   The Crop values show the equivalent Offset and Scale values, and vice versa.

Rotating a Texture on a Surface

When you first apply a texture to a surface, the texture is oriented upright on the surface, based on the object's original orientation. However, you can rotate the texture around the Z axis by using the control in the Surfaces property editor.

To rotate a texture on a surface:

- From the Surfaces property editor, adjust the **Z** value in the Rotation box.

A texture is rotated based on its original orientation (no rotation), as mapped onto a surface.

Controlling How a Texture is Mapped onto a Surface

The mapping of a texture onto a surface controls how the texture is used. By changing the texture mapping, you can produce interesting effects.

To control how a texture is mapped onto a surface:

1. From the Surfaces property editor, select one of the following from the Mapping list:

Option	To
Local	Apply the texture to each object as if it were a decal
Container	Apply the texture based on the dimensions of the object. For example, you can apply a texture to a shape, but make the texture relative to the scene's dimensions. This option also allows you to apply a texture to the contents of an object, such as the characters in a text body.
Reflection	Use the surface of the object as if it were a mirror reflecting the texture (reflection map). Reflection maps are mainly used as "ambient" textures.

2. When you change a texture into a reflection map, the texture is enlarged to produce less detail in the reflection. If you want more detail from the texture in the reflection, scale down the texture using the controls in the Scale box.

Tinting a Texture

If you want to change the tone of a texture to enhance the texture or to create an interesting effect, use the tint controls in the Surfaces property editor. When a material is tinted, the base color is used as the tint color. Solid colored materials cannot be tinted.

To tint a texture:

1. From the Surfaces property editor, select the **Tint** option.
2. Select the base color.

***Tip**: Use a brown Base color to simulate sepia-toned surfaces.*

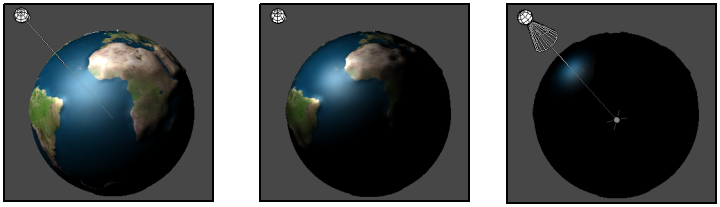
Working with Lights and Shadows

Light sources are points in three-dimensional space that emit light, causing objects (with materials that can be affected by light) to appear illuminated. You specify the location of light sources relative to objects in the scene. Light sources exist above all other objects in the scene.

Different types of light illuminate a scene in different ways.

- **Infinite**: Light source is very far away, so that the light rays are essentially parallel to each other. The sun is an example of an infinite light source; this type of light source is also known as a *directional* light.
- **Local**: The light rays extend from a single point evenly in all directions. A candle is an example of a local light source. This type of light source is also known as a *point* or *omni-directional* light.
- **Spot**: The light rays extend from a single point in a cone shape, casting light on a specific oval or circular area of an object or scene.

For local and spot lights, the intensity of the light decreases in proportion to the distance from its location.



Infinite Local Spot

Lights in Avid DS Nitris, just as in real life, help illuminate a scene, and give objects a particular look. Improper placement or adjustment of lights can cause unwanted effects and distract from the content in the scene.

To use lights effectively, place as few lights in a scene as necessary to avoid a bleached or washed-out appearance. Also, use appropriate light settings for the material you use. For example, if you use a concrete-looking material, do not make the material shiny or have a bright specular color. Concrete is not usually shiny in real life.

Adding, Moving, and Deleting Light Sources

You can add, move, and remove light sources. You can have up to eight light sources. Each light source is numbered in the viewer.

To add a light source to a scene:

1. Click the **Light** button in the 3D DVE toolbar.

   The current light sources appear in the viewer.

2. Do one of the following:

   - Hold down the Alt key and click to add a new light source.
   - Right-click above the location for a new light source, and select **Add Light**.

   A new light source appears at the pointer location. By default, the light source is a white local light.

A bright or focused spot light shining on a material may produce distinct triangular patterns on the surface of objects, known as undertessellation. To reduce this problem, change the light type, widen the size of the spot light, decrease the intensity of the light, or increase tessellation.

To move a light source:

1. Using the Light tool, select a light source.
2. Do one of the following:

   - Drag the light source to a different location.
   - From the Transform property editor, adjust the **Position** values.

   The lighting of the scene changes accordingly. However, shadows on objects do not change their offsets from their objects. You must modify the shadow offsets manually if you want to create more realistic shadow effects.

To delete a light source:

1. Using the Light tool, select a light source.
2. Right-click and select **Delete Lights** or press Delete.

Editing Light Sources

Each light source has a specific visibility, type, and color. You can change these properties and animate them over time. You can change light source properties in the Info, Transform, and Light property editors. You can adjust a light source's function curve in the animation editor.

To edit a light source:

1. Using the Light tool, select the light sources to edit by doing one of the following:
   - To select a single light source, click it.
   - To select multiple light sources, hold down the Shift key and click them.
   - To switch the selection of a light source, hold down the Ctrl key and click it.
2. From the Info, Transform, or Light property editor, adjust the light source properties. These property editors contain different sets of light source properties.

   All selected light sources use the modified properties.

Turning Light Sources On or Off

You can turn light sources on or off to make them affect or not affect the objects in the scene. Turning off a light source is the equivalent of a non-existent light source.

To turn a light source on/off:

1. Using the Light tool, select a light source.
2. Do one of the following:

   - From the Light property editor, select/deselect the **Enable Lights** option.
   - Right-click the light source and select **Enable Lights** or **Disable Lights**.

Changing the Light Type

A light source's type affects how it illuminates the scene. A light source can be an infinite, local, or spot light. For more information, see "Working with Lights and Shadows" on page 1601.

To change a light source's type:

1. Using the Light tool, select a light source.
2. Do one of the following:

- From the Light property editor, select a light type from the Type list.
- Right-click a light source and select a light type from the menu.

Using Colored Lights

By default, light sources emit a white light. However, you can change the color of the light to give lit objects a colored tint.

To change the color emitted from a light source:

1. Using the Light tool, select a light source.

2. From the Light property page, click the color swatch and select a color from anywhere on the desktop. Double-click the color swatch to open the Mini Color editor.

Changing the Intensity of a Light Source

The intensity of a light source controls how brightly it illuminates the scene.

To change the intensity of a light source:

1. Using the Light tool, select a light source.

2. From the Light property editor, adjust the **Intensity** value.

   A value of 0 produces no intensity and light is effectively disabled. A value of 100 is normal intensity. You can set the intensity to values above 100 for highly intense lights or below 0 for "negative light," where light is absent.

Positioning a Light Source

Light sources, like other objects in the scene, can exist at different locations in the scene.

To position a light source in the scene:

1. Using the Light tool, select a light source.
2. Do one of the following:

- From the Light property editor, select **Spot** as the type and adjust the **Spot Target** values.

- From the Transform property editor, adjust the **Position** values.

Adjusting Spot Light Properties

Spot lights have additional properties that you can control.

To position the target of a spot light:

1. Using the Light tool, select the spot light source.

2. From the Light property editor, adjust the **Spot Target** values.

   When you place the target of a spot light near or at the same position as the spot light itself, the light focuses on a specific area of the scene, which can cause lit materials to appear with triangular patterns on them. This problem is known as *undertessellation* and is caused by the object using the lit material not being adequately generated (subdivided into polygons) to properly create a smooth illuminated surface. For more information, see "Displaying Guides" on page 1520.

To adjust the size of the area lit by a spot light:

1. Using the Light tool, select the spot light source.
2. From the Light property editor, adjust the **Spot Size** values.

   Smaller values focus the spot light onto a small area, whereas larger values lighten a larger area.

To adjust the amount of falloff:

1. Using the Light tool, select a light source.

2. From the Light property editor, adjust the **Spot Falloff** values.

Smaller values produce little falloff, resulting in a larger, intense light region. Larger values produce a large falloff with a softer light spread.

Identifying Light Sources

By default, new light sources are assigned a generic name of "Light." Like other objects in the scene, you can change the name and attach a comment to light sources.

To change the name of a light source:

1. Using the Light tool, select a light source.
2. From the Info property editor, change the description in the **Name** text box.

   You can describe a light by its color, type, behavior, or other characteristics.
3. Change the description in the Comment text box.

Adding Shadows to Objects

Each object in a scene can include a shadow. You can control the shadow's location relative to the object and the shadow's appearance.

The location of an object's shadow in a 3D layer is controlled by the object's stacking order in the 3D DVE Layers view, not by its position along the Z axis.

A shadow is the projection of an object's outline onto a flat surface called the *shadow plane*. Shadows can be a solid color or a texture (also known as a *shadow map*).

An object's shadow can be one of the following types:

- **Drop** shadows are on the shadow plane, which is parallel to and always behind the object. Drop shadows are not affected by light sources in the scene.
- **Local** shadows are located on the shadow plane, which is either hinged to a side of the object's bounding box or parallel to the object.
- **Projected** shadows are cast from one of the light sources in the scene onto the shadow plane. By default, the shadow plane is hinged to the bottom of the scene.

Drop | Local | Projected (shadow plane and light shown)

Showing and Hiding Object Shadows

By default, objects do not cast shadows. When you use an object's shadow, you can simulate the effect of casting a shadow onto a simple plane. You do not have to light an object's surface for the object to cast a shadow.

***Tip**: Objects and text objects do not cast shadows. To cast shadows behind these objects, create a transparent shape the same size as the object, place it behind the object, and turn on the shape's shadow. If all you want is the shadow, turn off the Main material for the shape.*

To show/hide a object's shadow:

1. Using the Edit tool, select an object.

   You can use shadows for more than one object at a time.

2. From the Shadow property editor, select/deselect the **Show Shadow** option.

   By default, the object's shadow appears gray (black shadow with a 50 percent opacity) and, for drop shadows, is positioned to the lower-right of the object.

   If the characters in a static text body are casting a shadow, you may want to unclip the text body to keep the shadow from being clipped. For more information, see "Clipping Text" on page 1581.

Changing a Shadow's Location

You can easily adjust the location of an object's shadow. For drop shadows, you can adjust the offset of the shadow from the object. For local and projected shadows, you can adjust the location and orientation of the shadow plane.

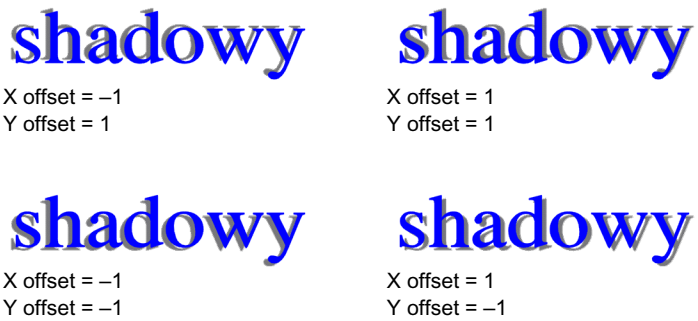
Shadows and objects cannot intersect, even if they're in a 3D layer.

To change the offset of a drop shadow:

1. Using the Edit tool, select the object that is casting a drop shadow.
2. From the Shadow property editor, adjust the **X Offset** and **Y Offset** values.

   Negative offsets move the shadow toward the left and bottom sides of the object. Positive offsets move the shadow toward the right and top sides of the object.

***Tip**: To create a drop shadow larger than an object, make a larger copy of the object whose main material is hidden, add a shadow to the copy, and move the copy behind the original.*



To change the location and orientation of local and projected shadows:

1. Using the Edit tool, select the object that's casting the local or projected shadow.
2. In the Shadow property editor, select a light source from the Projected From list.

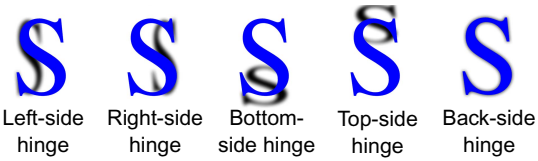
   Although all possible light sources are in the list, only those light sources actually available in the scene will produce a shadow. For example, if a scene contains three lights and you select a fourth light source, no shadow will appear. This behavior is equivalent to turning off a light source.

Light sources that are turned off still produce and affect projected shadows.

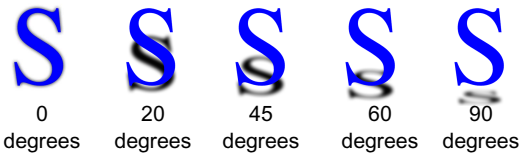
When the Light tool is active, the light sources in the scene are numbered. These numbers correspond to the light numbers in the Projected From list.

3. From the Hinge box, adjust the location and orientation of the shadow plane relative to the object by using the following controls:

   - **Side** to specify if the shadow plane is attached (hinged) to a side (left, right, bottom, top) of the object's bounding box or parallel to (back) the object.

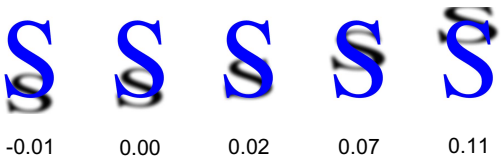


   - **Angle** to orient the shadow plane a certain number of degrees away from the object plane.



   If you set the shadow side to Back, the angle rotates the shadow around the Z axis.

   - **Offset** to position the shadow plane away from the object. For local shadows, the offset controls the distance of the shadow plane away from the hinge point. For projected shadows, the offset controls the movement of the shadow plane along global axes.



   - **Skew** to slant the shadow plane along its local X axis. Only local shadows can be skewed.

Changing a Shadow's Appearance

You can adjust the opacity, softness, color, and texture of an object's shadow.

To change the opacity of a shadow:

1. Using the Edit tool, select the object that is casting a shadow.
2. From the Shadow property editor, adjust the **Opacity** value.

   An opacity of 0 produces a completely transparent shadow, which is not very useful. An opacity of 100 produces a completely opaque shadow.

To change the softness of a shadow:

1. Using the Edit tool, select the object that is casting a shadow.
2. From the Shadow property editor, adjust the **Softness** value.

   A shadow can range from very sharp edges and corners (values closer to 0) to very soft edges and corners (values closer to 250). The softer a corner, the more rounded it appears.

***Tip**: Soft shadows of large objects take longer to render than they do for small objects. If you're working in the viewer, decrease the Shadowing quality setting to improve performance. For more information, see "Displaying Guides" on page 1520.*

To change the color of a shadow:

1. Using the Edit tool, select the object that is casting a shadow.
2. From the Shadow property editor, click the color swatch and select a color from anywhere on the desktop. Double-click the color swatch to open the Mini Color editor.

   The selected object's shadow color changes to the color you selected.

Using Shadows to Simulate Glows

Although Avid DS Nitris does not have a glow profile effect, you can use a shadow to simulate a colored glow.

To simulate a colored glow:

1. Using the Edit tool, select an object.
2. From the Shadow property editor, set the shadow properties to the following:
   - **Show shadow**: selected
   - **Type**: Drop
   - **X offset**: 0
   - **Y offset**: 0
   - **Opacity**: 50 or higher. Shadow opacity depends on the shadow color you use.
   - **Softness**: 50 or higher. The higher the softness, the longer the shadow takes to render. Use the highest level of softness required for a particular effect to reduce the rendering time.
   - **Shadow color**: Glow color. Shadow-based glows do not work well for semitransparent objects because you can see the shadow behind the semitransparent areas.

Importing and Exporting Projects

If you have projects that were created using Avid Marquee, you can import them for use in Avid DS Nitris. You can import projects that contain decks, edit objects within pages, and delete decks. You cannot, however, trim or remove pages within decks, or adjust the timing.

Projects containing decks and pages can only be imported from the standalone Marquee application.

Before you can import or export Marquee projects, you'll have to add the Import Project and Export Project buttons to the 3D DVE toolbar as they are not included in the toolbar by default. For more information, see "Customizing Toolbar Buttons" in the Help.

To import a Marquee project:

1. From the 3D DVE toolbar, click the **Import Project** button.
2. From the Load Project File dialog box, select a Marquee project, and click **OK**.

   The project is loaded in Avid DS Nitris.

To export a project:

1. From the 3D DVE toolbar, click the **Export Project** button.
2. From the Save Project File dialog box, select a folder in which to save your project, and give it a name.
3. Click **OK**.

Working with Decks and Pages

A page object lets you create transitions between different objects or collections of objects. For example, you can use page objects to cycle through several sports box scores. You can also use pages to encapsulate or group objects for easier placement in the scene or to create hierarchical behaviors, such as an object rotating in a page that also rotates. A collection or sequence of pages is called a *deck*.

A deck object defines the position, size, and overall duration of the pages within it. Each page within the deck exists for a specific part of the overall duration. As you adjust a deck object, by default, its pages and their contents scale accordingly. If you press Alt and drag the deck object, the deck's contents stay the same size. You can create gaps between pages to let the objects in lower tracks show through.

You can import projects that contain decks, edit objects within pages, and delete decks. You cannot, however, trim or remove pages within decks, or adjust the timing.

Deleting Decks

You can delete decks of pages if you no longer need them.

To delete a deck:

1. Using the Edit tool, select a deck object by clicking along its border.

***Tip**: Displaying the construction lines lets you see the borders of a deck. For more information, see "Showing Construction Lines" on page 1521.*

2. Press Delete.

Moving between Pages

When you want to create objects in a page or view a page in a deck, move to the page by changing the current time.

Objects within a page exist for the duration of the page. If you intend to animate object properties over the duration of their page, be sure to move to the start or end of the page's duration to set the starting and ending points for the animation.

To move between pages of a deck, do one of the following:

- In the transport controls, type a timecode in the Timecode Locator box and press Enter.
- Move the position indicator on the timeline.

Adding Objects to a Page

When you want to add objects to a page, you can either create them within the page's dimensions directly, or copy or move them from another page. You can also move deck objects within other page objects.

An object is not considered to be in a page unless the upper-left corner of its bounding box lies within the dimensions of the page. If an object is not moving along with its page, you must move the object to the page.

When you copy or move objects between pages, their locations, sizes, and orientations are retained.

You can create hierarchical behaviors by placing a deck in a page of another deck (by cutting or copying the deck into the page of another deck). For example, as a deck rotates, a shape can rotate in a page of a deck.

To copy or move an object between pages:

1. Using the Edit tool, select an object.
2. Select **Edit** and one of the following:
   - **Copy** to copy the object.
   - **Cut** to move the object.
3. Click in the page on which you want to place the object.
4. Select **Edit > Paste**.

Editing Objects within a Page

You can edit a page's objects as you would any other object in the viewer. You may need to move to the page's position in time or zoom in to make it easier to edit objects.

Resizing a Deck

When you want to change the size of a page, you can modify the dimensions of the page's deck. All pages in the deck use the same dimensions. You can either scale the deck and its contents, or resize the deck to keep the contents.

To scale a deck and its contents:

1. Using the Edit tool, select a deck.
2. Drag one of the deck's bounding box handles.

   The deck and its pages change to the new dimensions.

Original deck

Scaled-down deck

To resize a deck, keeping the deck's contents the same size:

1. Using the Edit tool, select a deck.
2. Hold down the Alt key and drag one of the deck's bounding box handles.

   The deck changes to the new dimensions, but the contents stay centered in the deck.

Setting the Output Options

The rendering process usually involves a trade-off between rendering speed and image quality. This section provides some useful tips to consider when rendering. Here is a suggested workflow for you to consider:

1. While working in a 3D DVE session, work in the Direct View mode if you don't need to see all the others effects in your sequence. This eliminates the need to process all the effects in your sequence. Also, use low quality viewer settings and suspend output to the output monitor when creating a scene in the Direct View mode—see "Working in Direct View Mode" on page 1519.

The Low quality setting for the viewer produces aliased results. However, Low quality for rendering produces antialiased results. To work more quickly, suspend output to the output monitor.

2. Once you're ready to preview your work, use low quality settings to preview animation or text.
3. Next, preview a high-quality single frame by outputting.
4. And finally, when you're ready to do the final output, set the quality options to high.

To set the quality level:

1. From the 3D DVE/Options property editor, select the **Direct View** tab.
2. Adjust any of the following properties that affect the quality of objects rendered in the viewer:
   - From the Antialiasing list, select one of the following:
     - **None** to apply no antialiasing. This setting produces jagged or aliased edges.
     - **Fast 2D** to draw flat objects.
   - **Texturing** to control the quality of textured surfaces in proportion to the time required to render the texture onto the surface.
   - **Lighting** to control the quality of lit surfaces.
   - **Tessellation** to control the smoothness or approximation of curved edges on characters and shapes.
   - **Shadowing** to control the quality of soft shadows.

- **Motion Blur** to apply a motion blur on fast moving objects.

Dampening Jittery Text

At certain speeds, small text that scrolls vertically can sometimes appear to jitter. This is noticeable along the top and bottom edges of the scrolling characters.

To dampen the effect of jittery text that scrolls vertically:

1. From the 3D DVE/Options property editor, select the **Output** tab.
2. Select the **Suppress Vertical Jitter** option.

   A one-pixel blur is applied to the text to soften the jitter.

If the text is not moving vertically or if no jitter exists, you should not use the jitter suppression option.

Chapter 10
Image Effects

Image effects encompass a wide variety of effects that you can apply to video clips, tracks, layers, and trees. These include blur, fade-in, fade-out, and noise, to name a few. For descriptions of all other image effects, see “Image Effects Reference” in the Help.

An image effect is a type of effect that you can apply to video clips, tracks, or Effects Trees. Image effects also include the Impressionist, Painterly, and source generator effects.

3D Warp Effect

The 3D Warp effect lets you create your own 3D scenes in SOFTIMAGE®|3D and load them into Avid DS Nitris. You can apply the 3D Warp effect to clips, tracks, transitions, trees, or as a source generator.

Avid DS Nitris provides a set of 3D animated scenes, such as page turns and a melting screen. Depending on how you created your 3D scene in SOFTIMAGE|3D, you can adjust some scene properties from within Avid DS Nitris. Adjustable parameters are displayed on the Generic property page of the 3D Warp effect.

Applying a 3D Warp effect to clips or tracks lets you composite clips together, so that you can display an image over a specified duration using a warp effect, such as a shatter or folding sphere. If you are creating a simple composite, you can create the 3D Warp effect on a background track in the Editing layout.

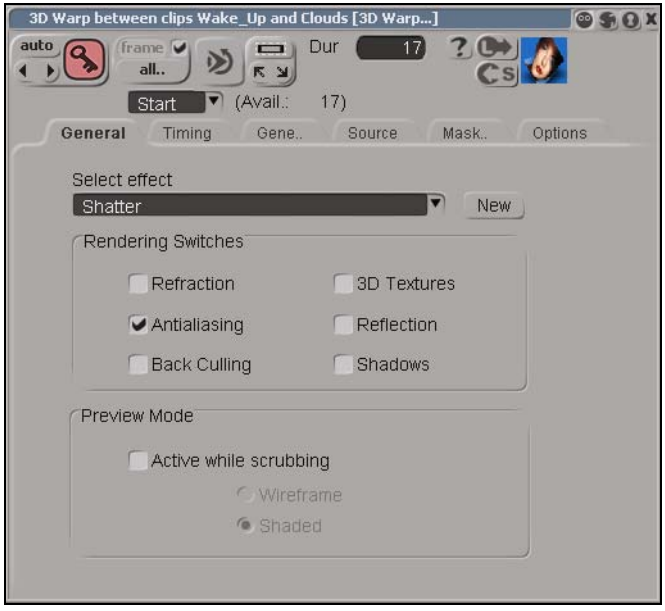
Applying a 3D Warp effect as a transition lets you change from one clip to another using a warp effect, such as a page turn.

When you process the 3D Warp effect in Avid DS Nitris, you create the final aspect of the 3D scene's material definition by processing objects' surfaces with respect to the light source. This creates a visible surface that is shaded according to the parameters set for material and texture attributes.

***Tip**: To increase performance, work in a lower resolution.*

To use the 3D Warp effect:

1. Apply the **3D Warp** effect to a clip, track, tree, as a transition, or generate a clip using this effect—see "Generating a 3D Warp Clip" on page 1623.



If you applied 3D Warp as a transition, the Source property page appears in the property editor.

2. On the General property page, select an effect from the **Select Effect** list.
3. In the Rendering Switches box, select a rendering switch.

   The rendering switches provide a quick method to turn on/off the global parameters used in your 3D scene.
4. In the Preview Mode box, select the following:
   - **Active while scrubbing** to see the results in the viewer as you scrub the position indicator on the timeline.
   - **Wireframe** to see the outline of the 3D Warp effect.
   - **Shaded** to see the shaded view of the 3D Warp effect.

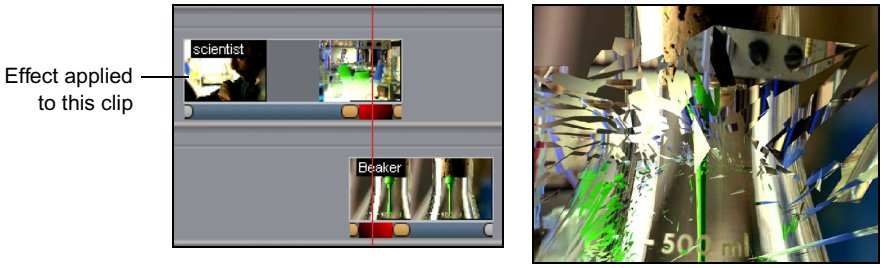
5. If you applied the effect as a transition, set the edit point to the **Start**, **End**, or **Center** of the transition at the top of the property editor. You can also specify the exact number of frames for the **Dur** (duration) of the transition.
6. On the Timing property page, adjust the **In** and **Out** values.

   On occasion, the rendered 3D scene may not have the same quality as the original image in Avid DS Nitris. This can be due to different lighting, antialiasing, etc., applied to the 3D scene in SOFTIMAGE|3D. To compensate for the quality change, you can dissolve the first and last frames of the original image into the 3D scene in Avid DS Nitris over a duration of frames. You can use the In and Out controls. This creates a smoother transition between the original image and the 3D scene.

   Adjusting the In and Out values modifies the value in the Amount box, as well as the function curve.
7. On the Generic property page, adjust the 3D scene properties as required.

8. If you applied the 3D Warp effect as a transition, select the **Source** tab and do the following:
   - Use the **Opacity** controls to adjust the opacity of the effect. Lower values create a transparent effect and higher values create an opaque effect.
   - From the Source box, select one of the following:
   - **To** to apply the effect to the clip in which the transition is coming from.

     For example, if you apply the Shatter effect as a transition, the clip that you are coming from will shatter into the clip that you are going to, leaving the clip that you are going to at the end of the effect.



- **From** to apply the effect to the clip to which the transition is going.

  The clip that you are going will shatter into the clip that you are coming from, leaving the clip that you are coming from at the end of the effect.

Click the Help button for detailed information on the 3D Warp properties.

Generating a 3D Warp Clip

You can generate a clip with a 3D scene using the 3D Warp effect.

To generate a clip with the 3D Warp effect:

1. On the timeline, select the region on which to generate a clip.
2. From the toolbar, click **Generate > Source Generator Clip**.

   The Load Preset dialog box is displayed.
3. From the \Source Generators folder, select the **3D Warp** effect.

   A 3D Warp clip is generated on the timeline and the 3D Warp property editor is displayed.

4. On the General property page, click **New** to load a 3D scene as a source generator—see "Loading a New 3D Warp Effect" on page 1624.
5. In the New Effect dialog box, load a new 3D Warp effect.

Loading a New 3D Warp Effect

Once you apply the 3D Warp effect, you can load a new 3D scene that was created in SOFTIMAGE|3D to be used as a 3D Warp effect.

To load a 3D scene:

1. In the 3D Warp property editor, select the **General** tab.
2. Click the **New** button.

   The New Effect dialog box is displayed.
3. Select an **Effect Category**. You can select **Transition**, **Effect**, **Source**, or all three categories, depending on how the 3D scene was created in SOFTIMAGE|3D.

   Selecting multiple categories will add the effect as multiple entries in the warpnames.lst file in the \Program Files\Avid\DS_v7.x\DSSystem\effectsfiles folder. This folder is on the drive on which you installed Avid DS Nitris.

   For example, if you selected Transition and Effect, you can load the new effect from the Select Effect list when you apply the 3D Warp effect as a transition or effect. However, the new effect name will not appear in the Select Effect list if you apply the 3D Warp effect as a source generator because this option was not selected.
4. Click the **Browse** button.
5. In the Open dialog box, locate the folder that contains the 3D scene and select it.
6. Click the **Open** button.

   The Path Name and Scene Name fields in the New Effect dialog box are updated to reflect your selection.
7. Type a name in the **Effect Name** box.
8. In the New Effect dialog box, click **OK**.

   The new 3D Warp effect is applied. The next time you apply a 3D Warp effect, this new effect will be available in the Select Effect list.

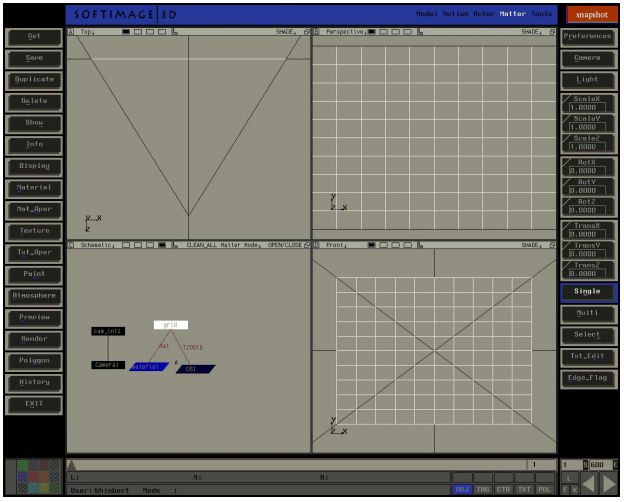
Creating 3D Warp Effects in SOFTIMAGE|3D

You can create your own 3D warp effects in SOFTIMAGE|3D and load them into Avid DS Nitris to be used as a clip/track effect, source generator, or transition. Two scene templates, template-grid.1-0.dsc and template-lights.1-0.dsc, are included on the Avid DS Nitris CD that form the basis of most of your 3D warp effects. A third template, tutorial-grid.1-0.dsc, demonstrates how to create expressions that control an object's size from within Avid DS Nitris.

While you don't have to use these templates together, you will always use the grid template, as this is the starting point for your 3D scene. With these templates, you can easily adjust parameters to create your own effects.

Template-grid.1-0.dsc

As its name implies, this is a grid template that you use to create a 3D scene. It was created using very specific parameters to correctly match the 3D scene to the image in Avid DS Nitris.



Using this template, you can create three kinds of effects for Avid DS Nitris:

- Clip or track effects

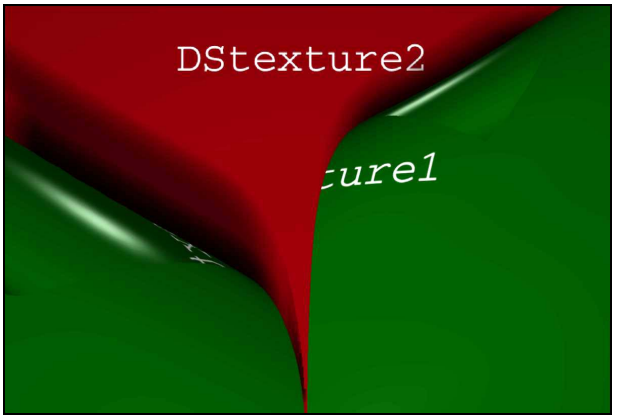
These types of effects only require one video input in Avid DS Nitris. The 3D scene is keyed over the clip that is used as the background. When you create the 3D scene for these types of effects, use one grid with a texture.

- Source generators

  This type of effect requires no video input in Avid DS Nitris, as the clip you generate is considered the video input. When you create the 3D scene for this type of effect, use one grid with a texture. However, if you simply want to import a 3D scene into Avid DS Nitris, you don't need a grid or a texture.

- Transition effects

  This type of effect requires two video inputs in Avid DS Nitris: the foreground and background. When you create the 3D scene for this type of effect, make sure you copy the grid and apply two individual textures, one to each grid. Both the foreground and background planes are rendered in SOFTIMAGE|3D.



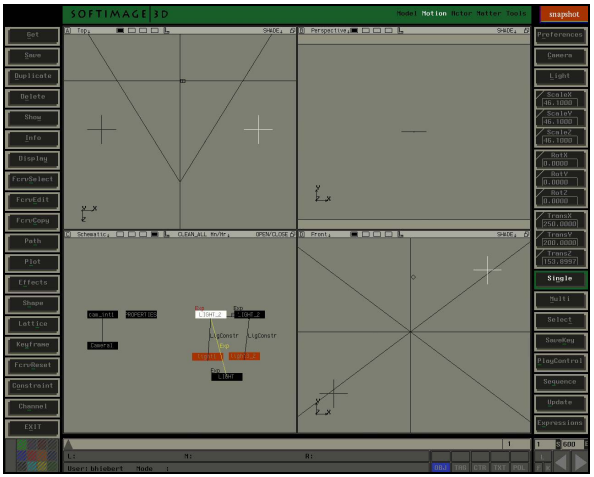
To preserve the alignment at the start of the effect between the 3D scene and the image in Avid DS Nitris, you should *not* adjust the following:

- Camera
- Grid size or position
- Animation applied to the ambient and diffuse properties of the first frame

Template-lights.1-0.dsc

The template-lights.1-0.dsc template shows you how to expose parameters used in SOFTIMAGE|3D from within Avid DS Nitris. You don't have to use this template, but it provides a good example of how to expose light position parameters in Avid DS Nitris.

You can use the template to position key and fill lights for your scene, and to see how the expressions were created. Each expression you create provides access to those parameters in Avid DS Nitris. You can add your own expressions to control anything in SOFTIMAGE|3D that can be controlled by an expression.



Tutorial-grid.1-0.dsc

The tutorial-grid.1-0.dsc template provides a simple example of how to expose controls in Avid DS Nitris that control an object's size. You can explore how local variables in an expression interact with the model note.

Linking the Database

In order to work with the scenes included with the Avid DS Nitris CD, you should link to the database in the \Profiles\Avid\DS_v7.x\DSSystem\SoftDB folder (on the drive on which Avid DS Nitris is installed). Before linking the database, you must share the database from your Avid DS Nitris system. This will prevent potential problems which may arise in SOFTIMAGE|3D because of spaces in the names of the SoftDB parent directories.

To link to the SoftDB database:

1. Locate the SoftDB database in the \Program Files\Avid\DS_v7.x\DSSystem\SoftDB folder and share it.
2. In SOFTIMAGE|3D, open DB Manager.
3. Click the **Link DB** button.

   The Set Database dialog box is displayed.
4. Click **Path Browser** and navigate to the SoftDB database on your Avid DS Nitris system.

5. Click **OK** to return to the Set Database dialog box.

   The path of the database is displayed in the Path text box and the name "SoftDB" is displayed in the name box.

6. Click the **Link** button.

   You can now open the scene in SOFTIMAGE|3D and create your own 3D Warp effects.

Using the Grid Template

Since the grid template was designed to be used as a transition, animation has been applied to the grid texture's ambient and diffuse properties on the first frame. This creates the effect of a 3D transition into another clip, without requiring animation on the last frame. If you want to use this scene as a clip or track effect, add animation to the last frame.

To create a 3D scene for a warp effect:

1. In SOFTIMAGE|3D, select **Get > Scene** and open **template-grid.1-0.dsc**.

   This scene sets the proper size, lighting, and material for the effect. The grid also consists of a single texture that has been animated as a fade.

***Tip**: You can only use the standard SOFTIMAGE|3D renderer to process the animated grid.*

2. If you are creating a scene that requires two video inputs in Avid DS Nitris, such as a transition, copy the grid.

   The grid is duplicated and DSTexture1 is applied to the grid.

3. Open the Texture Editor.
4. Replace **DSTexture1** with **DSTexture2**.
5. Create your 3D scene.

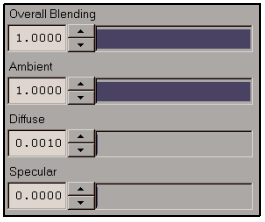
***Tip**: Do not adjust the camera settings as they've already been set so the 3D scene and the image in Avid DS Nitris align correctly.*

6. The grid's texture has been animated as a fade. If you are creating the 3D scene for use as a clip or track effect, copy the animation on the first frame and apply it, reversed, to the last frame.

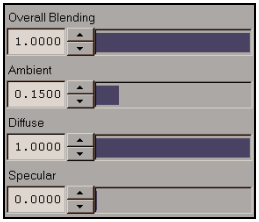
The grid's texture properties change the way that the texture is displayed. It starts as a flat 2D image and changes to one with 3D highlights. You can extend this animation to create different effects.

These are the current settings:

Texture's animation

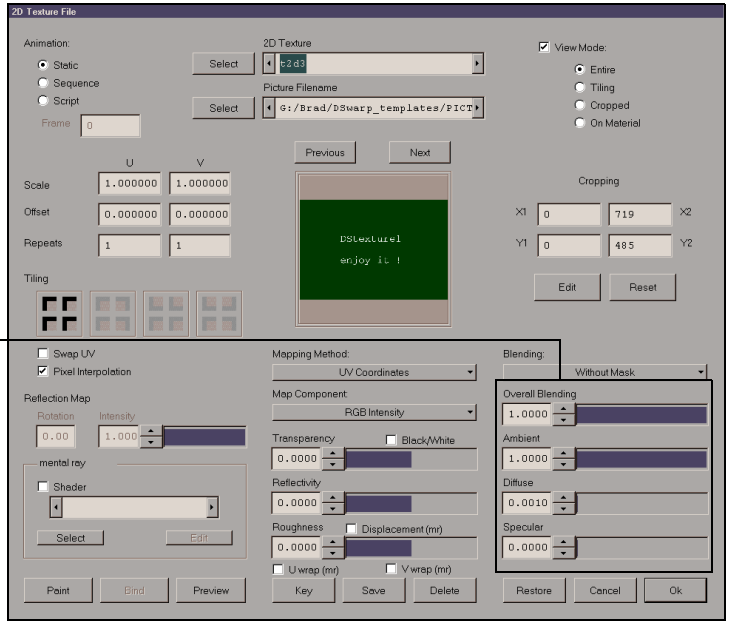


Flat (before)



3D shiny (after)

Grid texture



Using the Light Template

The light template contains four main objects:

- An input light source (input4light).
- Two nulls with expressions (Key Light and Fill Light).

  You can interactively reposition the lights in the Z axis, but you must edit the expression controlling the lights to edit their position in the X or Y axis. The current position is simply a starting point for you. Each null contains an expression that defines properties that you can control from within Avid DS Nitris.
- A null that has a model note (WARP_PROPERTIES).

  The model note lets you define the properties you can change from within Avid DS Nitris. The main purpose of this template is to show you how to create a model note.

To use the light template:

1. Open a 3D scene.
2. Select **Get > Scene** and open **template-lights.1-0.dsc**.
3. Edit or add your own expressions.

   For more information on editing and creating expressions, refer to the SOFTIMAGE|3D documentation.

Expression Editor

4. Edit the model note.

***Tip**: Each time you create a new WARP_PROPERTIES null, be sure to add a unique prefix. If you try to save a second null with the same name, SOFTIMAGE|3D adds "_1" to the end of the name. If the name has been appended, then the variables will not be accessible from within Avid DS Nitris.*

Editing the Model Note

The WARP_PROPERTIES null holds the properties that Avid DS Nitris will expose to the user. As you add expressions to your scene, you need to add its corresponding text string in the model note file. Each text string you create will be exposed as a control in Avid DS Nitris.

***Tip**: It is imperative that you do not change the name of the model note. When Avid DS Nitris loads the scene, it looks for a model note on an object named "WARP_PROPERTIES". You should, however, add a descriptive prefix to the name, such as "LIGHTS".*

To open the model note:

- Select **Model > Info > Model Note**, and left-click the null WARP_PROPERTIES.

The model note text file is displayed. The file can contain many text strings, depending on the type of expressions you create. Each string must begin with WARP_PROPERTY and end with END_PROPERTY. Everything in between are variables that depend on the type of expression you create.

For example, the model note for the light template only required one string to expose the lighting position control in Avid DS Nitris:

```
WARP_PROPERTY,"LIGHTPOSITION",INPUT4,LIGHT,ETRNX,A,FLOAT,
1,9,END_PROPERTY
```

***Tip**: When editing and appending the model note, make sure you don't inadvertently add spaces where there should not be any. Otherwise the variables will not be accessible from within Avid DS Nitris.*

The following table describes each parameter of the string above:

Variable	Description
WARP_PROPERTY	Each text string must begin with this tag.
LIGHTPOSITION	The name of the scene variable as it appears in Avid DS Nitris.
INPUT4	Prefix name of the object being affected by the expression.
LIGHT	Name of the object being affected.
ETRNX	The variable being affected.
A	Local variable in the expression.
FLOAT, BOOL, INT	Lets you define the type of numbering that will control the variable. FLOAT: Defines a range from 1 to 9 including decimals. In the light template, these numbers correspond to the numeric keypad on your keyboard. Each number defines a new position for the light source. BOOL: Defines an on or off type of variable (1 or 0). INT: Defines an integer range from 1 to 9 excluding decimals.
1	The lowest number that controls the variable.

Variable	Description
9	The highest number that controls the variable.
END_PROPERTY	Each text string must end with this tag.

You can also open the tutorial-grid.1-0.dsc file and view the model note for this scene. It contains text strings for two controls that will be accessible from Avid DS Nitris (scaling for X and scaling for Y).

***Tip**: Avid DS Nitris can only access the local variables of an expression (A, B, C, or D). Therefore, only the variables that you want the Avid DS Nitris user to have control over must be controlled by the local variables in the expression.*

Saving Your 3D Scene

Once you complete your 3D scene, be sure to save it in the SoftDB database installed with your Avid DS Nitris system.

***Tip**: Before you save the scene in the database, you should simplify it by removing shaders and unnecessary objects to improve performance in Avid DS Nitris.*

You should also plot the animation (trajectory, rotation, shade, and other properties) from the Motion module, and then remove any Persistent effects developed with the Softimage Advanced API for Relations and Elements (SAPPHIRE), such as Ambulate, Multiped, Kaboom, as well as any other custom effects.

To save a 3D scene into the Avid DS Nitris database:

1. Select **Save > Scene**.
2. In the Save Scene dialog box, click the **DB List** button.
3. Navigate to the database on your Avid DS Nitris system.
4. Name the scene (use a different name than that of the scene template).

   Be sure to rename both the prefix and the scene name.
5. Click the **Save** button.

   The scene is saved in the SoftDB database.

AVX Host Effect

The AVX™ Host effect lets you load AVX plug-in effects and adjust the effect's parameters. Depending on the type of plug-in effect, you can also choose to animate various parameters.

You can apply an AVX Host effect to clips, tracks, trees, or as a transition. Depending on how you apply it, only certain effects may be available. For example, if you apply the AVX Host effect as a transition, only transition effects are available.

If you haven't installed any AVX plug-in effects, then the Group/Category and Effect lists on the Generic property page are blank.

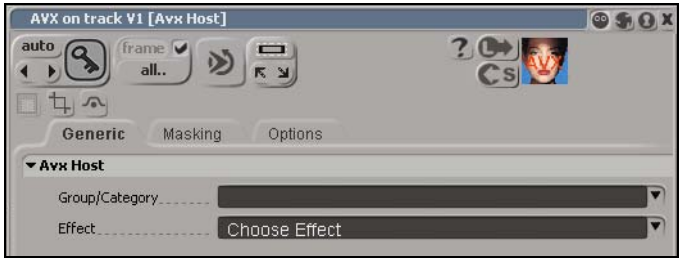
***Tip**: Consult the vendor's documentation on how to install and uninstall an AVX plug-in effect. If you are uninstalling Avid DS Nitris, be sure to uninstall all AVX plug-ins first.*

To apply an AVX plug-in effect:

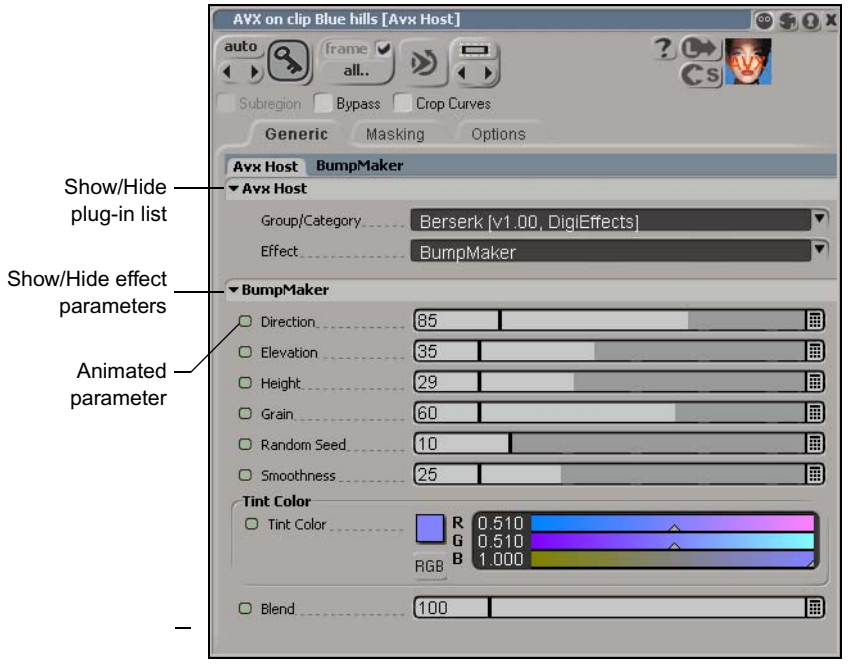
1. Apply the **AVX Host** effect to a clip, track, tree, or as a transition.

   The AVX Host property editor is displayed.

2. On the Generic property page, choose a **Group/Category** and an **Effect**.



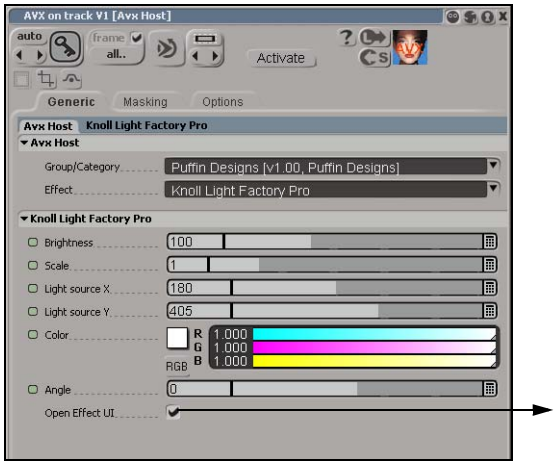
The Group/Category box displays the list of AVX plug-in effects, by vendor or group name, that are currently installed. The Effects box displays the names of the effects available for the selected group.



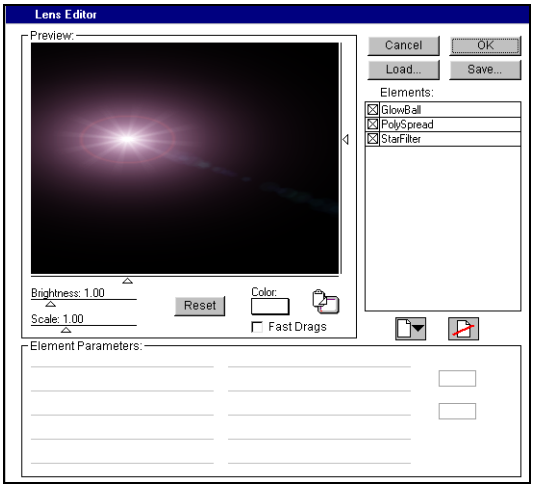
After you choose an effect from the list, its parameters are displayed in the property editor.

When you see a green box beside a parameter, it means that you can animate the parameter. Simply set the parameter, press the green animation button, move to the next keyframe and change the parameter, and then press the button again. The button turns red to indicate that the parameter was animated.

In some cases, the effect's property page may also contain an Open Effect UI button, which lets you open a new interface for the effect.



Select the Open Effect UI option.



New Interface is displayed.

3. On the Masking property page, select the channels on which you want to apply the effect. The effect is applied only to areas of the image on which the alpha channel is not black. You can derive masks from the alpha of the input clip or an external matte from another clip.
4. On the Options property page, select the appropriate options.

Click the Help button for detailed information on the AVX properties.

Channel Switcher Effect

The Channel Switcher effect lets you map the selected source channels (components) of an image to other (destination) channels. This effect is useful, for example, if you want to output the alpha channel of an image as an RGB image, or if you simply want to switch one channel to another.

***Tip**: If the RGB destination channels all have the same source channel, the result is a grayscale image.*

To apply the Channel Switcher effect:

1. Apply the **Channel Switcher** effect to a clip, track, layer, or tree.
2. On the General property page, select the source channels you want to map to the destination red, green, blue, and/or alpha channels.
3. On the Masking property page, select the channels on which you want to apply the effect. The effect is applied only to areas of the image where the alpha channel is not black. You can derive masks from the alpha of the input clip or an external matte from another clip.
4. On the Options property page, select the appropriate options.

Click the Help button for detailed information on the Channel Switcher properties.

Color Space Adjustment Effect

The Color Space Adjustment effect lets you convert areas of a clip from YCbCr to RGB color space by adjusting the difference in color levels that can occur due to YCbCr to RGB conversion. When you import clips into Avid DS Nitris, they are imported in YCbCr color space. However, when you apply some effects or transitions, all or part of the clip may be converted to RGB color space.

If only part of the clip is converted to RGB and the rest remains as YCbCr, it can cause a difference in the clip's levels (luminance or saturation) in areas that have the effect, compared to areas that don't. This is due to the color space clipping that occurs when converting from the YCbCr to the smaller RGB color space. If you notice a difference in the clip's levels, apply the Color Space Adjustment effect to the area of the clip that requires RGB conversion.

To adjust a clip's color space:

1. Apply the **Color Space Adjustment** effect to a clip, track, or tree.
2. On the General property page, select one of the following:
   - **Clip** to adjust the Y, U, and V channels.
   - **Adjust** to change the brightness and gain of the Y channel. Use the slider to adjust the chrominance or luminance of colors that are out of range. Higher values affect more chrominance and less luminance and vice versa.
3. Select the **Highlight** option to view the pixels that are out of range:
   - Red areas indicate pixels that are over the RGB limit.
   - Green areas indicate pixels that are under the RGB limit.
   - Blue areas indicate pixels that contain illegal YCbCr values.
4. On the Masking property page, select the channels on which you want to apply the effect. The effect is applied only to areas of the image where the alpha channel is not black. You can derive masks from the alpha of the input clip or an external matte from another clip.
5. On the Options property page, select the appropriate options.

Defield Effect

The Defield effect lets you remove the field motion of an input in order to create a frame-based output. You can apply the Defield effect to clips, tracks, or trees.

Since the Defield effect is a real-time effect, you can view the results upon playback without having to first process the effect. For more information, see "Working with Real-Time Effects" on page 898.

To use the Defield effect:

1. Apply the **Defield** effect to a clip, track, or tree.
2. On the General property page, select a mode in which to remove field motion.
3. On the Masking property page, decide whether you want to use a mask for the effect or not—see "Working with Masks" on page 1147.

***Tip**: Channel masking is not available for this effect.*

Click the Help button for detailed information on the Defield properties.

Deflicker Effect

The Deflicker effect lets you correct the luminance variations in a clip, which can vary between frames, producing undesirable flickering. You can balance the flickering by normalizing either the black or white luminance levels or both.

In the following example, you can see the difference in the luminance levels between the two images. Using the Deflicker effect, you can choose a frame in which the luminance levels are correct and apply the levels to the rest of the frames in the clip.

Original images: Lighter luminance levels in the left image and darker luminance levels in the middle image.

Deflicker effect

To use the Deflicker effect:

1. Apply the **Deflicker** effect to a clip, track, or tree.

   A small selection rectangle (the luminance box) appears on the lower-left side of the viewer.

2. Scrub through the clip and select a frame that has the desired luminance levels.
3. On the Black property page, position the luminance box over an area that contains the level of black to which you want to normalize the clip.

***Tip**: You can also draw a new luminance box in the viewer by clicking the viewer and dragging over an area.*

4. Click the **Set as Reference Frame** button.

   The black luminance is set, and the property editor displays the reference luminance swatch, as well as the timecode for the chosen frame.

5. Verify each frame in the clip to determine if the luminance box is in the correct position. If the area you set for the reference frame moves from frame to frame, you need to move the luminance box in each frame, so it covers the same area.

6. Set a keyframe on the frames on which you reposition the luminance box.

***Tip**: You can also use the Autokey button when you adjust the luminance box on various frames, which automatically adds a keyframe on the frame on which you reposition the box.*

7. Repeat steps 2 to 6 for the **White** property page, if required.

8. On the Masking property page, select the channels on which you want to apply the effect.

   The effect is applied only to areas of the image where the alpha channel is not black. You can derive masks from the alpha of the input clip or an external matte from another clip.

9. On the Options property page, select the appropriate options.

Click the Help button for detailed information on the Deflicker properties.

Depth of Field Effect

The Depth of Field effect lets you simulate the effect of a camera lens using the Z-depth information contained in files rendered in SOFTIMAGE|3D or mental ray®.

In an actual camera, the focal length of the lens defines the distance at which objects appear perfectly focused. Points that are closer or farther away from this distance plane will be out of focus.

This effect lets you create a scene where objects appear in focus in the foreground and blurred in the background. You can also animate the effect to simulate a change in the focus.

Original image

Depth of Field effect.
The background is blurred.

To use the Depth of Field effect:

1. Render your sequence in SOFTIMAGE|3D, making sure that you select the **Render Z Channel** option in **Render Setup > Options**.

***Tip**: Render the sequence in the same resolution of the Avid DS Nitris project in which you'll import the sequence.*

2. Capture the .pic file sequence in Avid DS Nitris.

   The .Zpic files are loaded through the effects, so you can only capture the .pic files.

3. Apply the Depth of Field effect to a clip, track, or tree.

   The Depth of Field property editor is displayed.

4. On the External Data property page, click the **Browse** button, and double-click one of the .Zpic files.

   The file name is displayed in the File Path field.

5. In the Frame Range boxes, type in the start and end frames of your sequence.

   The message “External Data Loaded” is displayed on the property page.

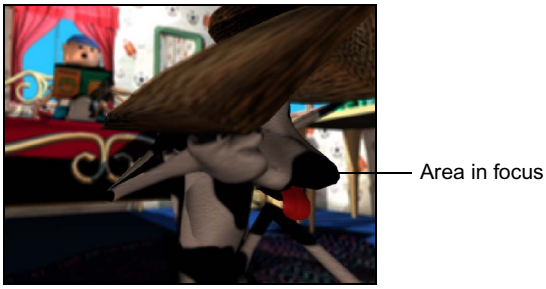
***Tip**: If you don’t enter the start and end frames, an error message is displayed on the property page.*

6. In the Resolution boxes, type the resolution that matches that of the working project. The status line at the bottom of the property page confirms that the external data has been loaded correctly. If the external data does not load correctly, one of the following messages appears in the status line:

Message	Description
External Data Loaded	All data has been loaded successfully for this frame.
No External Data Loaded	No file name has been entered and no data has been loaded.
Error - Data File incorrect size	The resolution of the data file does not match the resolution specified in the property page.
Error - File not found; *<file name>*	Avid DS Nitris is unable to load the data file. The file cannot be found.

7. On the Depth of Field property page, click the **Pick** button and then click an object in the viewer.

   This lets you choose an area that should be in focus. The Focus Plane parameter updates to display your selection. You can also adjust the Focus Plane manually.



8. Set the **Focal Length**.

   The focal length represents the length of the simulated lens. A lens with a short focal length will give more depth of field than one with a longer length.

9. Set the **Aperture (F-stop)**, the relative aperture size of the simulated camera. A low aperture value produces a shallow depth of field where a plane appears sharply in focus and all other planes appear blurred. A high value gives a greater depth of field and objects in both the foreground and background appear in focus.
10. Adjust the **Strength** to set the scaling factor of the pixel size of the Circle of Confusion.
11. Adjust the **Antialiasing** define the level of smoothing of jagged edges along lines and curves. This parameter is useful when you have two or more objects that have large differences in depth and jagged edges appear where the object intersect.
12. Adjust the **Circle of Confusion** to define the maximum value that any pixel will be blurred into the surrounding pixels (for out of focus planes).
13. On the Masking property page, select the channels on which you want to apply the effect. The effect is applied only to areas of the image where the alpha channel is not black. You can derive masks from the alpha of the input clip or an external matte from another clip.
14. On the Options property page, select the appropriate options.

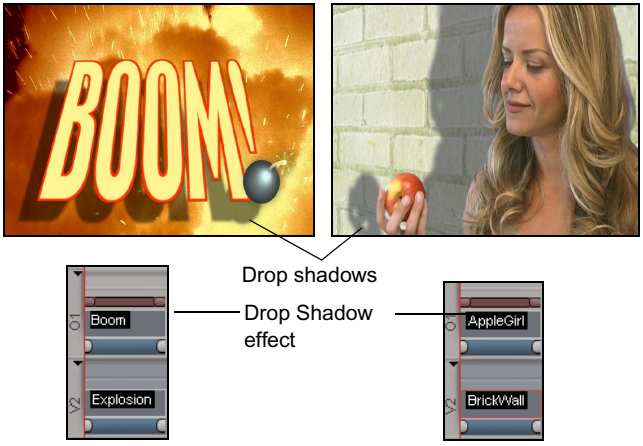
Click the Help button for detailed information on the Depth of Field properties.

Drop Shadow Effect

The Drop Shadow effect lets you place a shadow behind an image wherever the alpha value is greater than 1, as well as create a drop shadow for any image or text that contains alpha information.

The shape of the drop shadow comes from the alpha information, or matte, in your image. If required, you can generate or modify the matte using graphics or keyers.

You can move, scale, and rotate the shadow using standard DVE tools. This is useful when you want to cast a shadow on a surface that is not parallel to the image, such as when you want to cast a shadow on a side wall. You can also change its color and transparency, as well as modify its softness to give it a more realistic appearance.



Because the Drop Shadow effect simulates a shadow cast on a background, you should apply it to an image on the background track or an image in a composite.

You can also animate the drop shadow to create the impression of a changing light source. For example, if you want the price of a product to jump towards you, first, create the text and then animate it. You can then create a drop shadow of the text and animate its softness, position, and scale so that the shadow becomes blurred and distant as the clip advances and the text jumps off the screen.

For more information, see "About Keying" on page 1218 and *"Creating a Matte on the Timeline" on page 1139*.

To create a drop shadow:

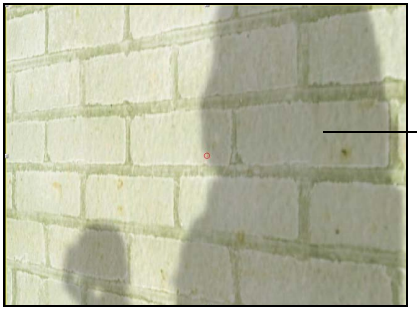
1. Apply the **Drop Shadow** effect to a clip, track, or tree.

   A drop shadow is created and the Drop Shadow property editor is displayed. In the viewer, a yellow DVE image box lets you transform the drop shadow interactively.

2. From the Output box, select the **Shadow Only** option from the output box if you want to hide the foreground and reveal the shadow in the viewer.

***Tip**: By default, the Shadow + Foreground option is selected, allowing you to view the image and its shadow.*

3. Use the **Opacity** controls to adjust the transparency of the shadow.
4. From the Softness box, use the **Amount** controls to adjust the strength of the blur applied to the shadow.
5. Select the **Fast** option for faster interaction speed.

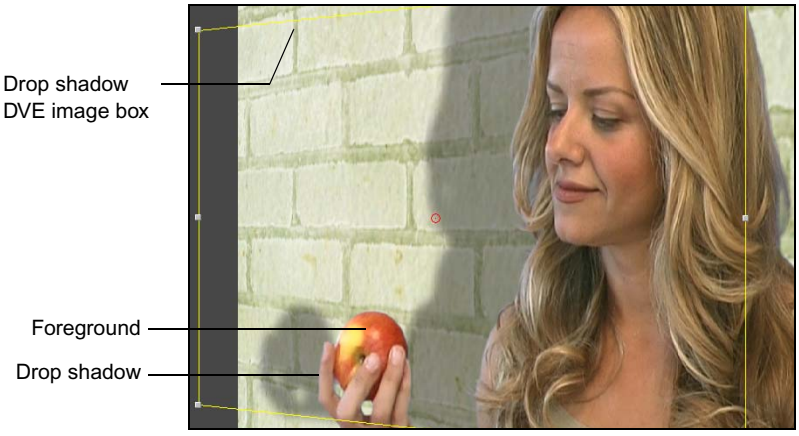


6. From the Output box, select the **Shadow + Foreground** option, so you can see the foreground while you adjust the shadow further.
7. On the DVE property page, use the DVE controls to position, scale and rotate the shadow. You can work interactively with the image, by moving your pointer over the viewer.

***Tip**: In some cases, you may want to "pin" the shadow to a particular point, so that when you rotate the shadow, it rotates around a fixed position. For example, when a shadow is cast from a person, you may want to pin the shadow to the person's feet. To do this, simply move the center of rotation (red*

circle) to the area (feet) on which you want to pin the shadow. Any image scaling will also be performed around the new position of the center of rotation.

In the viewer, the shadow is transformed while the original foreground remains intact.



8. If you rotate the shadow around the Y axis, use the **Perspective** controls to adjust the field of view.
9. On the Color property page, adjust the color of the shadow. You can select a color from the palette or use the controls.
10. On the Crop property page, use the controls to crop the shadow.

    The shadow image is cropped while the original foreground remains intact.

***Tip**: You can also drag the yellow box in the viewer to crop the shadow.*

11. On the Options property page, select the appropriate options.

Click the Help button for detailed information on the Drop Shadow properties.

Field Invert Effect

The Field Invert effect lets you invert an input's fields, so that even lines become odd and vice versa. You can also preserve the line order when you invert the fields. You can apply the Field Invert effect to clips, tracks, or trees.

Since the Field Invert effect is a real-time effect, you can view the results upon playback without having to first process the effect. In some cases, real-time effects may require processing to ensure that no frames are skipped. For more information, see "Working with Real-Time Effects" on page 898.

To use the Field Invert effect:

1. Apply the **Field Invert** effect to a clip, track, or tree.
2. On the General property page, select the **Preserve Line Order** option if you want to preserve the order of the lines.

   When you select this option, the order of the lines is preserved, but the fields are swapped by applying a one-line translation. When this option is not selected (default), the lines are simply swapped, inverting the fields as well as the lines.
3. On the Masking property page, decide whether you want to use a mask for the effect—see "Working with Masks" on page 1147.

***Tip**: Channel masking is not available for this effect.*

Click the Help button for detailed information on the Field Invert properties.

Fog Effect

The Fog effect lets you add atmospheric fog to an animated scene. You can specify a gradual onset of the fog, so that objects in the foreground appear less obscured than those in the background. You can also specify the distance at which the fog begins, as well as its intensity. The Fog effect applies the simulated fog by using the Z-depth information contained in .Zpic files rendered in SOFTIMAGE|3D or mental ray.

Original image

Fog effect

To use the Fog effect:

1. Render your sequence in SOFTIMAGE|3D, making sure that you select the **Render Z Channel** option in Render Setup > Options.

***Tip**: Render the sequence in the same resolution as the Avid DS Nitris project in which you'll import the sequence.*

2. Capture the .pic file sequence in Avid DS Nitris.

   The .Zpic files are loaded through the effects, so you can only capture the .pic files.

3. Apply the **Fog** effect to a clip, track, or tree.

   The Fog property editor is displayed.

4. On the External Data property page, click the **Browse** button and double-click one of the .Zpic files.

   The file name is displayed in the File Path field.

5. In the Frame Range boxes, type the start and end frames of your sequence.

   The message "External Data Loaded" is displayed on the property page.

***Tip**: If you don't enter the start and end frames, an error message is displayed on the property page.*

6. In the Resolution boxes, type the resolution that matches the working project. The status line at the bottom of the property page confirms that the external data has been loaded correctly. If the external data does not load correctly, one of the following messages appears in the status line:

Message	Description
External Data Loaded	All data has been loaded successfully for this frame.
No External Data Loaded	No file name has been entered and no data has been loaded.
Error - Data File incorrect size	The resolution of the data file does not match the resolution specified in the property page.
Error - File not found; *<file name>*	Avid DS Nitris is unable to load the data file. The file cannot be found.

7. On the Fog Effect property page, create a color for the fog by adjusting the **Red**, **Green**, and **Blue** parameters.

   By default Red, Green, and Blue are set to 100 creating a white fog color.

8. Set the **Maximum Depth**. You can set the depth at which the fog reaches maximum intensity. The intensity of the fog increases linearly from the Start Distance to the Maximum Depth.
9. Set the **Start Distance**. This lets you specify the distance from the simulated camera at which the fog begins.
10. Adjust the opacity of the fog using the **Opacity** controls. This lets you control the thickness of the fog. A value of 1 represents total opacity and a value of 0 represents total transparency.
11. On the Masking property page, select the channels on which you want to apply the effect. The effect is applied only to areas of the image where the alpha channel is not black. You can derive masks from the alpha of the input clip or an external matte from another clip.
12. On the Options property page, select the appropriate options.

Click the Help button for detailed information on the Fog properties.

Frame Average Effect

The Frame Average effect lets you create trails, motion blurs, and perform noise removal on video clips. You can set the number of previous and next frames to combine to create a new frame.

For example, if you select one previous frame and one next frame, then the current frame will become an average of the current frame plus the previous and next frames. This effect is applied to all frames in the clip.

To use the Frame Average effect:

1. Apply the **Frame Average** effect to a clip, track, or tree.
2. On the General property page, set the number of **Previous** and **Next** frames to be combined with the current frame.
3. From the Compositing Mode list, select a mode.

   For example, when you select Average, the previous and next frames are averaged into the current frame. If you set a value of 1 for previous and next, then three images are displayed at the current frame.

Previous = 0 Next = 0 Previous = 1 Next = 0 Previous = 1 Next = 1

4. Select one of the following:
   - **Repeat the first/last frame** to use the value set in Next (for the first frame), since there is no first frame and Previous (on the last frame).
   - **Use a solid color** to use a solid color to combine with the first/last frames.
5. On the Masking property page, select the channels on which you want to apply the effect. The effect is applied only to areas of the image where the alpha channel is not black. You can derive masks from the alpha of the input clip or an external matte from another clip.
6. On the Options property page, select the appropriate options.

Click the Help button for detailed information on the Frame Average properties.

Graphics Effect

The Graphics effect lets you access the Graphics layout and create graphics or titles. You can then use any of the tools or effects in the Graphics layout.

To apply the Graphics effect on a clip:

- Select a clip from the timeline and do one of the following:

  - From the toolbar, click **Video Effects > Graphics**.
  - From the taskbar, click the Graphics layout button.
  - Press Ctrl and click the Graphics layout button in the taskbar to open the floating Graphics combo view.

***Tip**: Make sure the position indicator is over the clip or you cannot switch to the Graphics layout.*

The Graphics effect is applied to the clip and the Graphics layout or Graphics combo view is displayed.

To apply the Graphics effect on a track:

- Select a region of a track and do one of the following:
  - From the toolbar, click **Video Effects > Graphics**.
  - From the toolbar, click **Generate > Source Generator Clip**. From the Load Preset dialog box, select **Graphics**.

Creating Rolls and Crawls

A roll or crawl typically contains the titles or credits of a program. You can create a traditional roll in which a title moves from the bottom of the screen to the top, or a traditional crawl in which a title moves from the right of the screen to the left. Single or multiple titles can be used for a roll or crawl.

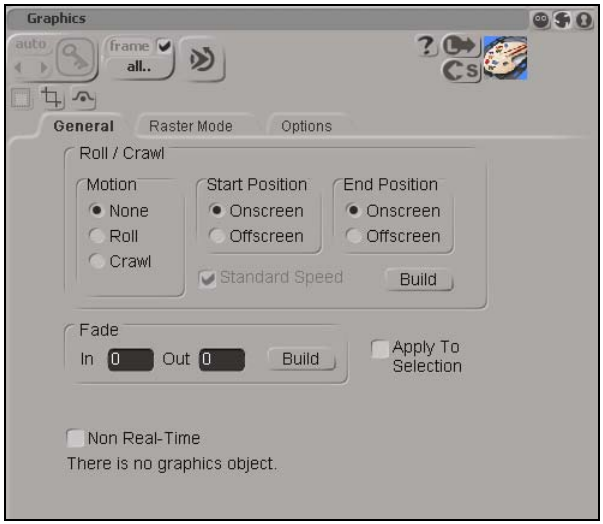
You create rolls or crawls by using the Graphics property editor. This lets you quickly and easily create standard rolls or crawls that involve few titles. When you do this, the time span of the titles change to match the duration of the graphics session.

You can also create the animation manually by using the Set/Remove Key button to set individual keyframes. This lets you create a complex roll or crawl that involves many titles that start and end in different locations. You can also include paint strokes in a roll or crawl.

***Tip**: When you create a roll or crawl, the entire duration of the clip is used.*

To create a roll or crawl:

1. From the Tools toolbar, click the **Text** button to create a text body.
2. Click the viewer and type in some text.
3. When you're done, select the text body.
4. From the General toolbar, click **Graphics Properties**.



5. In the Motion box, select one of the following:
   - **Roll** to create a roll.
   - **Crawl** to create a crawl.
6. In the Start Position box, select one of the following:
   - **Onscreen** to start the roll or crawl on the screen.
   - **Offscreen** to start the roll or crawl off the screen.
   - In the End Position box, select one of the following:
   - **Onscreen** to end the roll or crawl on the screen.

- **Offscreen** to end the roll or crawl off the screen.

7. To guarantee optimal quality when building rolls/crawls, select **Standard Speed**.
8. Click **Build Motion**.

   The title's transformation is animated.
9. To apply roll and crawl animation only on selected graphics objects, select **Apply to Selection**.
10. To modify the transformation properties of the title, select the title, and do one of the following:

    - From the graphics property tree, open the **Transformations** property editor, and modify the values.
    - Select **View > Single-Instance Views > Animation Editor**. Select the Transformation property and adjust the function curve.

Creating a Fade

You can also automatically apply fades to a graphics object. When you apply a fade, its time span changes to match the duration of the graphics session. In addition, the existing opacity settings for a stroke (brush and fill) and text body (edge, face, shadow) are overwritten with the new fade values.

To fade an object:

1. From the Tools toolbar, select a drawing tool.
2. In the graphics property tree, define the properties for your tool.
3. Create an object in the viewer.
4. Move the object to the desired fade-in position.
5. From the General toolbar, click **Graphics Properties**.
6. In the Fade box, set the **In** and **Out** values in frames.
7. Click the **Build Fade** button.

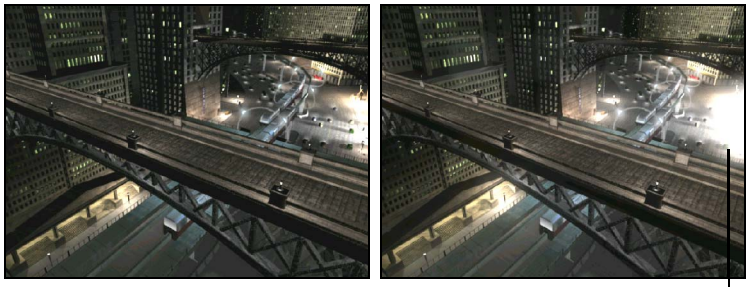
   The object's opacity properties are animated.
8. To modify the opacity properties of the object, select the object and adjust the **Opacity** controls on the **Paint Style**, **Brush**, and **Titling Style** property editors.

Click the Help button for detailed information on the Graphics properties.

Optical Glow Effect

The Optical Glow effect lets you define different lighting effects for images, which is useful when you want to give an object the appearance that it's radiating light or heat.

You can apply this effect to clips, tracks, or trees.



Original image

Optical Glow effect is applied (note diffused areas)

To create an optical glow effect:

1. Apply the **Optical Glow** effect to a clip, track, or tree.

   The Optical Glow property editor is displayed.

2. On the General property page, use the **Level** controls to set the amount of overall diffusion.

   The level of overall diffusion is applied to the entire image.

3. Use the **Mix** controls to set the percentage of overall diffusion.

   The mix determines the percentage of diffusion (specified in the Level controls) added to the entire image.

4. Use the controls in the **Color Correction** box to adjust the amount of gain and brightness applied to the entire image.

5. Use the **Amount** controls to adjust the percentage of the original image that is added to the diffused image.

6. On the Black Diffusion property page, use the controls to specify the black diffusion parameters.

7. On the White Diffusion property page, use the controls to specify the white diffusion parameters.

8. On the Masking property page, select the channels on which you want to apply the effect. The effect is applied only to areas of the image where the alpha channel is not black. You can derive masks from the alpha of the input clip or an external matte from another clip.
9. On the Options property page, select the appropriate options.

Click the Help button for detailed information on the Optical Glow properties.

Outsource Effect

Certain shots in your sequence may require specific touch ups in another application. The Outsource effect lets you output an area of the timeline in the file format of your choice, while keeping a link to the exported files. This makes it easy to bring the files back into Avid DS Nitris when the work in the external application is complete.

All you have to do is apply the Outsource effect, specify a file format, and then export the file. When the work is complete, you can update the link to these files from within the Outsource property editor. Any changes made to the file(s) are displayed in the viewer. Just like any other linked file, you have to process the effect to play the area on the timeline in real time.

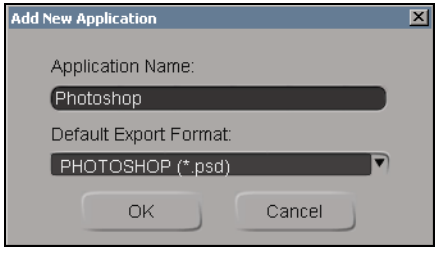
When you apply the Outsource effect in a stack of effects or as part of an Effects Tree, the image, including the effects below the Outsource effect, will be output to file.

You can apply this effect to clips, tracks, or trees.

To use the Outsource effect:

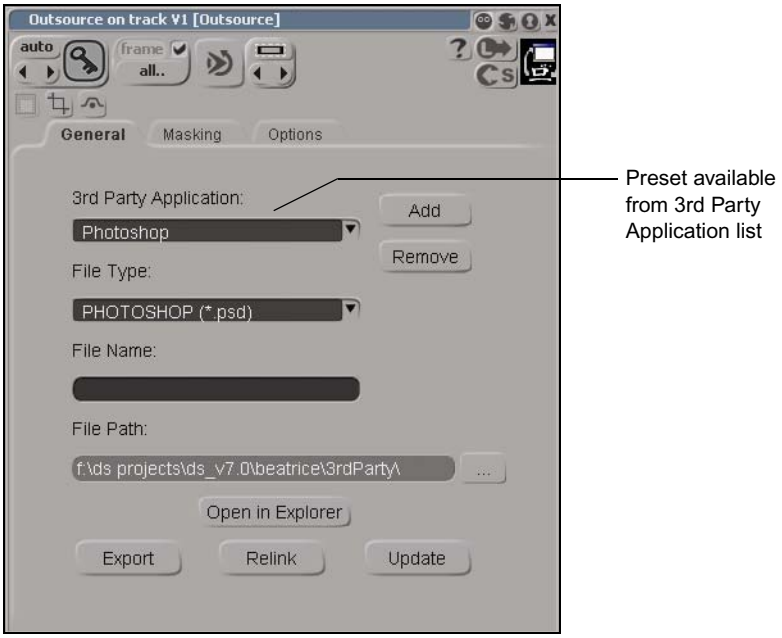
1. Apply the **Outsource** effect to a clip or track.
2. On the General property page, click the **Add** button to create an application preset.

   The Add New Application dialog box is displayed.



3. Type the name of the external application you plan to use in the **Application Name** text box.
4. Assign a file type to the external application by selecting a file format from the **Default Export Format** list.
5. Click **OK** to save the preset.

The application preset is now available from the 3rd Party Application list.



6. Type a name for your file in the **File Name** text box.
7. A location for the file is created by default. You can change the default location by clicking the browse (...) button and selecting a new folder.
8. Click the **Export** button to output the area on the timeline to file. If you are exporting a series of frames, several files are created. The files are named as follows: *Filename*0.psd, *Filename*1.psd, and so on.
9. Touch up the file or series of files in the external application.

***Tip**: You can use the Open in Explorer button to open the Windows Explorer directly to the location where the file(s) is located.*

10. When the work is done, click the **Update** button to update the link to the file(s).

    Any changes made to the file(s) are displayed in the viewer.
11. On the Options property page, select the appropriate options.

12. Process the effect to generate a cache, so you can play the area on the timeline in real time.

Click the Help button for detailed information on the Outsource properties.

Source Generator Effects

Avid DS Nitris lets you generate your own clips using effects, such as solid or gradient colors, 3D Warp effects, Graphics effects, or patterns. You can use this new clip as a background for a compositing session or to create a fade-to-color transition.

Since the Timecode and Solid Color effects are real-time effects, you can view the results upon playback without having to first process the effect. For more information, see "Working with Real-Time Effects" on page 898 of the *Avid DS Nitris Editing Guide*.

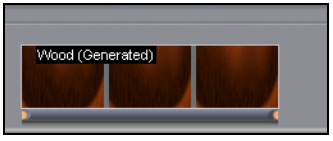
You can apply the source generator effects to tracks or trees.

To generate a clip on the timeline:

1. Drag on a track to select a region.
2. From the toolbar, click **Generate > Source Generator Clip**.
3. From the Load Preset dialog box, select an effect from the \Source Generators folder.

   A clip containing the selected effect is created on the track and the effect's property editor is displayed for you to make any adjustments.

   The clip name is appended with the term "Generated" in parentheses.

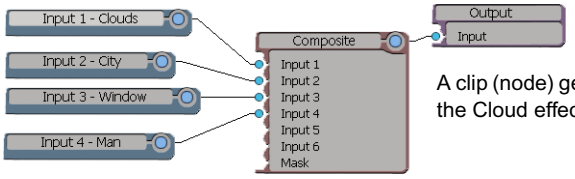


A clip generated with the Wood effect.

To generate a clip in an Effects Tree:

1. Right-click an empty area of an Effects Tree and select **Add Effect**.
2. From the Load Preset dialog box, select an effect from the \Source Generators folder.

   A new input node is added to the Effects Tree. You can composite the generated clip as you would any other clip.



A clip (node) generated with the Cloud effect.

Some source generated clips, such as a gradient, timecode, or 3D Warp, require an input. Add a black source generated clip as the input to these effects.

To create a Fade-to-Color transition:

1. Drag on a track to select a region.
2. From the toolbar, click **Generate > Source Generator Clip**.
3. From the Load Preset dialog box, select **Solid Color** from the \Source Generators folder.

   A clip containing a solid color is displayed on the track and the effect's property editor is displayed for you to make any adjustments.
4. Select a color for the generated clip.
5. On the timeline, position the generated clip at the timecode where the transition should start.
6. Select the edit point.
7. From the toolbar, click **Transition Effects > Dissolve/Crossfade** or **Wipe**.
8. Adjust the transition properties.

Dissolve to solid color

Click the Help button for detailed information on the transition properties.

Warp Effect

The Warp effect lets you transform an image or part of an image from one shape to another over time. You can warp still or moving images, and apply the Warp effect to clips, tracks, or trees.

When warping a still image, you can, for example, add a caricature to a person's face, giving their face a surprised look by enlarging the eyes or deforming an object to a specific form.

Original image

Eyes and lips warped at 50% shape interpolation.

Eyes and lips warped at 100% shape interpolation.

When warping a moving image, you can, adjust the position or form of an object moving across an image over a sequence of frames, such as a man shrinking in size as he walks.

The general steps to create a warp are:

1. Select an image or section of an image.
2. Create shapes that describe the source and destination of the warp transformation.
3. Join the shapes together and adjust the correspondence between the two.
4. Animate the shape positions over time.
5. Track the warped shapes if necessary.
6. Set the rendering options.
7. Process the warp.

Creating Shapes

Shapes are the Bézier curves that outline the portions of the image that you want to warp. The Warp effect uses these shapes to specify whether these parts of the image move or if they should be stationary. Shapes can be open-ended or closed. They can stand alone or be joined to another shape.

***Tip**: To close a shape drawn with the Freehand tool, hold down the Ctrl key while you draw the shape. Once you release the mouse button, the shape is closed. To close a shape drawn with the Polyline tool, press Ctrl after you draw the last line segment.*

The Warp effect has four shape-creation tools:

- Freehand
- Polyline
- Ellipse
- Rectangle

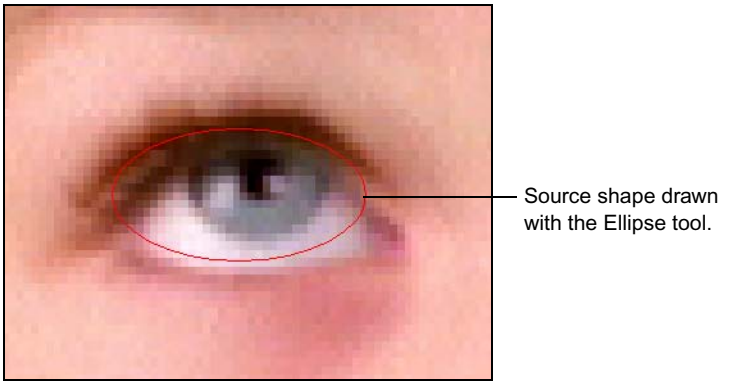
To create a source and destination shape:

1. Apply the **Warp** effect to a clip.
2. On the Shapes property page, select the **Apply** option.
3. From the Shape Creation box, select a drawing tool to create the source shape.

***Tip**: If you copy open shapes from the Warp effect into a keyer or Matte effect, the shapes will automatically be closed.*

4. Create a rough shape around the object you want to warp.

   The source shape is displayed in red.

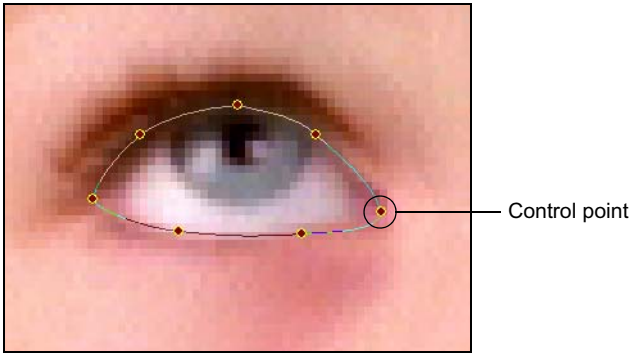


***Tip**: You can zoom and pan in the viewer to frame the portion of the image you want to trace.*

5. From the Editing Tools box, click the **Edit Shape** button.

   The control points of the source shape are displayed.

6. Drag the control points, so that your shape outlines the part of the image you want to warp.



   To add an additional control point, hold down the A key and click the line where you want the control point to appear.

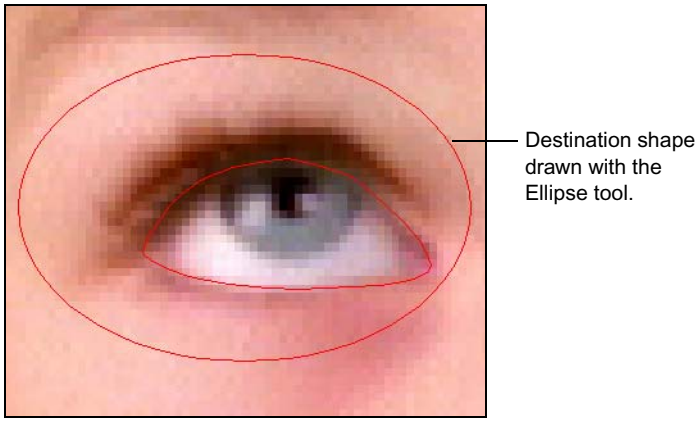
***Tip**: If the image is moving between frames, you should rotoscope or animate the source shape over the length of the clip. For more information, see "Creating Animation" on page 963 of the Avid DS Nitris Editing Guide.*

7. From the Shape Creation box, select a shape to create the destination shape.

***Tip**: Instead of drawing a target shape from scratch, you can click the **Copy and Join** button in the Editing Tools box. This tool creates a copy of the source shape and joins the two shapes together. Simply edit or transform the target shape to interactively warp the chosen object.*

8. Create a second shape to represent the destination shape of the warped object.

   The destination shape is displayed in red.



***Tip**: To close a shape created with the polyline tool, press Ctrl and click.*

9. Use the following tools from in the Transformations box to manipulate your shape:

- Select

- Scale

- Rotate

- Skew

10. From the Editing Tools box, click **Edit Shape**.

    Control points along the target shape are displayed.

11. Drag the control points to modify the shape.

***Tip**: If the image is moving between frames, you should rotoscope or animate the target shape over the length of the clip.*

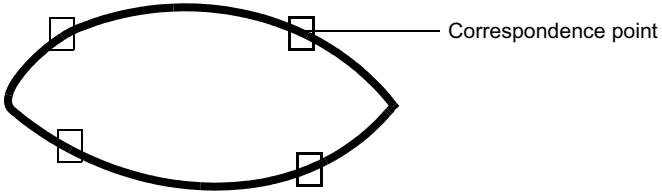
For more information, see "Applying Graphics" on page 1387.

Joining Shapes

Once the shapes are created, you can join them together to create a relationship between the beginning and ending shape of the object. The order in which you join shapes gives the direction to a warp. For example, if you join a small shape to a large shape, the object will warp over time from small to large. If you join a large shape to a small shape, then the object will warp from large to small.

***Tip**: You can only join open-ended shapes with other open-ended shapes and closed-ended shapes with other closed-ended shapes.*

When the two shapes are joined, you can match corresponding features on the two shapes. Each shape contains four or more correspondence points (four initially), which describe the location of key positions on a shape. You can place these correspondence points at key locations on a shape, such as where the Bézier curve changes direction.



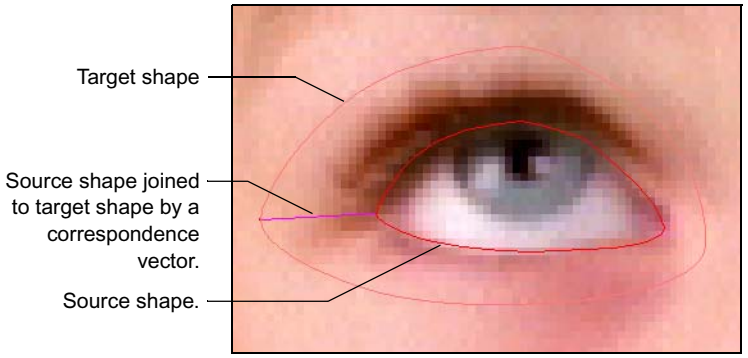
Correspondence points have some restrictions:

- There must be at least four correspondence points per shape.
- Shapes intended to be joined must have the same number of correspondence points.
- Correspondence points on the ends of open-ended shapes cannot be moved or deleted.
- Correspondence points cannot cross over each other. There is a limit as to how close they can be to each other.

To join the source and destination shapes:

1. From the Editing Tools box, click the **Join** button and drag the source shape towards the target shape.

   A blue line appears as you drag the pointer from the source to the target shape. When the pointer comes in contact with the target shape, the two shapes momentarily turn yellow and are joined together by a correspondence vector.



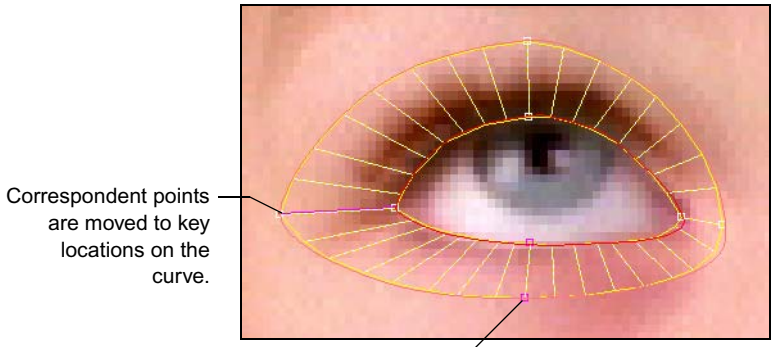
***Tip**: To break the join between two shapes, click **Join** in the Editing Tools box and click one of the shapes. A dialog box appears, prompting you to break the join, click **OK**.*

2. In the Editing Tools box, click the **Correspondence** button.

   The source and target shapes are highlighted in yellow. Each shape contains four correspondence points, which are connected with correspondence vectors.

3. Move the correspondence points on the source shape to key locations on the curve, such as where the curve changes directions.

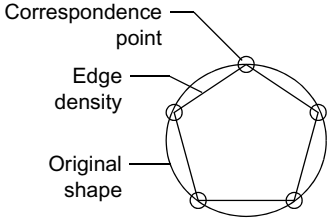
4. Match the correspondence points on the target shape to those on the source shape.



***Tip**: To add additional correspondence points, hold down the A key and click the shapes on which you want the point to appear. To delete correspondence points, select a point and press Delete.*

5. To increase the precision of the shape during processing, increase the **Density** value.

   The number of correspondence vectors (yellow lines) between correspondence points increases as the Density value increases.



Shape with edge density of 5.

***Tip**: During processing, Avid DS Nitris does not use the actual shapes you created, but uses the edge densities of the shapes to create an approximation of the shapes. That is, a shape's edge density defines how closely the form used in the warping process matches the shape that is drawn.*

Shapes are subdivided between correspondence points based on the shape's edge density. The higher the edge density, the more edges, and the more closely the shape is depicted by its edges. Thus, the more precise the transition between shapes.

When you change the edge density, be careful not to use too high a density setting. There is no exact formula for selecting the best density for any given shape. Choose one that approximates the shape enough, but not too much. Setting a shape's density unnecessarily high slows down processing time.

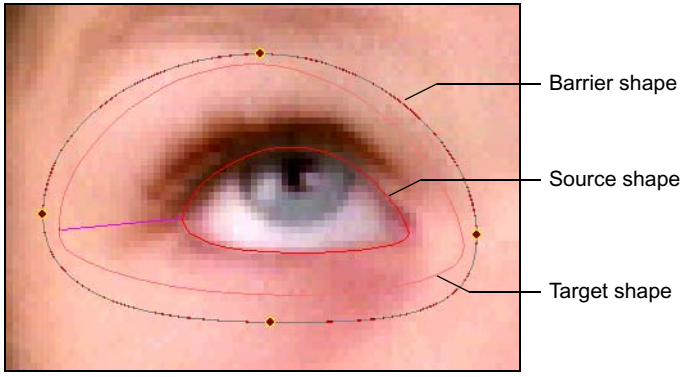
Creating Barrier Shapes

You may find that the area outside your source or target shapes also gets distorted when your object is warped. To get rid of this unwanted distortion, you can create a barrier shape which prevents the distortion from spreading to the rest of the image.

To create a barrier shape:

1. Create a third shape encompassing both the source and target shapes.

   The barrier shape is displayed in red.



2. From the Editing Tools box, click **Copy and Join**.

   A copy of the shape is created on top of its original. By doing so, you are creating a static warp in which the source and target shapes are the same. This static warp acts as a barrier, which prevents the original warp from spreading to other areas of the image.

Animating Shapes

You can animate the interpolation between shapes or the shapes themselves on both still images or when the object is moving over time. You can add keyframes and modify the way the source shape warps into the target. For moving images, you can use the tracker to track the shapes to match the movement in a clip, or animate the shapes frame by frame. For more information, see "Tracking Shapes" on page 1363 of this guide and "Creating Animation" on page 963 of the *Avid DS Nitris Editing Guide*.

To animate the interpolation between shapes:

1. On the timeline, double-click the **Warp** effect bar above your clip.

   The Warp property editor is displayed.

2. Place the position indicator anywhere in the clip.
3. On the Shapes property page, modify the **Shape Interpolation Amount**.

   The image changes shape as you modify the Shape Interpolation Amount.

4. Click the **Animation Key** button.

   A keyframe is added at that point in time, changing how the object moves from source to target shape.

5. Move the position indicator to another frame, modify the **Shape Interpolation Amount**, and add another keyframe.
6. Select **View > Single-Instance Views > Animation Editor**.

   The animation editor is displayed.

7. Tweak the shape animation by modifying, adding, and deleting keyframes.

***Tip**: You can also modify the slope of the interpolation from Linear to either Spline or Constant Interpolation.*

Tracking Warped Shapes

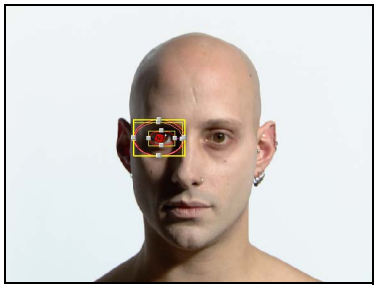
If your image moves or scales, you'll need to set up trackers to track the source, destination and barrier shapes. In the following example, the man's face both scales and moves as his eye is warped. To correctly track the eye, you need to increase the trackers' target area and search regions, and ensure that the Always Update option is selected.

To track the shapes:

1. On the Shapes property page, deselect the **Apply** option.

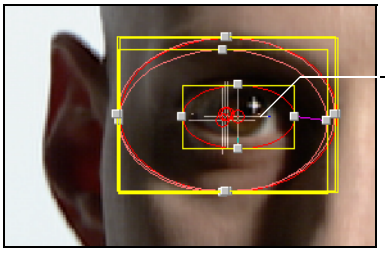
   Since you need to track the input image rather than the warping image, turn off the Warp effect so you can see what you want to track.

2. From the Transformations box, click the **Select Shape** button.
3. In the viewer, draw a selection box around all the shapes to select them.



   Since all the shapes including the source, destination, and two barrier shapes move and scale, you need to track all the shapes.

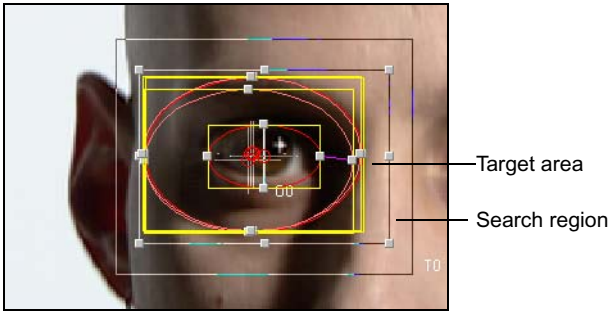
4. On the Tracker property page, click the **Show** button.



All four trackers are displayed.

5. Use the period (.) or comma (,) keys on the keyboard to cycle through each tracker and set the following for each tracker:

   - Increase the size of the search and target areas to consider the change in the shape's size.



   - In the Target box, select the **Always Update** option.

     Since the shapes scale and move, you need the tracker targets to update in each frame.

***Tip**: This option makes the trackers compare the pixel pattern of the current frame to that of the previous frame, rather than the first frame at the tracking start point (or the set target).*

     Use this option when the target area changes in appearance as the clip is played. Note that this can cause cumulative tracking errors. When you select this option, the Set Target option becomes deselected and vice versa.

   - Set the **Confidence** level.

If you find that the tracker stops frequently, try lowering the confidence level.

***Tip**: If you are tracking field-based material, you can select the **Track in Fields** option. A keyframe will be set on each tracked field. The target used is the contents of the target region in field 1 of the target frame. If you track in fields, you do not need to first deinterlace, track, and then reinterlace the clip.*

6. Click the **Track Forward** or **Track Backward** buttons.
7. On the Shapes property page, deselect the **Show Shapes** option to see the final result without the drawn shapes and tracker boxes. You also need to select the **Apply** option to turn the Warp effect back on.

Setting the Rendering Options

The final look of your warp depends largely on the render settings you choose. You can go from a fast low-quality test image to a slower higher-quality image for final output by simply changing a few of the settings in the Render property page.

The render settings let you choose how the edges of your shapes are defined, how precise the transition is between shapes, how pixels are interpolated, and how soft or jagged the edges are.

To set the rendering options:

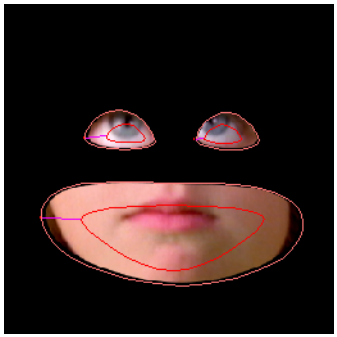
1. In the Warp property editor, select the **Render** property page.
2. For the Edge Mode, select one of the following:
   - **Fixed** to pin the border of the image in place. Be careful using this option because it can cause shearing or ripping if your warped object moves or grows in size.
   - **Sliding** to make the image's borders move with the rest of the warped object.

Original image

Image stretched upwards and processed with the edge set to Fixed. Notice how the borders of the image do not move, resulting in a distorted image.

Image stretched upwards and processed with the edge set to Sliding. Notice how the borders of the image do not stay in place, but compensate for the stretched image, resulting in a less distorted image.

- **Cookie Cutter** to keep everything that falls within your closed shapes and remove everything else. This option is also useful for creating mattes. You cannot use this option with open-ended shapes.



With the edge set to Cookie Cutter, the area outlined by the closed shapes is cut out. The rest of the image is ignored and set to black.

A matte is automatically created based on the areas that were cut out.

3. To set the transition quality, select one of the following from the Warp Precision list:

Option	Description
Linear	If you want to do a quick test. This option processes the warp at the lowest quality, but is very fast and uses the least amount of memory.
Low or Medium	If you need slightly higher quality than the Linear option. The quality of the images improve with only slightly slower processing times.
High	If you need a high-quality image that is processed in a reasonable amount of time. This option produces professional quality images.
Very High or Super High	If you require an extremely smooth transition between shapes. Both of these options provide extremely high-quality images, but take considerable amounts of time to process.
None	For quick results. This results in marginal pixel image quality, but the processing time is very quick.
Bilinear	For a reasonable image quality within a reasonable processing time. This is the default setting.

Option	Description
Scaling	If your target shape is scaled down by more than 50%. This results in the least amount of degradation, but also takes the longest time to process.

4. For the Interpolation setting, which affects pixel quality, select one of the following:

Option	Description
None	For quick results. This results in marginal pixel image quality, but the processing time is very quick.
Bilinear	For a reasonable image quality within a reasonable processing time. This is the default setting.
Scaling	If your target shape is scaled down by more than 50%. This results in the least amount of degradation, but also takes the longest time to process.

5. Select the **Antialiasing** option if you want the edges of the shapes or regions to be smooth. If you deselect this option, the edges are jagged.
6. Select the **Soften Edges** option if you want the pixels around the edges of the shapes to blend gradually with the pixels of the surrounding image.
7. Process the effect and then play it back on the timeline to view the results.

Reference

This book contains reference information for Avid DS Nitris.

- Desktop Reference
- Capture and Output Reference
- Editing Reference
- Paint Effects
- 3D DVE and 3D Titling Reference
- Compositing Reference
- Image Effects
- Color Correction Reference
- Common Property Pages Reference

Chapter 1
Desktop Reference

This chapter contains reference information about the desktop.

- Using the Mouse, Pen, and Keyboard
- Property Editors
- Toolbars
- Command Mapping Dialog Box
- Edit Layout Dialog Box
- Load Preset Dialog Box
- Preference Management Dialog Box
- Save Preset Dialog Box
- User Preferences Dialog Box
- Help Menu
- Layout Menu
- Slider Menu
- Splitter Menu
- Taskbar Menu
- Text Box Menu
- View Menu
- View Switcher Menu
- Viewer Property Editor

Using the Mouse, Pen, and Keyboard

In Avid DS Nitris, you can use a two-button mouse (with wheel) or a pen and tablet. The left and right mouse buttons perform different operations. Unless otherwise stated, use the left mouse button.

The mouse and pen operate slightly differently. All the procedures in this guide are documented for the mouse. You can, however, easily use a pen or the keyboard. The following table shows the terms relating to the mouse, pen, and keyboard.

This Term	Means This with a Mouse	Means This with a Pen
Click	Quickly click and release the left mouse button. Always use the left mouse button unless otherwise stated.	Tap the tablet once with the tip of the pen, or touch the pen to the tablet with enough pressure to click.
Double-click	Click the left mouse button twice rapidly.	Quickly tap the tablet twice in the same screen pixel or press the F5 key to go from single to double-click.
Right-click	Quickly click and release the right mouse button.	Press the top portion of the switch on the side of the pen or press the F6 key to go from left to right-click.
Drag	Click and hold the left mouse button or the wheel while you move the mouse.	Press the pen to the tablet while moving the pen.
Alt+*key,* Ctrl+*key,* Shift+*key, etc.*	Press and hold the first key while you press the second key. For example, “Press Alt+F1” means to press and hold the Alt key while you press the F1 key.	

By customizing the pen, you can adjust the click pressure, switch functions, and other features. For information on customizing the pen, refer to the documentation provided with your Avid DS Nitris system.

You can also customize the mouse. For example, you can select left-handed configuration or change the double-click speed.

Property Editors

Property editors display the properties of a selected object or tool. You can adjust the values of properties using the text boxes, lists, options, and sliders, as well as set animation keyframes. Any values that you change are immediately applied to the object.

Property editors contain global controls for loading, saving, and viewing presets, processing, animating properties, selecting effects, and previewing clips. Different property editors have different global controls.

Property editors come in two sizes: default and large. Most of the time, you will see the default-sized property editors. But if you're in the Effects layout, you'll see the large ones.

Unlike the default-sized property editors, the large ones in the Effects layout do not recycle. Instead, they display what is currently selected.

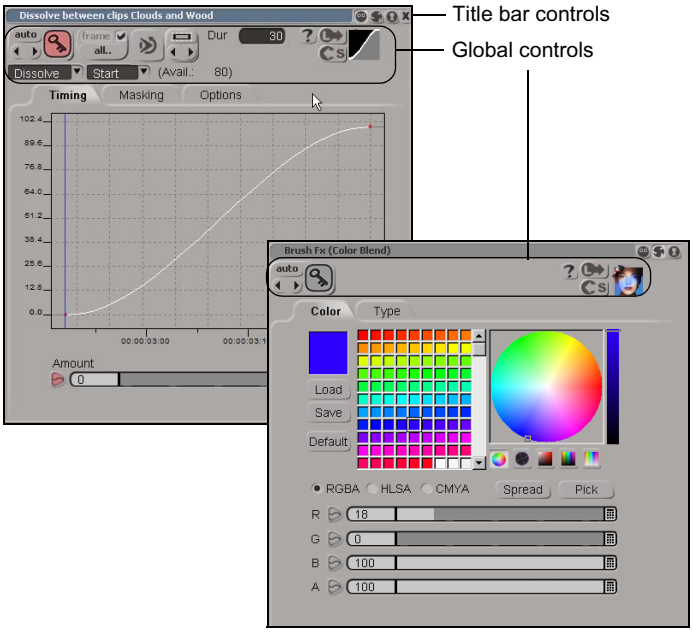
***Tip**: If you have used a Color Correction effect and you are not in the Effects layout, you can open its property editor in two different sizes: default or large. Press Ctrl+Shift to open a default size property editor and press Ctrl to open a large property editor.*

To open a property editor, do one of the following:

- Right-click an object and select **Properties**.
- Double-click an object.

Global Controls

The global controls let you determine how parameters are displayed in a property editor window, create animation, process effects, save and load presets, specify transitions, track DVEs, and set animation keyframes. These controls are displayed on most property editors.



Title Bar Controls

The title bar controls let you focus, recycle, lock, and close property editors as you select different objects.

Option	Description
Focus	In Focus mode, a property editor displays only one specific type of property, regardless of which object is selected. For example, if you open the Brush FX property editor in the Graphics layout and set it to Focus mode, the Fill FX properties will appear in the same property editor window, but the Time Span properties will open in a new property editor window.
Recycle	In Recycle mode, the same property editor is reused whenever you select an object that has an associated property editor. For example, if you open a video effect's property editor, then select an audio effect, the audio clip's properties replace the video clip's properties in the same property editor window.
Lock	In Lock mode, the property editor always displays the properties of the object on which it's locked. For example, if you open a video effect's property editor, set it to Lock mode, and then select an audio effect, the audio effect's properties will be displayed in a new property editor window.
Close	Closes the property editor

Tab Controls

The tab controls let you view additional tabs on a property editor. This is useful for property editors that contains many property pages, such as the keyers.

Tab controls

Option	Description
Display Previous Tab	Displays previous tab(s) on this property page
Display Next Tab	Displays next tab(s) on this property page

Animation Controls

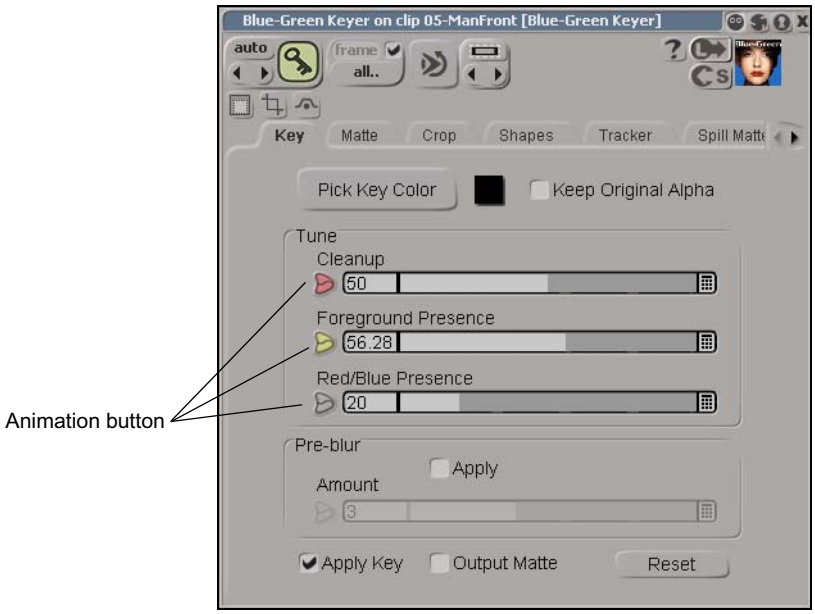
The animation controls let you turn auto animation on or off, move between keyframes, and set keyframes.

Animation controls

Option	Description
Auto	Automatically creates a keyframe when you make any adjustments to properties. That is, you do not have to click the Animation Key button each time you change a property.
< (previous key)	Moves the position indicator to the previous keyframe
> (next key)	Moves the position indicator to the next keyframe
Animation Key	Sets a keyframe at the current frame with the current property settings. Right-click this button to display the Animation Key menu—see Animation Key Menu.

Animating Parameters

In the property editors, an animation button appears beside numeric parameters that you can animate. This lets you set keyframes after you adjust the parameter's value. Also, you can easily access the animation editor from the Animation pop-up menu.



To animate a parameter:

- Click the **Animation** button beside the parameter you want to animate.

  The Animation button turns red to indicate that a keyframe was set.

To reset an animated parameter:

- Right-click an Animation button and select **Remove Animation**.

To access the Animation menu:

- Right-click an Animation button—see Animation Menu.

Animation Menu

The Animation pop-up menu lets you open the animation editor, create an expression, locate and remove keyframes, and set keyframes automatically for the selected parameter.

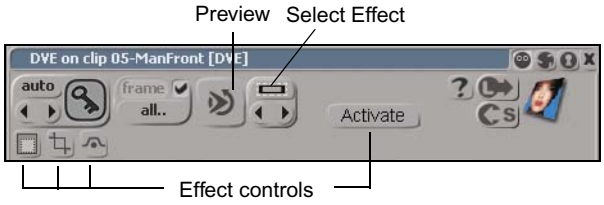
To access the Animation pop-up menu:

- Right-click the Animation button in any property editor.

Option	Description
Animation Editor	Displays the animation editor—see "Understanding the Animation Editor" in the Help.
Create Expression	Opens the Expression Editor. If there was any exisiting animation for the parameter, it is replaced by an expression that is "0". This will be replaced when you create an expression—see "Animating with Expressions".
Remove Key	Removes keyframes for the parameter at the current position indicator location
Remove Animation	Removes all keyframes for the parameter in the function curve
First Key	Moves the position indicator to the first keyframe set for the parameter in the function curve
Last Key	Moves the position indicator to the last keyframe set for the parameter in the function curve
Previous Key	Moves the position indicator to the previous keyframe set for the parameter
Next Key	Moves the position indicator to the next keyframe set for the parameter
Autokey	Turns Autokey mode on or off. Automatically creates keyframes as you adjust the settings. ***Tip**: You can activate this mode by clicking the Autokey button at the bottom-right of the desktop.*
Constant	Changes the function curve to a constant curve. This option has no effect on a motion path.
Linear	Changes the function curve to a linear curve
Bézier	Changes the function curve to a Bézier curve

Effect Controls

The effect controls let you preview effects, limit processing to a selected region in the viewer, bypass effects, crop function curves in the animation editor, and select effects.

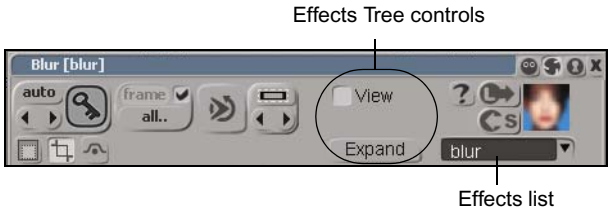


Option	Description
Preview	Plays the output of the current effect in the viewer
Activate	Switches the context to the interactive tool of the effect associated with the property editor. For example, when switching between effects, such as a DVE and a Tracker, you must activate the tool before you can use the interactive tools in the viewer.
Subregion	Limits processing to a specified region in the viewer. Drag a rectangular area to specify the region.
Bypass	Turns off the effect. When you use multiple input effects, such as a Composite effect, the first input is passed through directly as the output.
Crop Curves	Crops the selected effect's function curve in the animation editor when the effect is resized on the timeline
Select Effect	Selects the current effect on the timeline, in an Effects tree or in the Layers view, and displays its property editor. This is most useful if you are using many effects and want to quickly identify property editors with their corresponding clips. Open a property editor, lock it, and click the Select Effect button to highlight the clip in the timeline, Effects Tree, or Layers view. *Not available in the Graphics and 3D DVE layouts.*

Option	Description
Previous Effect/Next Effect	Selects the previous/next effect on the timeline, Effects Tree, or Layers view, and displays its property editor. The display of effects depends on the effect type. If you are using multiple, different types of effects, such as four Color Correction and two Channel Switcher (image effect) effects, then the current effect type is sequentially displayed each time you click the Previous Effect or Next Effect button. To display other effect types used on the timeline, press Ctrl to display them. For more information, see The Effects Library. *Not available in the Graphics and 3D DVE layouts.*

Effects Tree Controls

The Effects Tree controls let you view or bypass an effect, expand an Effects Tree, or display another effect's property editor.

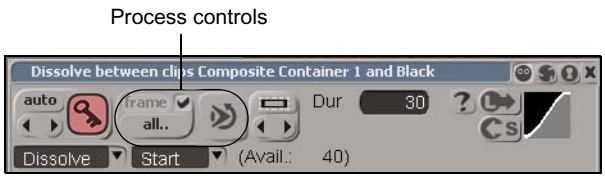


Depending on which effect you apply, these controls may be arranged differently on the property page.

Option	Description
View	Displays the output of the current effect in the viewer. *When you want to change an effect and you've added more effects after it, you can view the effect if you want to focus only on the current effect.* *You can only view one node at a time. If several nodes are selected, the V key and the toolbar button are not available.* ***Tip**: On the Shape and Paint trackers, it's useful to select both the View and Bypass options to improve tracking speed.*
Expand	Expands the current Effects Tree. For example, if you apply a Selective Color Correction effect in an Effects Tree and click Expand, the tree expands to display the effects that comprise this effect. *This option is only applicable when you use Effects Tree effects, such as the Selective Color Correction effect or if you fold nodes.*
Effects List	Lets you choose the effect to display in the current property editor. This is useful when you have many effects in an Effects Tree and want to quickly switch to display the properties of another effect. *Only effects on which the Expose command is selected are displayed in this list.*

Process Controls

The process controls let you choose what to process and how it will be processed.



Option	Description
Frame	Processes effects in the current frame and creates a cache file. Makes the effect viewable on the selected frame.
Auto-process	Turns the Frame option on or off. When selected, each time you change a parameter, the frame is automatically reprocessed.
All	Processes all frames with the applied effect and creates a cache file. Makes the effect playable in real time.
Preview	For real-time playable effects, plays back the current effect. For unprocessed non-real-time playable effects, plays back a lower quality preview version of the effect, with dropped frames, in Loop mode.

DVE-Tracker Controls

Available only in the 2D DVE property editor, the tracker controls let you set specific options for tracking images using the 2D DVE.

Option	Description
Global	Applies a transformation (scale, rotation, or translation) to participating layers in the composite. The DVE property editor for each layer must also have its Global DVE option activated.
SRT	Turns on/off any DVE transformation (scaling, rotation, or translation) that has been applied to the current layer
Track	Turns on/off any motion tracking that has been applied to the current layer. Clicking the Tracker button opens the Motion Tracker property editor.

Option	Description
Activate	When you are using more than one interactive tool at the same time (in the Compositing layout), such as a Luma keyer and DVE, clicking the Activate button gives priority to the property editor on which this button was pressed. For example, if you scaled an image using the DVE, and then click the Activate button in the Luma keyer property editor, the image appears in full size to let you concentrate on areas in the image that you want to key out.

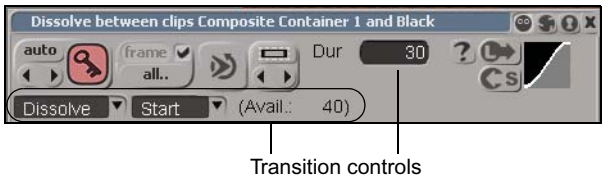
Preset Controls

The preset controls let you save and load presets. A thumbnail of the current effect is displayed with the preset controls.

Option	Description
Save Preset	Saves presets by opening the Save Preset dialog box, where you can save the current parameter settings as a preset. You can choose the folder to save it in or create a new folder in which to store your customized presets.
Load Preset	Loads and displays presets by opening the Load Preset dialog box, where you can select a preset file to load into the property editor.
Thumbnail	Displays the thumbnail of the selected effect

Transition Controls

The transition controls let you specify the type and duration of a transition.



Option	Description
Dur (duration)	Specifies the duration, in frames, of a transition
Select Transition	Lets you choose between the Dissolve, DVE, and Wipe transitions
Transition location	Specifies whether the selected edit point is the start, center, or end of the transition

Recycling, Locking, and Focusing Property Editors

The title bar buttons let you recycle, lock, and focus property editors. This lets you work more efficiently with property editors. You can display the same property editor, compare the parameter values of two different objects by locking and displaying their property editors, and view several different property editors for the same object simultaneously. This is especially useful when working with graphics because many graphics objects have similar properties.

By combining some of the modes in a property editor, you can control exactly how you want the property editor to behave when displaying objects.

By default, most property editors are set to Recycle mode when you first display them.

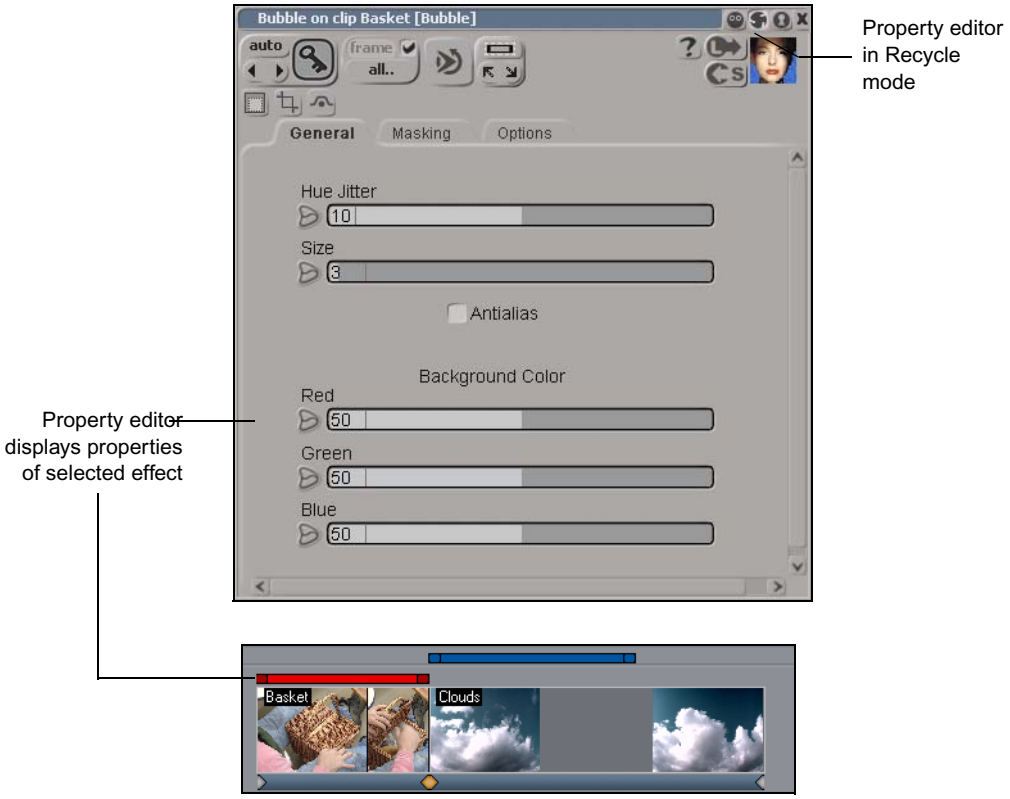
Using the Recycle Mode

In the Recycle mode, the same property editor window is reused whenever you select an object. For example, if you open one effect's property editor, and then select a different effect, the properties of the first effect are replaced by the properties of the second effect.

To use the Recycle mode:

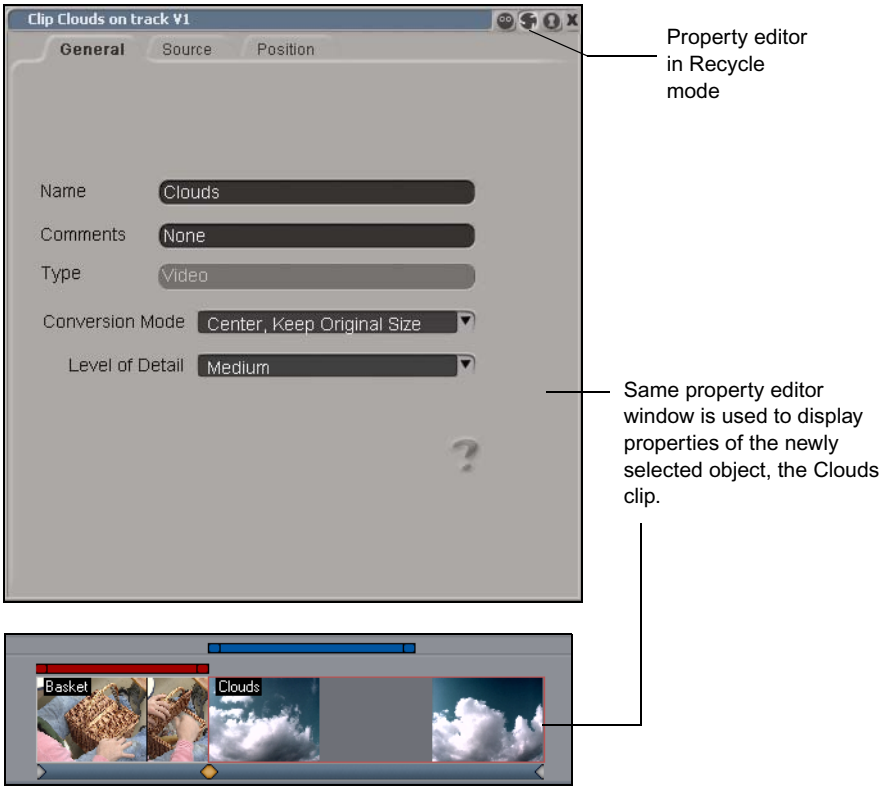
1. Double-click an effect bar on the timeline.
2. In the title bar of the property editor, click the **Recycle** button.

   By default, most property editors are set to the Recycle mode.



3. Select a different object, such as a clip or a different effect.

   The same property editor window updates to display the properties of the newly selected object.



Using the Lock Mode

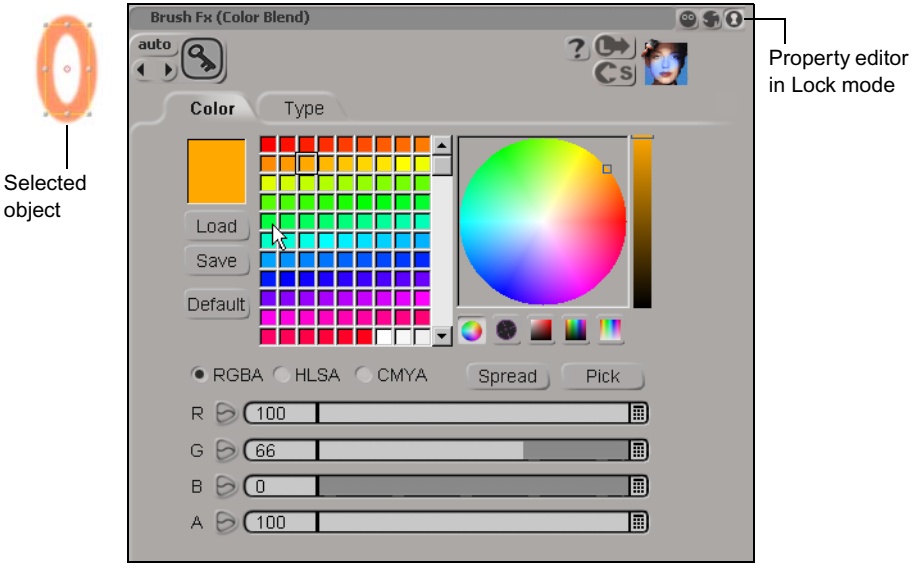
In the Lock mode, the property editor continues to display the properties of the object on which it is locked. That is, it does not react to any subsequent selections you make. You can, for example, lock the property editor of one graphics object and open another property editor for a different graphics object. This lets you compare the parameter values between the two graphics objects.

Property editors accessed from the Layers view are automatically set to Focus mode instead of the default Recycle mode.

To use the Lock mode:

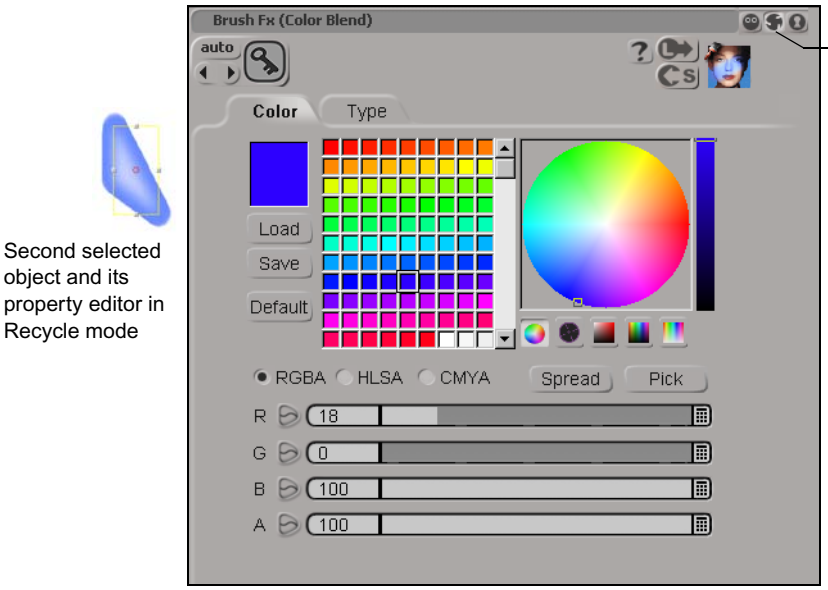
1. Select an object and open its property editor.
2. In the title bar of the property editor, click the **Lock** button.

   The property editor is locked to the selected object.



3. If desired, select another object and open its property editor.

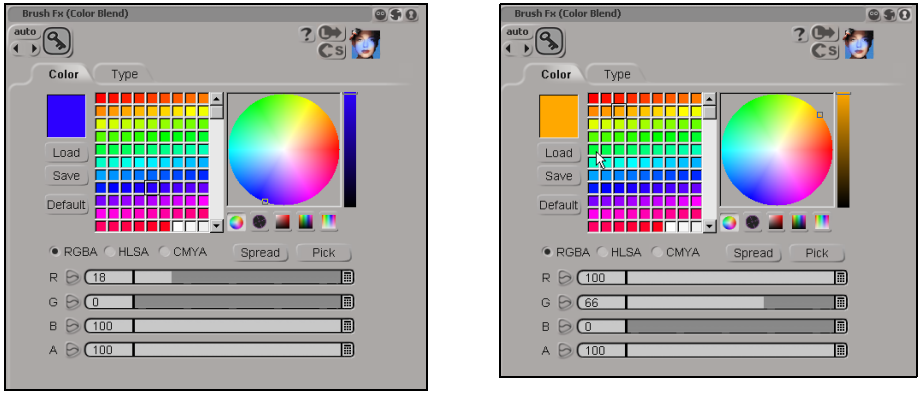
   A second property editor (in Recycle mode) opens on top of the first property editor.



4. Drag the second property editor to another location to view both property editors, so that you can compare the values of both graphics objects.

Property editor of second selected object in recycle mode.

Property editor of first selected object in lock mode.



Viewing the two property editors side-by-side lets you compare and adjust values.

Using the Focus Mode

In the Focus mode, a property editor displays the properties of a specific type of property. The Focus and Lock modes differ in that the Lock mode links a property editor with a specific object, such as a stroke or text body, whereas the Focus mode links a property editor with a type of property, such as brush or fill. Property editors in Focus mode will continue to update as the selection changes—as long as the type of object doesn't change. Property editors in Lock mode ignore selection changes.

This mode is most useful in the Graphics layout, where there are many different types of properties, such as the brush or fill properties of a stroke, or the face, edge, or shadow properties of a title. Setting a property editor to Focus mode ensures that a property editor of a particular type, such as brush properties, is always available in a layout.

To use the Focus mode:

1. Select an object and open its property editor.

   The graphics property tree displays the properties of the selected object.

2. From the graphics property tree, click a property button.

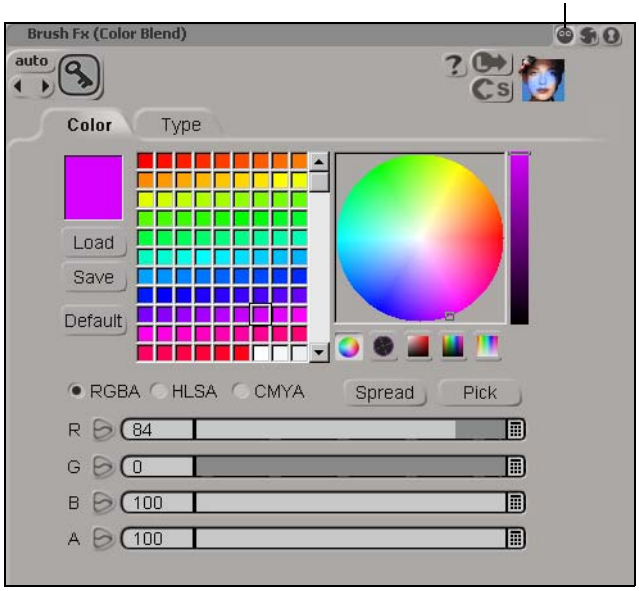
   The property editor is in the default Recycle mode.

3. In the title bar of the property editor, click the **Focus** button.

   The property editor is focused on the specific type of property you selected.

Selected object and its property editor in Focus mode

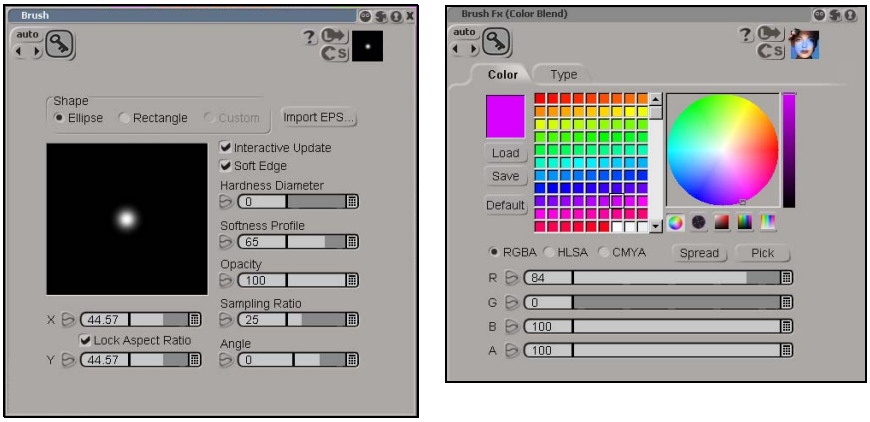
Property editor in Focus mode



4. From the graphics property tree, click a different property button.
   - If the property you selected was the same type as the first, then the same property editor window is used to display its properties.
   - If the property is of a different type than the first, then a second property editor (in Recycle mode) is opened to display its properties. The first property editor continues to display the properties of the object on which it is focused.
5. Drag the second property editor to another location to view both property editors at the same time.

Brush stroke properties of selected object

Brush Fx properties of selected object



Property editors of both selected property buttons

Combining Modes

By combining some of the modes in a property editor, you can control exactly how you want the property editor to behave when displaying objects.

Only two modes can be active at any given time. The Recycle and Focus modes cannot be active simultaneously.

Here are all the possibilities for combining modes:

To focus and lock property editors:

1. Click the **Focus** button.
2. Press Ctrl and click the **Lock** button.

To recycle and lock property editors:

1. Click the **Recycle** button.
2. Press Ctrl and click the **Lock** button.

To undo a mode combination:

- Do one of the following:

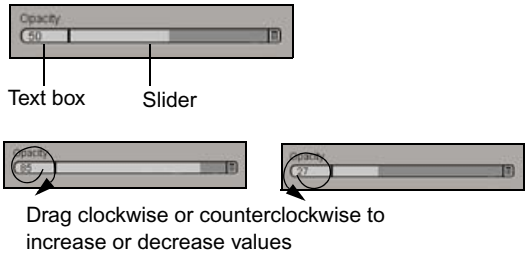
- Click the button of the mode you want to keep.
- Press Ctrl and click the button of the mode you want to remove.

Entering Values

There are several ways to enter numerical values and timecode information in Avid DS Nitris. You can choose the method that is the most convenient for you. There are also keyboard shortcuts available that let you quickly enter values and timecodes.

Using Text Boxes

Text boxes are located beside or below a property name in a dialog box or property editor. To increase or decrease values in a text box, you can enter new values directly in the box, or use a number of different keyboard and mouse operations.



To enter and adjust values in a text box:

1. Click in a text box.

   The contents of the text box is selected and an insertion point (flashing vertical bar) appears.

2. Do one of the following:

   - Type in the numerical values and press Enter.
   - Use any of the following shortcuts.

To enter value	Do this
Increase value by 1/10 of a unit	• Press Shift+] • Hold down the Shift key and drag clockwise around the text box • Hold down the Shift key and roll the mouse wheel forward
Decrease value by 1/10 of a unit	• Press Shift+[• Hold down the Shift key and drag counterclockwise around the text box • Hold down the Shift key and roll the mouse wheel backward
Increase value by 1 unit	Press] or roll the mouse wheel forward
Decrease value by 1 unit	Press [or roll the mouse wheel backward
Increase value by 10 units	• Press Ctrl+] • Hold down the Ctrl key and drag clockwise around the text box • Hold down the Ctrl key and roll the mouse wheel forward
Decrease value by 10 units	• Press Ctrl+[• Hold down the Ctrl key and drag counterclockwise around the text box • Hold down the Ctrl key and roll the mouse wheel backward
Cancel command and close a dialog box	Press Esc
Set value to minimum	Press Ctrl+Home
Set value to maximum	Press Ctrl+End

To replace the contents of a text box:

1. Click in a text box.

   The contents of the text box is highlighted in blue.

2. Type in new values and press Enter.

Using Sliders

Sliders are located beside a text box in property editors and dialog boxes. There are two modes in which you can use the sliders: Classic mode and Relative mode.

In the Classic mode, the sliders behave in the standard Avid DS Nitris fashion. In the Relative mode, the slider's movement corresponds to the amount or distance that you move the mouse. It also uses the entire slider range, from the beginning of the text box to the end of the slider itself. Relative mode is the default slider mode.

To change the slider mode:

- Right-click the slider and select one of the following:
  - **Classic Mode**
  - **Relative Mode** and then select the level of sensitivity when dragging the mouse (Low, Medium, or High)

To adjust values using the slider:

- Click anywhere on the slider and drag to increase or decrease the value.
- Hold down the Shift key and drag to change value by 1/10 of a unit.
- Hold down the Ctrl key and drag to change value by 10 units.
- If you want the relative slider to behave temporarily as it does in classic mode, press the Ctrl+Shift keys and click the slider to jump to the new location.

To show/hide the calculator:

- Do one of the following:
  - Press R and click a slider.
  - Right-click the calculator and select/deselect **Show Calculator**.

Adjusting the Slider Outside the Slider Area

In both Relative and Classic modes, you can use the slider to adjust the values of a property without having to be in the slider area. That is, the pointer can be anywhere on the desktop.

To adjust the slider while outside the slider area:

1. Press C and click the slider.

   The pointer turns into a double-pointed arrow.

2. You can now move the pointer anywhere on the desktop and click-drag the pointer to adjust the values of the property.

You can also use the Shift key (to change value by 1/10 of a unit) and the Ctrl key (to change value by 10 units) while working in this new mode.

Using the Calculator

The calculator button is located at the far-right of a text box. You can show or hide the calculator.

To enter values using the calculator:

1. Click the **Calculator** button next to the slider.

   The calculator is displayed.

2. Do one of the following:

   - Use the keyboard to enter numbers.
   - Use your pointer to select numbers on the calculator.

3. If you performed mathematical operations, click the **Equal** button.
4. Click **OK**.

   The calculator closes and the value is added to the text box.

Using Timecode Boxes

There are SMPTE timecode boxes in several places in the Avid DS Nitris interface, such as in the status bar, on the transport controls, and in property editors.

Entering values in timecode boxes is similar to entering values in text boxes except that you can also use absolute or relative input methods. The absolute input method replaces the current value with the value you enter. The relative input method offsets the current timecode by the value you specify.

The following table summarizes the various means of entering values in timecode boxes assuming that the current timecode is 01:12:34:00.

You enter	NTSC result	PAL result	Description
Absolute Input Method			
5223	00:00:52:23	00:00:52:23	Replaces the current timecode
/5223	01:12:52:23	01:12:52:23	Replaces the rightmost portion of current timecode
.40	00:00:01:10	00:00:01:15	Replaces the current timecode with this many frames (direct frame entry)
10:00.40	00:10:01:10	00:10:01:15	Combines timecode value with direct frame entry
3:::1	03:00:00:01	03:00:00:01	Skip fields by entering colons (:)
Relative Input Method			
110+ 110-	01:12:35:10 01:12:32:20	01:12:35:10 01:12:32:15	Increases or decreases the current timecode by the value entered
.110+ .110-	01:12:37:20 01:12:30:10	01:12:38:10 01:12:29:15	Increases or decreases the current timecode by the number of frames entered
1.10+ 1.10-	1:12:35:10 1:12:32:20	1:12:35:10 1:12:32:15	Use the period (.) to separate seconds and frames.
] or [	01:12:34:01 01:12:33:29	01:12:34:01 01:12:33:24	Nudges the current timecode up or down by 1 frame
Shift+] or Shift+[	01:12:34:01 01:12:33:20	01:12:34:10 01:12:33:15	Nudges the current timecode up or down by 10 frames

Toolbars

The toolbars contain commonly used tools, as well as presets which are specially customized effects, transitions, or tools. Toolbar buttons let you activate tools or commands and apply presets. For example, you can save a color correction preset and then apply it to other clips in a sequence. Or you can save a titling style as a preset and use it to quickly create new titles.

Toolbar Menu

The Toolbar pop-up menu lets you create new toolbars, delete and copy toolbars, display toolbar buttons as text or icons, show or hide the toolbars' title bars, customize existing toolbars, and more.

To access the Toolbar menu:

- Right-click a button on a toolbar.

Option	Description
Customize Menu Button	For menus, lets you rename the button on the toolbar and reorder the commands and presets in the list. For preset list buttons, lets you rename the button on the toolbar, set the path to the preset folder, and turn on/off the display of submenus.
Toolbar Group Separator	Changes the name of the group
Remove Item from Toolbar	Deletes a selected item from the toolbar
Customize Toolbars	Displays the Customize Toolbars window, which lets you add buttons for the following to a selected toolbar: commands, menus, property editors, floating toolbars, transports controls (viewer area only), timecode boxes, and more.
Show Hidden Items	Displays the space separators (in red) which are usually invisible in the toolbar, such as the vertical and horizontal spacing between buttons, line breaks, and empty lines. This is very useful when customizing toolbars.

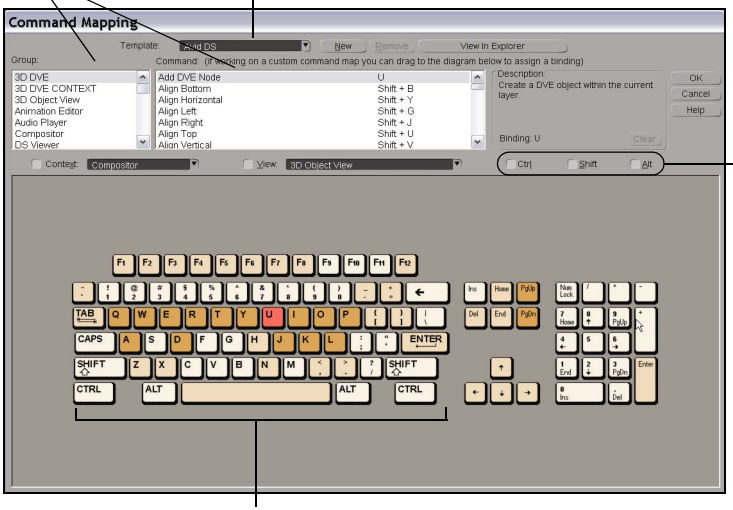
Option	Description
New Toolbar	Creates a new toolbar
Copy Toolbar	Copies the current toolbar and displays it on the desktop
Delete Toolbar	Deletes the selected floating toolbar. *You cannot delete the fixed, default toolbars.*
Display Titlebar	Displays the title bar of a selected toolbar. Does not apply to the floating toolbars.
Auto-Close Toolbar	Automatically closes a floating toolbar after executing a command
Button Theme	Lets you select a different style for the look of the buttons on the toolbar. There are eight themes: 3rdFloor, Alpha, Alumina, Carboneum, Evo (default), Evo1, Lamellae, and Pane.
Button Mode	Lets you display buttons as icons or text
Button Size	Lets you display buttons in various sizes: thin, default, or large

Command Mapping Dialog Box

The Command Mapping dialog box lets you associate commands with keys or key combinations that, when pressed, provide quick access to the commands, tools, views, or property editors you most frequently use. You can choose one of several default command maps, or create your own.

When you select a group, a list of commands is displayed in the Command list.

Templates let you save a set of command maps. Default templates include the Avid DS Nitris default keys. You can also create your own template.



If a command is mapped to a modifier key, the Ctrl, Shift, or Alt options will be selected when you select a command from the list.

The keymap shows the keys that are mapped to the current group, the currently selected command, and global keys, which exist in all contexts and views.

To access the Command Mapping dialog box:

- Select **File > Command Mapping**.

Option	Description
Template	Lists the available templates
New	Adds a new template
Remove	Removes currently selected template
View in Explorer	Lets you view the command maps in the current template in Internet Explorer
Group	Lists the available groups which contain tools and views

Option	Description
Command	Lists the commands under the currently selected group and the key to which they are mapped
Description	Shows a description of the currently selected command, and the key to which it is bound.
Clear	Removes the binding between the selected key and its command *You cannot clear bindings in a default template.*
Context	Defines a collection of tools, key mappings, and views dedicated to a type of work
View	Lists the views with which you may be working. When selected, this option will show if conflicts exist between command maps within the current context.
Modifier Keys	Changes the command normally associated with a key, if held down when the command key is pressed. Modifier keys include Ctrl, Shift, and Alt.
Ctrl	Shows the command maps controlled by the Ctrl modifier
Shift	Shows the command maps controlled by the Shift modifier
Alt	Shows the command maps controlled by the Alt modifier

Using Templates for Command Maps

Templates allow you to save a set of command maps. Default templates include the Avid DS Nitris default keys, as well as templates based on other popular, standard keyboard templates. You can use a default template or customize one. Default templates cannot be edited.

To use an existing template:

- From the Template list, select a template.

  A list of default and custom keyboard templates is displayed.

To create a new template:

- Click the **New** button and Enter a name for the new template.

To remove a template:

- Click the **Remove** button.

You cannot delete a default template or any of its commands.

Customizing the Command Map

The default shortcuts are read-only. To define your own keys, you'll need to create a new template. Before assigning a key to a command, you can verify if that key is already used in other layouts. You can map commands using specific keys of your preference. Or you can choose an existing template to work with and customize the key commands.

The keyboard mapping in Avid DS Nitris is layered. That is, each layout, or context, has its own collection of tools, key mappings, and views dedicated to a specific type of work. To see if a given key is being used or not, you need to specify the context and the view you will be working in.

For example, if you are working in the Graphics layout, which is considered the graphics context, and you open the animation editor. The animation editor now takes priority. Now, if you press A, the Add Keys command from the animation editor would take priority instead of the Select tool, which also has its shortcut mapped to A in the Graphics layout.

To create a new template:

1. In the Command Mapping dialog box, click the **New** button.
2. Enter a name for the new template.

   A copy of the existing template is created and saved under another name. You can customize it to optimize your work.

To assign a key to a command:

1. In the Command Mapping dialog box, select a template from the Template list.
2. Select a group from the Group list.
3. Drag a command from the Command list to a key on the keyboard displayed in the Command Mapping dialog box.

   The key mapped to this command is shown in red on the on-screen keyboard, and its associated key binding appears in the Current Binding box.

For combination keys, such as Alt+*key*, Ctrl+*key*, Shift+*key*, Alt+Shift+*key*, drag a command to a key on the keyboard while pressing the modifier keys.

If you map a command to key that is already assigned, it will take priority. The command that was previously mapped to that key will no longer be mapped to any key; it will be unassigned.

Viewing the Mapped Commands

You can use command maps as a reference for keyboard shortcuts during your work sessions, or to check whether a key has already been mapped to another command. Viewing command maps in a browser window gives you a printable list that you can use as an offline reference.

To view the mapped commands:

1. Select a template from the Template list.

   A list of groups associated with this template is displayed.

2. From the Group list, select a group.

   A list of commands in this group is displayed in the Command list, and the keys that are mapped to the current group are shown in a tan color on the keyboard. Commands that are global and exist in all contexts are shown in beige.

3. From the Command list, select a command.

   The key mapped to this command is displayed in red on the keyboard.

   If a command is mapped to a modifier key, then the Ctrl, Shift, and/or Alt options are selected when you choose the command in the list.

To view the mapped commands in a browser:

1. Select a template from the Template list.
2. Click the **View in Explorer** button.

Checking to See if a Key is Free

To know if a given key is currently unassigned, you must specify the context and the view you will be working in. A context is a collection of tools, key mappings, and views dedicated to a type of work.

Specifying the context and view will reveal any conflicts with commands mapped to the same key, but in different contexts. These conflicts are shown in dark brown.

For example, suppose you're working in the Graphics layout, which is also considered the graphics context, and you open the animation editor. If you press A, the Add Keys command from the animation editor would take priority and you would not be able to activate the command that you would usually get in the Graphics layout, which is the Select tool

To see if the key is used in another context:

1. Select a template from the Template list.
2. From the Context list, select the context that most closely reflects the work you will be doing.
3. From the View list, select the view in which you will be working.

   By selecting and deselecting the View option, you can see if a conflict exists between two commands when you are working in the chosen context and view. These conflicts are indicated by displaying a dark brown key. This information will help you to create your own custom command map or template.

Key color	Description
White	Keys that are free and not mapped to any command in the current context or view
Beige	Keys that are global and exist in all contexts and views
Tan	Keys that are mapped to commands grouped under the currently selected group
Red	Key that is currently selected in the command list
Dark Brown	Keys that are also being used currently by another view or context that are of higher priority. The keys will continue to work as expected within the group until you enter a view or context with a higher priority.

Edit Layout Dialog Box

The Edit Layout dialog box lets you specify whether changes that you make to layouts are saved for future sessions, or used for the current session only. If you do not save your edits, they will be lost when you close Avid DS Nitris.

Option	Description
Layouts	Lists the Avid DS Nitris layouts.Layouts that you edited are automatically selected. Deselect layouts if you do not want to save the edits that you made.
Save	Saves changes to selected layouts for future sessions
Don’t Save	Applies changes to edited layouts for the current session without saving them for future sessions

Load Preset Dialog Box

The Load Preset dialog box lets you load a preset into a property page.

Option	Description
Avid Explorer Tools	Lets you navigate through and manage the contents of your bins.
Blend Property Editor	Changes the way the contents of the bin are displayed. These tools appear for all bin contents.
File Name	Lets you enter a name for your preset.
File Types	Lets you select a file type for your preset.

Preference Management Dialog Box

The Preference Management dialog box lets you import and export preference sets. A preference set is a collection of Avid DS Nitrislayouts, toolbars, combo views, and/or key maps. Importing and exporting preference sets lets you share customized controls with other users.

When you import or export a preference set, its internal hierarchy is preserved. For example, if you export an entire layout, any toolbars contained in the layout are automatically exported with it.

Preference sets with the same name are appended with a number to differentiate them.

To access the Preference Management dialog box:

- Select **Layout > Import/Export Preferences**.

Export Preferences Property Page

The Export Preferences property page lists all of the components of the current preference set (layouts, toolbars, combo view, and keymaps), and lets you export some or all of them as a new preference set.

Option	Description
Preference Set to Export	Lets you select specific components of the current preference set to export as a new preference set
Type	Specifies whether you are exporting entire layouts, toolbars, combo views, or keymaps
Select All	Selects all available components
Select None	Deselects all available components
Export	Displays the Export Preferences dialog box

When you export existing layout to a new preference set, its components are automatically exported as well.

When you export a preference set, you can only include the layouts and keymaps you customized. You can export any toolbar.

To export a preference set:

1. In the Preference Management dialog box, select the **Export Preferences** tab.
2. Select the controls that you want to export. Use the Type list to switch between the layouts, toolbars, and keymaps in the preference sets.

3. Click the **Select All** button to select all controls.
4. Click **Export** to export the selected controls.
5. Do one of the following:
   - In the File Name text box, enter the path to the folder in which you want to save the preference sets.
   - Click **Paths** to select a default or project path.
   - Use the Avid Explorer to navigate to the folder in which you want to save the preference sets.
6. Enter a name for the preference set in the File Name text box and click **OK**.

Import Preferences Property Page

The Import Preferences property page lets you select a preference set from which import components (layouts, toolbars, combo views, and keymaps). For example, you can import a custom layout that another user has designed and exported.

Option	Description
Filename	Specifies the name of the preference set from which you are importing components
Browse...	Displays the Import Preferences dialog box, where you can select a preference set to import
Preference Set to Import	Lets you select specific components from the preference set
Type	Specifies whether you are importing entire layouts, toolbars, combo views, or keymaps
Select All	Selects all of the components in the preference set
Select None	Deselects all of the components in the preference set
Import	Imports all of the selected components from the preference set

When you import an entire layout from an existing preference set, its components are automatically imported as well. Some types of layouts are unsupported and can not be imported.

When you import a preference set, you can import all of the controls in the set, or you can select only the controls that you need.

To import a preference set:

1. In the Preference Management dialog box, select the **Import Preferences** tab.
2. Do one of the following:
   - In the File Name text box, enter the name and location of the preference sets that you want to import.
   - Click **Browse**.

   The Import Preferences dialog box is displayed.
3. Locate the preference sets that you want to import and click OK.
4. Select the controls that you want to import. Use the Type list to switch between the layouts, toolbars, combo views, and keymaps preference sets.
5. Click the **Select All** button to select all controls.
6. Click the **Import** button to import the selected controls.

   You will be prompted to restart Avid DS Nitriswhen the import is complete.

   If you imported a layout, additional layout buttons appear in the taskbar.

Save Preset Dialog Box

The Save Preset dialog box lets you save the settings of your property editor as a preset in a desired location.

Option	Description
Avid Explorer Tools	Lets you navigate through and manage the contents of your bins.
Blend Property Editor	Changes the way the contents of the bin are displayed. These tools appear for all bin contents.

Option	Description
File Name	Lets you enter a name for your preset.
File Types	Lets you select a file type for your preset.

User Preferences Dialog Box

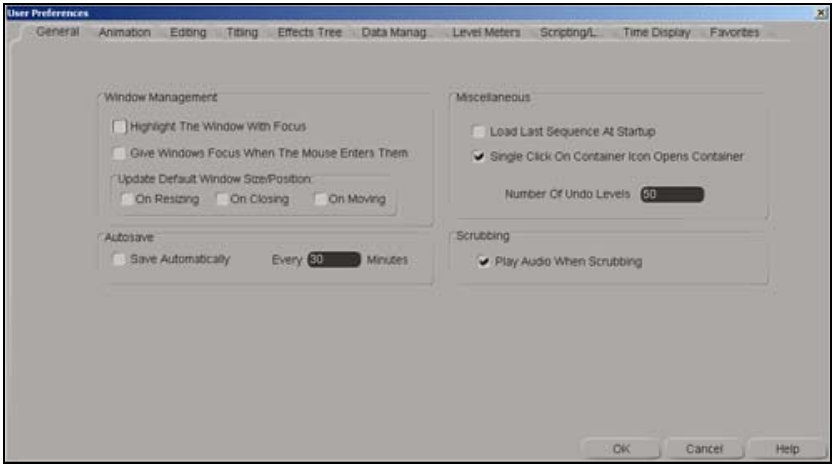
The User Preferences dialog box lets you adjust the settings that affect the way you work with Avid DS Nitris. For example, you can set preferences, such as automatic saves, number of undo levels, animation preferences, and the number of type of tracks to display when you open a new sequence. You can also set editing preferences, such as pre-roll and post-roll frames.

After setting the preferences, they become part of your user profile under your user name. The next time you start Avid DS Nitris, these preferences are used.

Do not customize the fonts, windows scheme, or taskbar properties on the Windows 2000 desktop or Avid DS Nitris may not function properly.

To open the User Preferences dialog box:

- Select **File > User Preferences**.



General Property Page

The General property page lets you set preferences, such as automating the loading of the current sequence, setting the number of undo levels, and autosaving preferences.

For example, if you know that you will be working on the same sequence for several sessions, you can set Avid DS Nitris to automatically open that sequence each time you start the application. You can also set Avid DS Nitris to automatically save your work at regular intervals.

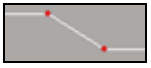
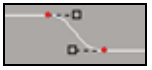
Option	Description
Window Management	Sets preferences for window management
Highlight the Window with Focus	Shows you which view has focus by displaying small red brackets at the view's corners
Give Windows Focus When the Mouse Enters Them	Gives focus to an area by rolling the mouse over it
Update Default Window Size/Position	Lets you choose the default window size and position based on the last resized window, the last closed window, or the last moved window.
On Resizing	Sets the default window size and position based on the last resized window
On Closing	Sets the default window size and position based on the last closed window
On Moving	Sets the default window size and position based on the last moved window
Autosave	Sets autosave preferences
Save Automatically Every X Minutes	Saves the current sequence at regular intervals. This option can protect you from losing work in the event of a power failure or system failure.
Miscellaneous	Sets user preferences, such as number of undo levels and loading last sequence at startup

Option	Description
Load Last Sequence at Startup	Loads the last saved sequence each time you start. Tip: If you need to override this setting, hold down the Shift key when you double-click the Avid DS Nitris icon when starting the application. This is useful when you want to start a new sequence.
Single Click on Container Icon Opens Container	Opens a container clip with a single click. Usually, you have to double-click on the container clip to open it.
Number of Undo Levels	Sets the number of commands or actions that you can undo and redo. The default number is 50; maximum is 1000. The higher the number of levels you set, the more memory is required (which can slow down performance), but the further you can backtrack. ***Tip**: You can access the Undo and Redo commands from the Edit menu. The keyboard shortcuts are Ctrl+Z and Ctrl+Y, respectively.*
Scrubbing	Sets scrubbing preferences
Play Audio When Scrubbing	When selected, lets you hear the audio tracks when scrubbing on the timeline

Animation Property Page

The Animation property page lets you set preferences, such as the default interpolation and slope mode for inserted keys.

If you frequently animate objects or parameters, you can set Avid DS Nitris to automatically set keyframes as you adjust an object's properties or a parameter's values. Instead of clicking the Animation Key button each time you want to add a keyframe, the Autokey mode automatically records any adjustments that you make.

Option	Description
Default Interpolation for Inserted Keys	Sets the default interpolation type for inserted keys
Automatic (From Neighboring Keys)	Repeats the value of a key point. The movement is characterized by sudden changes at keyframes and static positions between keyframes.
Constant	Repeats the value of a key point until the next one. The movement is characterized by sudden changes at keyframes and static positions between keyframes.
Linear 	Connects key points by straight line segments. The movement is characterized by sudden changes at each keyframe.
Spline 	Results in a smooth transition. When selected, spline interpolation accelerates and decelerates to ease into and out of each keyframe. The degree of acceleration and deceleration before and after the keyframe is determined by the key point's tangent handles.
Default Slope Constraint for Inserted Keys	Sets the default slope type for inserted keys
None (DS - Use Neighboring Slopes)	Sets the slope of an inserted key automatically using the slopes of neighboring keys. This mode does not affect the slope of these neighboring keys.
Automatic (3D - Use & Affect Neighboring Slopes)	Sets the slope of an inserted key automatically to the slopes of neighboring keys. This mode affects the slope of neighboring keys.
Plateau (Horizontal for Local Min & Max)	Sets the slope of an inserted key automatically to zero if the next key has the same value, or if that key is a local minima or maxima. A local minima/maxima is a key point where both previous and next keys have either smaller (minima) or larger (maxima) values. This is useful for holding key point values to prevent the automatic interpolation from going above or below your keyframed values.

Option	Description
Zero (All Horizontal)	Constrains the slope of key points to zero. The tangent handles remain horizontal, so that only the slope tension can be modified.
Autokey	Toggles the Autokey button on or off
Set Keys When Changing Values (Autokey)	Automatically sets keyframes as you adjust an object's properties or a parameter's values. Instead of clicking the Animation Key each time you want to add a keyframe, the Autokey button automatically records any adjustment that you make.

Editing Property Page

The Editing property page lets you change various default settings, such as the preferred track type, transition duration, still image duration, and the number of pre-roll and post-roll frames.

Option	Description
Extra Material	Lets you change the number of pre-roll and post-roll frames
Pre-roll (frames)	Specifies the default number of pre-roll frames before a transition (or timeline selection). When you play back the processed frames, the pre-roll frames are added to the in-point.
Post-roll (frames)	Specifies the default number of post-roll frames after a transition (or timeline selection). When you play back the processed frames, the post-roll frames are added to the out-point.
Selectable Objects (J-K-L keys)	Lets you select the type of object that moves on the timeline when you use the J-K-L keys
Edit Points and Clip Handles	Lets you to move these objects with the J-K-L keys
Clips	Lets you move clips with the J-K-L keys
Effect bars	Lets you move effect bars with the J-K-L keys

Option	Description
Activeness	Lets you move activeness bars with the J-K-L keys
Markers and Locators	Lets you move locators, in-points, and out-points with the J-K-L keys
Preferred video track type	Lets you select the type of track when you create new tracks inside of a sequence
Transitions	Lets you specify default values for transition duration and position
Default Duration (frames)	Specifies the default length, in frames, of transitions
Default Position	Specifies the default position of a transition with respect to the selected edit point. **Start**: The transition begins at the edit point **Center**: The transition is centered over the edit point **End**: The transition ends at the edit point
Default Still Image Duration (frames)	Specifies the number of frames you want to be created when you capture a still image
Show Overlays in Viewer	Displays locators (global, local/clip), in/out-points, start/end of clip, and start/end of available material
Always update clips in source viewer	Automatically updates the clip in the bin when the in-point or out-point of a clip in the source viewer is changed

Titling Property Page

The Titling property page lets you set preferences that allow you to see or hide text outside the output area, as well as control the way text is selected.

Option	Description
Disable Text Overlay	Allows you to see text existing outside the output area

Option	Description
Selection Criteria (Ctrl+mouse)	Controls the way text is selected when you hold down the Ctrl key and drag
Titling Font Only	Lets you select text characters with like fonts when you hold down the Ctrl key and drag
Titling Style Only	Lets you select text characters with like style attributes, such as bold, italic, etc., when you hold down the Ctrl key and drag
Both	Lets you select all text characters when you hold down the Ctrl key and drag

Effects Tree Property Page

The Effects Tree property page lets you set preferences that affect how nodes in the Effects Tree are connected and disconnected, how tooltips are displayed, the speed in which the Effects Tree pans, how names are displayed on nodes and ports, and how new nodes are place in Effects Trees.

Option	Description
Interaction	Sets preferences for connecting and disconnecting nodes in the Effects Tree
Enable Enhanced Interaction	Enables enhanced features such as “kissing”, “ripping”, “twanging” and sticky connections.
Connecting Nodes (1=slow, 10=fast)	Lets you increase or decrease the response time when connecting nodes. For example, a value of 1 means that when you drag a node to touch another node (“kissing”), you have to hold it there for a longer period of time before a connection is made.
Disconnecting Nodes (1=slow, 10=fast)	Lets you increase or decrease the response when disconnecting nodes. For example, a value of 1 means that you can easily “rip” a node away from another node to disconnect it.

Option	Description
Minimum Node Drag for Interaction (in pixels)	Lets you set the distance in which you must drag a node (in pixels) before interaction will take place. For example, the default setting of 20 means that you must drag a node at least 20 pixels before it will be connected (twangs) to another node. Values range from 0 to 500. If this option is set to 0, then automatic connection twanging will take place if you click or double-click a node.
Allow Connection Replacement	Lets you turn connection replacement on or off. When selected, you can replace a connection using enhanced interactivity such as “kissing” or “twanging”. When this option is deselected, a node will only twang to a connection if there is currently nothing attached to its input port.
Pan Speed (0=None, 10=Fast)	Lets you set the speed at which the Effects Tree pans when you drag nodes around. Values range from 0 (no panning) to 10 (fastest).
Node Attract/Repel Spacing (1=Small, 10=Large)	Let you set the spacing in which nodes are pushed/pulled towards or away from each other. Values range from 1 to 10. A larger value attracts/repels nodes a larger distance.
Auto-expand Collapsed Nodes	Lets you automatically expand a collapsed node when you position the pointer over it. When you move the pointer away from the node, it automatically collapses again. ***Tip**: If you want a node to remain expanded while this option is selected, deselect Collapse from the menu when you right click on a node.*
Tooltip Settings	Sets preferences for tooltips. This is helpful, for example, when you zoom out an Effects Tree and it’s difficult to see a node’s name. You can display tooltips on nodes, node inputs, and connectors, and specify the speed at which the tooltips are displayed.
Enable Tooltips on Nodes	Displays tooltips on nodes
Enable Tooltips on Node Inputs	Displays tooltips on node inputs

Option	Description
Enable Tooltips on Connectors	Displays tooltips on connectors between nodes
Tooltip Delay (in milliseconds)	Lets you specify how quickly (in milliseconds) tooltips are displayed when you position the cursor over a node, node input, or connector.
New Nodes	Lets you set how new nodes are displayed in an Effects Tree.
Collapse	Automatically collapses all new nodes that you add to an Effects Tree. This feature is useful to conserve space in your Effects Tree. ***Tip**: You can also select the Auto-expand Collapsed Nodes option so that nodes will automatically expand when you position the cursor over them.*
Use Input Names	Lets you append the input port's name with the input's name instead of just Input 1, Input 2, etc. Node names are only displayed on nodes when this option is selected or if you choose "Use Input Names" from the menu when you right-click a node. For example, if a Blue Green keyer is connected to Input 1 of a Composite node, then the Composite node's input port name will be displayed as "Input 1-Blue Green Keyer" when you select this option from the Composite node. All input port names will update to reflect the input's name.
Mouse Zoom x Steps (1=Small, 10=Large)	Lets you set the distance at which the Effects Tree zooms in or out when you use the commands Alt+Z (zoom in) and Alt+X (zoom out). A larger value increases the amount of the zoom.

Capture Property Page

The Capture property page lets you set options for controlling a deck during the capture process.

Option	Description
Recapture	Options that affect recapture (batch capture)
Rewind the tape after capture	After all clips from a single tape are recaptured, sends a signal to the deck to rewind the tape.
Eject the tape after capture	After all clips from a single tape are recaptured, sends a signal to the deck to eject the tape.
No interaction when inserting new tape	Prevents Avid DS Nitris from displaying dialog boxes that would interrupt a batch capture. If you select this option and "Eject the tape after capture," and you know the order of tapes, you can batch capture without interacting with the Avid DS Nitris application—see Batch Capturing Without Interaction.
Display recapture list	Displays a list of clips to be recaptured, which you can sort and select clips to be recaptured—see Capture List Dialog Box.
Stop the deck after capture	After capturing from tape, puts the deck into stop mode, rather than stand-by mode.
Live Capture	Options that affect live capture
Verify capture	Lets you turn the Avid DS Nitris verification codec on or off when capturing in Live mode only. The verification codec uses an error-checking feature that, if it detects a bad frame, might stop the capture. To prevent the codec from stopping a live capture, deselect this option.

Data Management Property Page

The Data Management property page lets you delete the unreferenced media of the current project when you quit Avid DS Nitris. You can also specify the number of frames that separate each clip that is archived to tape as well as the padding for generated subclip names. You can also specify your SMTP server so that you can receive email when your processing jobs are complete.

Option	Description
Archive	Lets you set a gap between clips on your archive tape.

Option	Description
Gap between Clips in Archive (Frames)	Specifies the number of frames that separate each clip that is archived to tape. The number must be an integer value between 1 and 50. *The gap between your archived clips must be at least one frame to make sure that the whole archive is performed correctly and accurately.*
Padding for Generated Subclip Names	Lets you specify whether you want padding or zeroes added to subclip names.
No padding to subclip suffix	Specifies that no padding or no zeroes will be added to subclip names.
Padded suffix	Specifies that you want padding or zeroes added to subclip names.
Maximum number of zeroes to use	Specifies the number of zeroes to add to subclip names.
Email Notification	Lets you specify your SMTP server so that email messages can be sent.
SMTP Server	Lets you enter the name of your SMTP (Simple Mail Internet Protocol) email server, which lets Avid DS Nitris send an email message when a processing job is complete.

Level Meters Property Page

The Level Meters property page lets you adjust the settings for the Mixer, the Audio Input Monitor, and the Audio Output Monitor meters.

Option	Description
Peak	Specifies the level that you expect to be the maximum. Range: 0 to -24 dB
Minimum	Specifies the minimum level displayed on the Level meter. Range: -144.5 to -24 dB
HeadRoom	Specifies the expected dynamic range. Range: 0 to 24 dB

Option	Description
Alignment	Specifies the level of the visual alignment indicator. Range: 0 to 24 dB less than the headroom level
Graduations	Specifies the space, in decibels, between the markings on the level meter. Range: 1 to 24 dB. A value of 0 turns off the level meter markings.
Peak Hold	Indicates whether the decibel level went above that of the specified peak level at any time during playback
Max Hold	Indicates the maximum decibel level achieved during playback
Scale Waveform Display to Peak Level (Mixer only)	Scales the waveform display on the timeline so that the edge of the display represents the peak level specified above. Any audio above the peak level is clipped.

Scripting/Logging Property Page

The Scripting/Logging property page lets you determine the scripting language for your scripts, the command log size, and whether a log file is created.

Option	Description
Scripting Language	Determines the scripting language used to create and run scripts
Command Log Size	Determines the number of command lines retained in the History pane of the Script Editor
Lines	Specifies the maximum number of command lines retained in the History pane of the Script Editor
Unlimited	Specifies that there is no limit to the number of command lines retained in the History pane of the Script Editor
Log File	Lets you create a command log file for each Avid DS Nitris session
Log Commands to File	Creates a command log file for each Avid DS Nitris session

Option	Description
File Name	Specifies the location where the log file is saved and its name
...	Displays the Log File Path dialog box

Avid Explorer Property Page

The Avid Explorer property page lets you set options for how paths are displayed in a bin and whether to keep the Views menu open.

Option	Description
Options	
Expand Views folder	Keeps the Views folder open when the My System view is displayed in the Avid Explorer. The Views folder includes the Avid Event Log, Deck Configuration, Locators, Media Tool, Media Manager, and Tape Library views.
Display the full path in the address bar	Shows the complete system path in the address bar of any folder displayed through Avid Explorer. If this option is not selected, only the folder name is displayed.
Display the full path in the title bar	Shows the complete system path in the title bar of any folder displayed through Avid Explorer. If this option is not selected, only the folder name is displayed.
File Grouping	
Available	Shows the file formats available for grouping. These are all the formats that you can capture. Non-groupable formats, such asaiff, avi, gen, mov, mxf, omf, qt, wav, wma, wmv, etc., are not displayed in the list.
Selected	Shows the file formats selected for grouping.
Add >	Moves the selected file format(s) from the Available box to the Selected box for grouping.
< Remove	Moves the selected file format(s) from the Selected box to the Available box, so that it is not selected for grouping.
Add All >>	Moves all file formats to the Selected box for grouping.

Option	Description
<< Remove All	Moves all file formats to the Available box, so that nothing is selected for grouping. You can also do this by deselecting the File Grouping option.
Group files as frame	Sets the Avid DS Nitrisgroup folder to interpret sequential file names as frames. Deselect this option to interpret sequential file names as fields—see Grouping Files as Frames or Fields.

Time Display Property Page

The Time Display property page lets you specify how time is displayed on the timeline.

Option	Description
Time Display Format	Specifies which format is used to display time on the timecode scale. The available choices vary, depending on whether you are working on a PAL or NTSC sequence.
Use Default Format	Uses SMPTE NTSC drop frame for NTSC sequences, and EBU PAL (25 fps) for PAL sequences
Use (other)	Specifies whether to use the audio sample rate (NTSC and PAL) or SMPTE NTSC non-drop frame (NTSC only)
Display as Frames	Displays time in terms of frames only, as opposed to hours:minutes:seconds:frames
Time Base	Specifies which timecode scale is displayed on the timeline
Show Time in Top Time	(Container clips only) Displays the timecode scale of the top timeline.
Show Time in Parent Time	(Container clips only) Displays the timecode scale of the parent timeline.
Show Time in Sequence Time	Displays the timecode scale of the current sequence

Favorites Property Page

The Favorites property page lets you set the paths or locations where presets for various groups are saved. You can also determine the folder in which preset families are classified.

Option	Description
User Path	The location where your own personal presets are saved
Workgroup Path	The location where presets for the group of people with whom you work are saved
Factory Path	Displays the default location of the original presets shipped with Avid DS Nitris
Project Path	Displays the default location of the current project's presets
Preset Family Locations	Displays the folder in which preset families are located
Path	Displays the folder in which you can find the selected preset family
Family	Displays the family name of the presets

Help Menu

The Help menu lets you access the Avid DS Nitris help system to quickly retrieve reference information. You can also access other useful information, as described in the following table.

To access the Help menu:

- Select **Help**.

Option	Description
Contents and Index	Opens the online help, which includes a list of topics, an index, and a search feature
Quick Starts	Opens a submenu of help topics that provide basic information on how to create a project from start to finish

Option	Description
Release Notes	Opens the release notes, which include descriptions and movies of new features
Keyboard Shortcuts	Opens a PDF file that displays all the keyboards shortcuts
Online Library	If installed on your system, opens the Online Library for online viewing of the Avid DS documentation.
Contacting Customer Support	Opens a page that lists various ways of contacting customer support, including direct links for Web support.
Online Avid Support Center	Opens the Web site for the Avid Support Center.
About Avid DS or Avid DS Nitris	Displays the program's build number and version along with the product serial number

Layout Menu

The Layout menu lets you customize the views in the current layout, or create your own layouts.

To access the Layout menu:

- Select **Layout**.

Option	Description
Editing	Displays the Editing layout
Graphics	Displays the Graphics layout
Compositing	Displays the Compositing layout
3D DVE	Displays the 3D DVE layout
Media Input/Output	Displays the Media Input/Output layout
Classic Layouts	Displays the default layouts
Xtra Layouts	Displays alternate layouts

Option	Description
New Layout	Lets you create a custom layout. When a layout is created, a new layout button is added to the taskbar.
Blank	Lets you name and create a custom layout from scratch. Creates an empty layout to which you add the various layout components that you want to work with. To build your layout, use the components under New Layout > Copy Layout.
Copy Current Layout	Creates a custom layout based on the current layout
Copy Layout	Lets you create a custom layout based on a copy of an existing layout
Edit Layout	Turns edit mode on or off. In this mode, all the windows and views in the current layout are highlighted so that you can move or resize them. When you turn off the edit mode, your changes are automatically saved for the current session.
Save Layouts	Saves all edits made to your custom layout
Restore Default Layout	Restores the default configuration of the current layout
New Combo View	Creates a new combo view and puts you in Edit Combo View mode
Edit Combo View	Lets you customize a combo view
Delete Combo View	Deletes the currently active combo view
New Toolbar	Displays the toolbar dialog box in which you enter a name to create a custom toolbar.
Customize Toolbars	Displays the Customize Toolbars window, where you select from a category of tools to display their associated commands. These commands can be dragged to your custom toolbar for easy access while working.
Import/Export Preferences	Displays the Preference Management dialog box

Slider Menu

The Slider menu lets you set the slide mode, sensitivity of the mouse when dragging, and show or hide the calculator.

To access the Slider menu:

- Right-click a slider in a property page.

Option	Description
Classic Mode	Changes the behavior of all the sliders on this property page to the standard Windows behavior.
Relative Mode	Changes the behavior of all the sliders on this property page, so that values change according to how much you move the mouse. It also uses the entire slider range, from the beginning of the text box to the end of the slider itself. Relative mode is the default slider mode. **To adjust values using the slider**: • Click anywhere on the slider and drag to increase or decrease the value. • Hold down the Shift key and drag to change value by 1/10 of a unit. • Hold down the Ctrl key and drag to change value by 10 units. ***Tip**: If you want the relative slider to behave temporarily as it does in classic mode, press the Ctrl+Shift keys and click the slider to jump to the new location.*
Sensitivity	Sets sensitivity of mouse when dragging (Low, Medium, or High)
Show Calculator	Shows or hides the calculator.

Splitter Menu

The Splitter pop-up menu lets you remove horizontal and vertical splitter bars from a layout in Edit Layout mode. Removing splitter bars allows you to reduce the number of available views.

To access the Splitter menu:

1. Select **Layout > Edit Layout**.
2. Position the pointer over a splitter bar, until you see the directional arrow, and right-click the splitter bar.

Option	Description
Remove Splitter Bar	Removes the selected splitter bar from the layout

Taskbar Menu

The Taskbar pop-up menu lets you add, remove, copy, and rename layouts.

To access the Taskbar menu:

- Right-click a layout button in the taskbar.

Option	Description
New Layout	Creates an empty layout. You will be prompted to name the new layout.
Copy Layout	Copies the selected layout. You will be prompted to name the new layout.
Rename Layout	Displays the Rename Layout dialog box, where you can specify a new name for the selected layout
Remove Layout	Removes the selected layout from the taskbar

Default layouts cannot be renamed or removed. These commands are not available when you right-click on a default layout's button, in the taskbar.

Text Box Menu

The Text Box menu lets you cut, copy, paste, delete, undo, and select all values.

To access the Text Box menu:

- In a property editor or dialog box, right-click a numerical text box.

Option	Description
Undo	Cancels the last action that you performed. You can perform multiple undos. *You can set the number of steps you can undo in the User Preferences dialog box (General property page).*
Cut	Removes the current selection and places it on the Clipboard
Copy	Duplicates the current selection and places it on the clipboard
Paste	Replaces the current selection with the contents of the clipboard
Delete	Deletes the current selection
Select All	Selects all elements on the active window

View Menu

The View menu lets you customize your toolbars and select views. If you select a view that is not accessible from a view switcher in the current layout, the view is displayed in a new window, which you can resize and position.

To access the View menu:

- Select **View**.

Option	Description
Single-Instance Views	Displays the views that you can only once in a layout or view
Multi-Instance Views	Displays the views that you can use more than once in a layout or view
Default Combo Views	Displays the default combo views
User Combo Views	Displays the combo views that you have created
Default Toolbars	Displays the default toolbars
User Toolbars	Displays the toolbars you created
Taskbar	Shows or hides the taskbar at the far left of the desktop

View Switcher Menu

The View Switcher menu lets you add, remove and manipulate views from the view switcher, manipulate and hide the view switcher, and display the buttons as text, small, or large buttons.

To access the View Switcher menu:

1. Select **Layout > Edit Layout**.
2. Right-click the view switcher.
3. When you're done, select **Layout > Edit Layout** again.

Option	Description
Add View	Adds a placeholder for a view
Remove View	Removes the selected view
Icon	Lets you select an icon for the view
Position: Top	Moves the view switcher to the top of the view
Position: Right	Moves the view switcher to the right of the view and displays it vertically

Option	Description
Position: Bottom	Moves the view switcher to the bottom of the view
Position: Left	Moves the view switcher to the left of the view and displays it vertically
Alignment: Left	Left aligns the buttons in the view switcher
Alignment: Center	Centers all the buttons in the view switcher
Alignment: Right	Right aligns the buttons in the view switcher
Text Buttons	Displays text on the buttons
Small Buttons	Displays small buttons
Big Buttons	Displays large buttons
Hide	Hides the view switcher

Viewer Property Editor

The Viewer property editor lets you control all aspects of the viewer. You can save presets of your viewer settings to a toolbar and use them to quickly and easily switch between display resolutions, zoom levels, alpha levels, and the display of guidelines. You can also perform onion-skinning in the viewer, which allows you to blend the current frame with preceding and/or successive frames at a certain percentage.

To open the Viewer Properties:

- Right-click on a viewer and select **Viewer Properties**.

Display Property Page

The Display property page lets you change the viewer display mode.

Option	Description
Channels	Displays specified combination of image's red, green, and blue channels

Option	Description
Resolution	Specifies display resolution (full, half, or quarter) of viewer image
Fields	Specifies which field (first, second, or both) is shown in viewer
Alpha	Controls display of image's alpha channel
Display	Turns display of image's alpha channel on or off
Full, 25%, 75%	Specifies level of intensity at which image's alpha channel is displayed
Zoom & Pan	Controls size and position of image in viewer. You can scale image from 1% to 10,000%. *Only the view of the image is affected, not its actual size.*
Zoom Level	Specifies size of image in viewer
X and Y Pan	Specifies location of image in viewer
Reset	Resets X/Y Pan and Zoom Level to the default values
Quick/Mouse Zoom	Specifies zoom level of image
Steps	Specifies number of times to press Alt+Z to reach Quick Zoom Level
Quick Zoom Level	Specifies size of image in viewer. ***Tip**: Press Alt+Q to switch between zooming the viewer to the Quick Zoom Level and the previous zoom level.* Press Alt+Z to zoom to the Quick Zoom Level.
Use Current Zoom	Sets Quick Zoom Level to value set in Zoom Level
Auto	Automatically pans and/or zooms the viewer when using these interactive tools: graphics/paint tools, Shape tool in the Matte and Keyer effects, DVE tool, and Tracker tool.
Pan	Automatically pans the viewer
Zoom	Automatically zooms the viewer

Option	Description
Zone	Defines the area around the pointer. A small zone means that the pointer must be close to the edge of the viewer before an auto-pan occurs. A large zone causes an auto-pan when the pointer is farther away from the edge of the viewer. Default zone is 1. Values: 0 to 30.
Speed	Determines the speed at which an auto-zoom or auto-pan occurs. A speed of 0 turns off auto-pan and auto-zoom. Default speed is 4. Values: 0 to 10.
Indicate if Viewer is Scaled	Displays an exclamation mark (!) when the viewer scales the image in a way that may introduce unwanted artifacts in the image. This warns you when the correspondence between source and display pixels is not 1:1.
Square pixels	Turns display of square pixels on or off. Since the ITU-R 601 standard specifies a higher horizontal than vertical resolution (or a 0.9 ratio), the image appears stretched horizontally when displayed on a computer monitor (which has square pixels). When selected, this command displays the image in square pixels as it would appear on a computer monitor. When deselected, this command displays the image in non-square pixels as it would appear on a video monitor.

Guides Property Page

The Guides property page lets you control the display and use of guidelines and grids in the viewer.

Option	Description
Grid	Controls display of grid
Display	Turns display of grid on or off
Horizontal spacing	Specifies horizontal distance, in pixels, between points on grid
Vertical spacing	Specifies vertical distance, in pixels, between points on grid

Option	Description
X offset	Adjusts positioning of grid along X axis
Y offset	Adjusts positioning of grid along Y axis
Display outside output area	Displays grid outside viewable area
Snap	Aligns graphics objects to grid
Guidelines	Controls display of guidelines
Display	Turns display of guidelines on or off
Lock	Locks guidelines in place, so you don't accidentally move while aligning graphics objects
Snap	Aligns graphics/paint objects to guidelines
Clear All	Deletes guidelines from the viewer
Safe Action/Title	Displays safe action and safe title guides in viewer
Display	Turns display of safe action/title guides on or off
Aspect Ratio	Displays guide for 4x3 or 16x9 aspect ratios
Action	Displays safe action guide
Title	Displays safe titles guide
Crosshair	Turns display of crosshair on or off
Outside	Displays guides outside viewable area
Display Pixel Info	Displays location (X,Y) coordinates and RGB color information on the pixel in the viewer that the cursor is hovering over
Guide Color	Specifies color used to display guidelines and grid
Color swatch	Displays selected or default color. Click the color swatch to display the Mini Color Editor.

Image Grabber Property Page

The Image Grabber property page lets you control the comparison buffer.

Option	Description
Use Compare Buffer	Turns comparison buffer on or off
Compared Image	Displays the name of the grabbed image
Clear All	Deletes all grabbed images from the Comparison Images folder
Root	Opens the Comparison Images folder, where all grabbed images are stored
Opacity Level	Controls transparency of color. Values: 0 (completely transparent) to 100 (completely opaque).
Grab Image	Takes snapshot of image currently displayed in viewer
Reset Compare Crop	Resets crop marks to display entire image
Reset Compare Position	Resets comparison image to its original position

Onion Skinning Property Page

The Onion Skinning property page lets you blend the current frame with preceding and/or successive frames at a certain percentage. This is useful for rotoscopy work.

Option	Description
Use Onion Skinning	Enables onion skinning in viewer
Frames Before	Sets the frames visible before the current frame
Number of Frames	Sets opacity of first onion skin frame before current frame
Step	Specifies frame interval between current and previous frames
Starting Opacity	Sets opacity of first onion skin frame before current frame
Opacity Fade	Sets opacity percentage in which blending decreases between each frame
Position	Defines position of onion skin in viewer

Option	Description
Above	Places onion skin on top of current frame
Below	Places onion skin under current frame
Current Frame	Controls parameters for current frame
Opacity	Defines opacity of current frame
Frames After	Sets the frames visible after the current frame
Number of Frames	Sets opacity of first onion skin frame after current frame
Step	Specifies frame interval between current frame and the frames after
Starting Opacity	Sets opacity of first onion skin frame after current frame
Opacity Fade	Sets opacity percentage in which blending decreases between each frame
Position	Defines position of onion skin in viewer
Above	Places onion skin on top of current frame
Below	Places onion skin underneath current frame

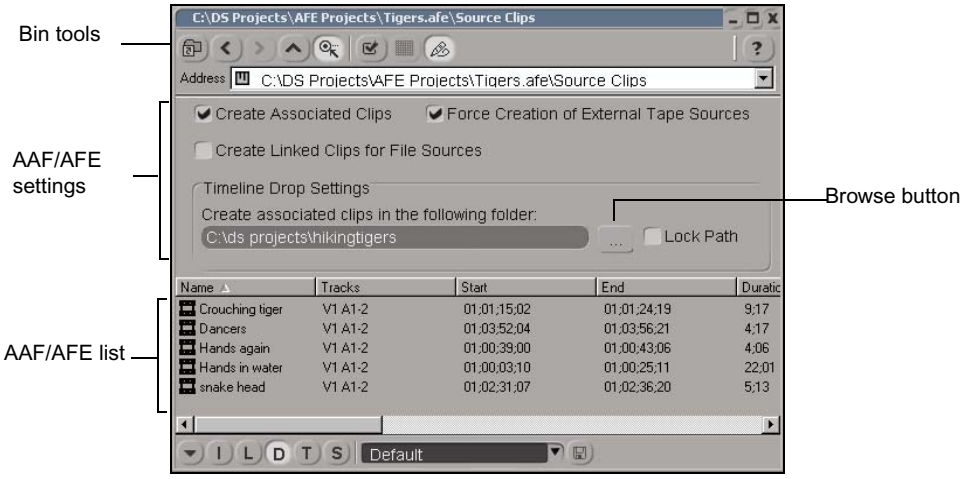
Chapter 2
Capture and Output Reference

This chapter contains reference information about the capture and output processes.

AAF/AFE View

The AAF/AFE view lets you transfer information from an offline system, such as an Avid Media Composer, to an Avid DS Nitris system for conforming and finishing. AAF (Advanced Authoring Format) files contain a single sequence and its associated clips. AFE (Avid File Exchange) files contain Avid editing system bins and the objects in those bins.

The top section of the view displays AAF/AFE settings and the bottom section displays a list of the bins, sequences, and clips that are included in the AAF or AFE file.



To access the AAF/AFE view:

- In the Avid Explorer, double-click an AAF or AFE file.

AAF/AFE Settings

AAF/AFE settings let you create Avid DS Nitris master clips from the AAF or AFE file. You can hide or display these settings by clicking the AAF/AFE Settings button in the bin tools.

To show or hide the AAF/AFE settings:

- In the bin tools at the top of the AAF/AFE View, click the **AAF/AFE Settings** button.

Use this	To
Create Associated Clips	Create master clips from a sequence or clips that you drag onto the timeline. Deselect this option to avoid creating another set of master clips.

Use this	To
Force Creation of External Tape Sources	Append the AAF or AFE project name to the master clip source names when creating master clips. Select this option to distinguish between clips that are created from tapes asssociated with the conform and clips that are not. For example, if you are conforming an AFE created on another Avid system and you want Avid DS Nitris to link to the media captured by that system, select this option. If you are conforming an AFE and you want Avid DS Nitris to link to media that you have already captured (such as through an ALE file), do not select this option.
Create Linked Clips for File Sources	Create linked master clips from a sequence or set of clips.
Timeline Drop Settings	
Create associated clips in the following folder	Displays the path for the folder that will hold the master clips when you drop a clip or sequence on the timeline.
Browse button	Browse within your project folder to specify a folder to hold the new master clips.
Lock Path	Keep the same folder for any new master clips you create. Deselect this option to create master clips in folders that match the names of the bins. Deselecting this option keeps the original project structure when conforming with AFE files.

AAF/AFE List

The bottom section of the view displays the bins, sequences, and clips that are included in the AAF or AFE file. For AFE files, the columns initially displayed in a bin match the columns that were displayed when the AFE file was created in the Avid editing system. You can show additional columns or hide selected columns.

To show or hide columns:

1. In the bin tools at the top of the AAF/AFE View, click the **Settings** button.
2. Select the columns you want to display or hide.

Columns and information from Avid editing systems transferred through AAF and AFE files are not associated with the new Avid DS Nitris master clips.

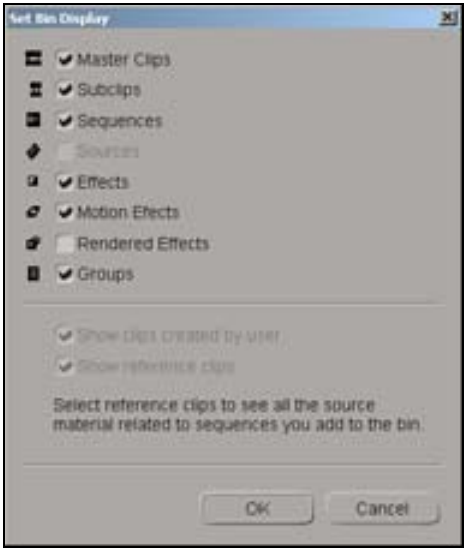
Media icons in the AAF/AFE list are different from those used for Avid DS Nitris media. These icons represent media from other Avid editing systems.

Icon	Avid editing system object
	Bin
	Master clip (video and graphics)
	Master clip (audio)
	Subclip
	Avid editing system sequence
	Effect or title
	Motion effect
	Group clip

To change the objects displayed in the view:

1. Do one of the following:
   - Click the Fast Menu button in the bin tools.
   - Right-click the background of a bin.

   The Set Bin Display dialog box opens.



2. Select or deselect the objects you want to display and click **OK**.

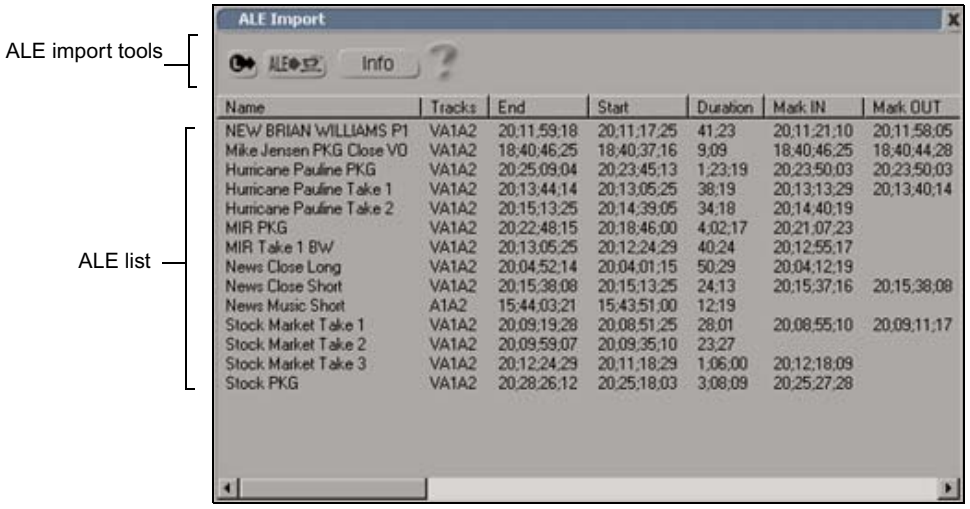
***Tip**: The clips and sequences in the AAF/AFE list are references for creating Avid DS Nitris clips and sequences. Use the Avid DS Nitris clips that are created to edit and finish the sequence.*

ALE (Avid Log Exchange) Import View

The ALE Import view lets you create master clips from a log generated in Avid Media Composer or any other system that outputs ALE log files. The ALE file contains source information only. No sequences or effects are imported.

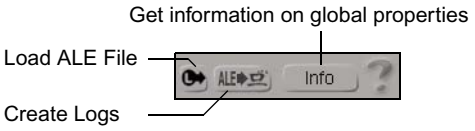
To access the ALE Import view:

- Select **View > Single-Instance Views > ALE Import.**



ALE Import Tools

The ALE import tools let you import ALE files, log clips, and get information on the global properties of a file.



Use this	To
Load ALE File	Import an ALE file.

Use this	To
Create Logs	Create a master clip in a bin for each clip described in the ALE Import view. If no events are selected, master clips for all events are created. If one or more events are selected, master clips are created only for those events. *The following columns must be present before you can create logs from the ALE file: Tape, Name, Start, End, and Tracks. If any one of these columns is not present, the Create Logs button is not available.*
Info	Display information about the global properties, such as the video/audio format or fps of the current ALE file.

ALE List

The ALE list contains the detailed information that is in your ALE file. The ALE list must contain associated values for the following columns in order for the Create Logs button to be active.

Column	Description
Tape	Name of the tape that contains the source material
Name	Name of the clip
Start	Starting timecode of the clip
End	Ending timecode of the clip
Tracks	The video and audio tracks used by each clip

The list can include any other columns that were displayed in the original bin.

ALE Create Logs Dialog Box

The ALE Create Logs dialog box lets you set the heads and tails for each clip and assign the physical inputs to the audio channels on a per tape basis.

To access the ALE Create Logs dialog box:

- Click the **Create Logs** button in the ALE Import view.

Option	Description
Create Master Clips in the Following Folder	Indicates the path of the folder in which you want to create logged master clips
Browse (...)	Lets you navigate the file system and select a folder for logged master clips. Avid DS Nitris limits your selection to a folder within the project folder.
Tapes	Sets the heads and tails for each clip
Heads	Specifies the number of extra frames to add before the clip's in-point
Tails	Specifies the number of extra frames to add after the clip's out-point
Audio Input Configuration	Displays a list of tape and/or file names referenced in the ALE and the corresponding number of inputs
Tape Name	Displays a list of tape and/or file names referenced in the ALE
Clip Name	Displays the list of clips associated with the selected tape
Audio Channels	Lets you assign the physical audio inputs to specific audio channels for the recapture process. *Clips imported from an ALE file only support audio channels in mono format.*
Set	Saves the audio input assignments for each source tape name
Create Logs	Creates master clips in the browser using the information in the ALE file

Audio Input Monitor

The Audio Input Monitor lets you monitor the incoming audio signal and adjust the volume before you capture audio material.

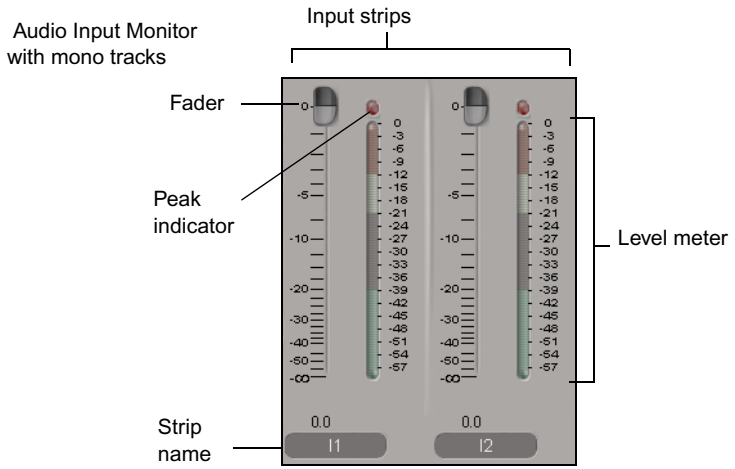
You cannot boost the signal with the Audio Input Monitor, but you can lower it. Use your external device to boost the incoming signal.

The ability to adjust volume depends on your Avid DS Nitris system hardware.

To access the Audio Input Monitor:

- Select **View > Multi-Instance Views > Audio Input Monitor**.

You can also access the Audio Input Monitor by clicking the Audio Input button in the Capture Tool—see Capture Tool.



Use this	To
Input strips	Monitor the incoming signal from the source device. Each input strip corresponds to an audio channel.
Fader	Adjust the incoming volume before you capture the audio signal. Faders appear only if your hardware supports audio volume adjustment.

Use this	To
Peak indicator	Monitor the level of the incoming audio signal. If a red light appears on the indicator, you should lower the volume on the strip.
Level meter	Monitor and adjust the level of the incoming signals before they are captured.
Strip name	View the name of the monitor strip. Each strip corresponds to a channel on the source device.

Audio Output Monitor

The Audio Output Monitor is a level meter display that gives you a visual indication of the audio levels during playback and output.

The number of level meters in the Audio Output Monitor reflects the number of output channels specified by your mixer configuration. A system configured for 7.1, for example, displays eight level meters while a system configured for stereo displays only two.

To access the Audio Output Monitor:

- Select **View > Single-Instance Views > Audio Output Monitor**.

You can adjust the parameters for display through the User Preferences dialog box—see "Level Meters Property Page" on page 1728.

Capture Error Log Dialog Box

The Capture Error Log dialog box is displayed at the end of the capture process and lists any errors encountered during capture or recapture. You can save this log as an .html file and view it in your browser or print it out.

Option	Description
Clip	Name of the clip that couldn't be captured

Option	Description
Tape	Name of tape that contains the clip that couldn't be captured
In	In-point on the tape of the clip that couldn't be captured
Out	Out-point on the tape of the clip that couldn't be captured
Error	Possible cause of error
OK	Closes the dialog box
Save As	Opens a dialog box that lets you name the log and choose the location where you want to save it

Capture List Dialog Box

The Capture List dialog box displays the list of clips that you've chosen to recapture. You can sort the list by source or clip name, as well as activate or deactivate each clip by double-clicking them. This determines whether they will be recaptured or not.

You can also move clips up or down on the capture list. Clips at the top of the list are captured first.

To display the Capture List dialog box:

1. Select **File > User Preferences**.
2. Click the **Capture** tab and select **Display capture list**.
3. In a bin or the timeline, select the clips that you want to recapture.
4. Right-click and select **Capture**.

The Capture List dialog box is displayed only when the selected clips were originally captured from tape.

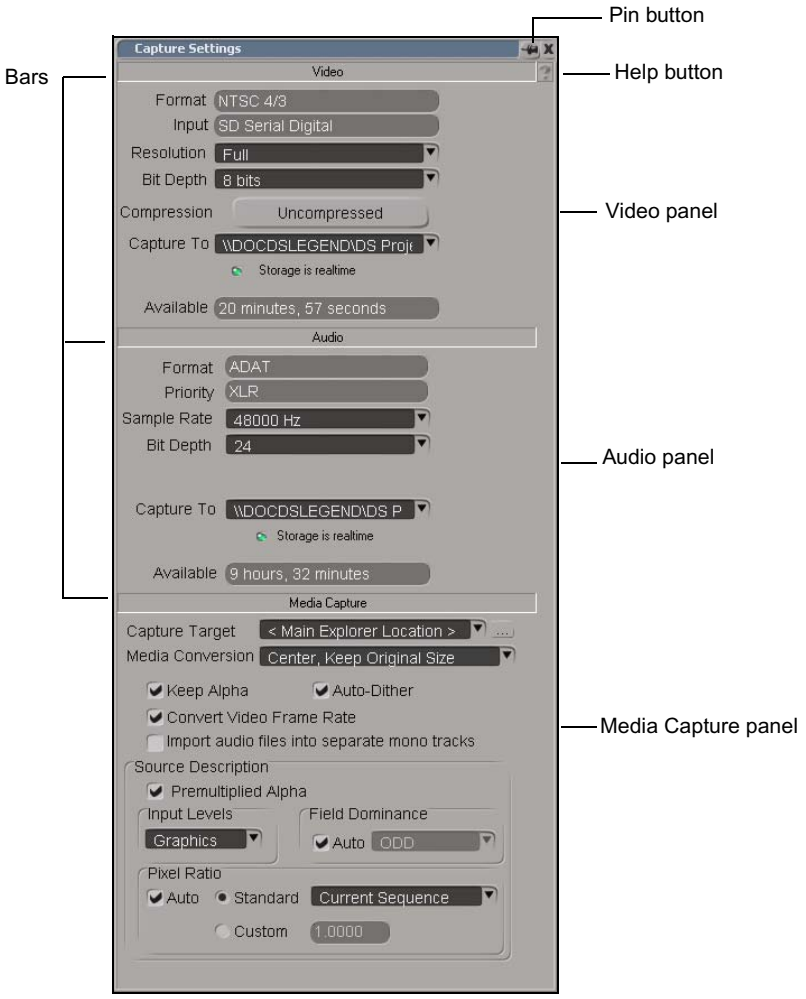
Option	Description
Source Name	Displays the source name of the original source media
Clips	Displays the clip name and the type of media contained in the clip (V or A). Each clip is separated by the | key.
Move Up	Moves the clip up one in the list
Move Down	Moves the clip down one in the list

Capture Settings View

The Capture Settings view lets you set parameters for capturing from file or tape.

To access the Capture Settings view, do one of the following:

- Select **View > Multi-Instance Views > Capture Settings**.
- Click the **Capture Settings** button in the Avid Explorer toolbar.



To expand or collapse a panel:

- Click the **Video**, **Audio**, or **Media Capture** bar.

Video Capture Settings

The Video panel lets you set capture parameters for the video material you are capturing. These settings also appear in the Capture Tool.

Option	Description
Format	Displays the video format that was specified for the sequence when it was first created
Input	Displays the type of video signal selected in the Capture Tool.
Resolution	Specifies the resolution at which you want to capture the video material: Full, Half, or Quarter. Half or Quarter resolution is available when working in an HD sequence on non-Avid Nitris DNA workstations only.
Color Space	Determines how the color components of the video signal are stored on disk when the media is captured. There are two formats available depending on your hardware, and your video format and color space settings: YCbCr 4:2:2 and RGB 4:4:4.
Bit Depth	Specifies the bit depth at which the video media files are captured and stored: 8-bit or 10-bit, depending on your hardware, and your video format and color space settings.
Compression	Specifies the compression at which you want to create media—see "Avid DNxHD Compressions" on page 2021 and "JFIF Compressions" on page 2022. You can also select Uncompressed.
Capture To	Specifies a destination storage device for the video media. The status of the storage device is displayed when you select it. The status can be either: • Green: Accessible in real time. • Red: Not accessible in real time.
Time Available	Displays the available recording time on the storage device for video media captured at the currently selected resolution and compression

Audio Capture Settings

The Audio panel lets you set capture parameters for the audio material you are capturing. These settings also appear in the Capture Tool.

Option	Description
Format	Displays the audio format specified as input in the Deck Configuration View.
Priority	Displays the priority set for the audio format specified in the Deck Configuration view.
Sample Rate	Sets the sample rate at which you want to capture the audio material.
Bit Depth	Displays the bit depth for one audio sample. The more bits you have, the more accurately you can represent the amplitude at that point in time.
Capture To	Specifies a destination storage device for the audio media. The status of the storage device is displayed when you select it. The status can be either: • Green: accessible in real time • Red: not accessible in real time.
Time Available	Displays the time remaining on the storage device for audio media captured at the specified sample rate

Media Capture Settings

The Media Capture panel lets you set parameters for the media you are capturing. These parameters, except for the Capture Target, are applicable only to media that you capture from files.

Option	Description
Capture Target	Lets you set the location for storing the master clips. The location remains set in the project until you change it. The list can include up to four user-defined folders.
Project Root	Sets the capture target as the project folder
Main Explorer Location	Sets the capture target as a bin you selected in the Avid Explorer

Option	Description
Auto Source	Sets the capture target as a folder named after the source of the capture. For file-based capture, the folder uses the name *File Source*.
Browse button (...)	Lets you navigate and select a folder as the capture target. You cannot create master clips outside the current project, so Avid DS Nitris checks the path to make sure the folder is within the project folder.
Media Conversion	Determines how the media is converted when importing from one format to another
Center, Keep Original Size	Centers the media in the viewer along both the X and Y axes. Any portion of the image falling outside the viewer is cropped. This option does not modify the original size of the media.
Scale to Fit	Scales the media in both the X and Y axes to fit the sequence settings
Scale, Keep Aspect Ratio	Scales the media in both the X and Y axes to fit the image settings, but retains the ratio between width and height. It takes the larger axis of the image and scales it to fit in the viewer. Then it centers the image on the other axis, creating black bands on both sides. An example of this conversion mode would be the Letterbox format, which converts film to video.
Keep Original Size and Position	Displays the media in the viewer without modifying its original size or position
Keep Alpha	Keeps the alpha channel of the captured material. When this option is not selected, the alpha channel is ignored.
Auto-Dither	Adjusts the colors of the imported file to remove banding. This banding might appear in images that contain smooth luminance or chrominance transitions (such as gradients) as a result of the conversion of RGB images to the YUV color space. Because the dithering process adds a small noise factor to the pixels, the noise might become visible on images containing large regions of constant color. In these cases, deselect the Auto-Dither option.

Option	Description
Convert Video Frame Rate	Converts the frame rate of the material being captured to the sequence's frame rate. When not selected, the original playback speed is retained. *This option does not apply to still images or audio files.* *The sequence frame rate is specified when the sequence is created, and is displayed in the Video property page of the Sequence Preferences dialog box (accessed from the File menu).*
Import audio files into separate mono tracks	When capturing an audio file, creates separate files and separate tracks for each audio stream. Select this option if you are sharing MXF media other Avid editing applications. By default, Avid DS Nitris creates a single .wav or MXF file and track from a multi-stream audio file. This is the most efficient way to work with audio files in Avid DS Nitris. However, because other Avid applications cannot link to a multi-stream file, you need to select this option so that Avid DS Nitris creates multiple single-stream files.
Source Description	Contains options for the files you are capturing

Option	Description
Premultiplied Alpha	Indicates that the source file is already premultiplied, which means that the RGB values were multiplied with the alpha channel. When compositing this image with another, Avid DS Nitris will not apply the premultiplication algorithm. Premultiplication is a mathematical process whereby the RGB channels of an image are multiplied by their corresponding alpha channels. When compositing two or more images, Avid DS Nitris automatically premultiplies your images unless they were already set as premultiplied when you captured them. If the premultiplication setting is incorrect, undesirable results, such as a halo or black outline, may appear in your image. If you know how an image was created using an external graphics application, you should set the premultiplication accordingly. In general, rendered 3D images are already premultiplied. However, other computer-generated images may not be. For example, in Adobe Photoshop the alpha channel is created as a separate layer and is not premultiplied with the RGB channels. Therefore, when you capture from a Photoshop image into Avid DS Nitris, do *not* select the Premultiplied Alpha option. Refer to "Compositing with Premultiplied Images" in the Help.
Input Levels	Specifies how Avid DS Nitris interprets the pixel values within a frame. This interpretation depends on whether you are working in a custom sequence or a non-custom sequence. In non-custom sequences, the captured material is stored on disk in the YCbCr color space (YUV or Video Levels). Video black is mapped to 16 and video white is mapped to 235. This mapping allows headroom and footroom for capturing SuperWhite or SuperBlack (subblack) values. In custom sequences, the captured material is stored on disk in the RGBA color space (Graphics Levels). Video black is mapped to 0 and video white is mapped to 255. This mapping does not allow capturing of SuperWhite or SuperBlack values.

Option	Description
Graphics	(Default) Use this option for importing most graphics created in a graphics application. This option maps RGB 0, 0, 0 to video black (NTSC 7.5 IRE, PAL 0 mV) and RGB 255, 255, 255 to video white (NTSC 100 IRE, PAL 700 mV) and limits the clip to legal YCbCr values.
Video	Use this option for importing video or graphics that were created using ITU-R 601or ITU-R 709 video levels, such as a lumakey graphic where SuperBlack (subblack) levels are used for the key black. This option maps RGB 16, 16, 16 to video black and RGB 235, 235, 235 to video white and allows the clip to use the full YCbCr range. *SuperBlack and SuperWhite information (full YCbCr range) is not preserved:* *- When using Pixel/Channel Masking (Masking PPG) on effects when 8-bit precision is used. Effects are set to 8-bit precision when (a) setting the precision to Auto (Options PPG) with the Precision sequence preference set to 8-bit, and (b) setting the Precision to 8-bit (Options PPG)* *- When using some DS effects with 8-bit precision (such as Impressionist or Painterly effects).* *- When using some third-party effects that do not support 16-bit or 32-bit precision*
Auto	Use this option to import or export at the levels used for the sequence. Custom sequences (RGBA) use Graphics levels. Non-custom sequences (YCbCr) use Video levels.
Field Dominance	Specifies the field dominance of the file to be captured
Auto	Uses the field dominance of the source file. If the source file's field dominance can't be determined, the sequence's setting will be used.
Odd	Flags the media as interlaced or field-based, and that the media begins with the odd field
Even	Flags the media as interlaced or field based, and that the media begins with the even field
None	Flags the media as progressive or frame-based, which means that the odd and even fields are the same
Pixel Ratio	Specifies the pixel ratio of the file you want to import.

Option	Description
Auto	Specifies that Avid DS Nitris should use the pixel ratio specified in the source graphics file. If Avid DS Nitris can't determine the pixel ratio, it uses the Standard or Custom setting.
Standard	Lets you choose from a list of standard pixel ratios. The options available are: NTSC (0.9), PAL (1.07), NTSC 16×9 (1.2), PAL 16×9 (1.42), Computer Graphics (Square), and Current Sequence. Current Sequence specifies the pixel ratio that is associated with the sequence. This option is especially useful for custom sequences that use a non-standard aspect ratio.
Custom	Lets you specify a non-standard file pixel ratio. Pixel ratios below 1.0 will have pixels that are taller than they are wide. Pixel ratios above 1.0 will have pixels that are wider than they are tall. Custom pixel ratios can be specified to four decimal places.

Conform Error Log

The Conform Error Log dialog box displays any errors encountered or elements that did not conform properly during the OMF to timeline process. Items that appear in this log include:

- Effects that are not reproduced in Avid DS Nitris, such as 3D DVEs
- Effects that cannot be totally reproduced, such as matte effects
- Errors encountered during AVX processing

You can save this log as an .html file and view it in your browser or print it out.

Option	Description
Track	Displays the track number on which the error occurred
Clip	Displays the name of the clip on which the error occurred
In	Displays the timecode where the effect was supposed to start

Option	Description
Out	Displays the timecode where the effect was supposed to end
Effect	Displays the name of the effect that caused the error
Detail	Describes why the error occurred
OK	Closes the dialog box
Save	Saves the error log as an .html file

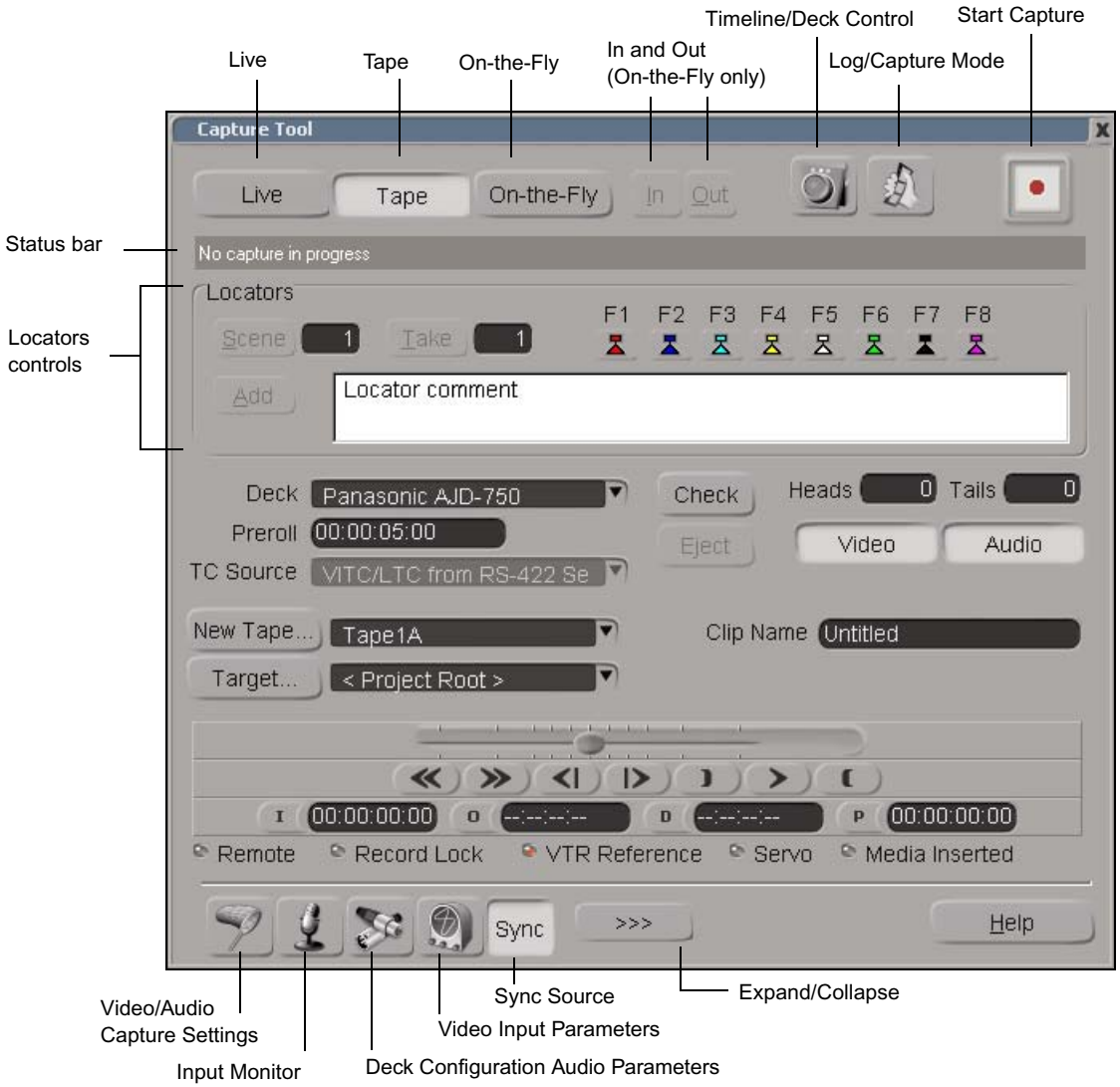
Capture Tool

Use the Capture Tool to capture footage from an external device. The Capture Tool lets you configure and control your audio and video inputs and other settings.

To capture media from a file, right-click the file and select Capture. To set capture parameters, see "Capture Settings View" on page 1756.

To access the Capture Tool:

- Select **View > Single-Instance Views > Capture Tool**.



Use this	To
Live button	Specify settings for capturing material by simply starting and stopping the capture—see "Logging and Capturing Clips from Tape" in the Help.

Use this	To
Tape button	Specify settings for capturing material between in and out-points or for logging empty master clips—see "Logging and Capturing Clips from Tape" in the Help.
On-the-Fly button	Specify settings for capturing material between in and out-points that you set as the tape plays—see "Capturing Clips On-the-Fly" in the Help. *Unlike the Live capture option, On-the-fly always records accurate timecode of the source material, letting you recapture the material at any time.*
In and Out buttons	Set an in-point and out-point for a clip captured on-the-fly.
 Deck Control/Timeline button	Switch transport controls from the external device to the record viewer timeline.
 Capture/Log Mode button	Switch from capture mode to logging mode
 Start/Stop Capture/Log button	Start the capture or log process.
Status bar	View status messages and a progress bar when capturing Live, Tape, or On-the-Fly.
Locators controls	Create locators during the capture process—see "Adding Locators While Capturing" in the Help,
Deck	Display the external device that you selected as a Deck preset. You can select a different device from the device list—see "Configuring the External Device" in the Help.
Check button	Verify proper communication between Avid DS Nitris and the external device.

Use this	To
Eject button	Eject the tape from the external device
Preroll	Indicate a custom preroll. This setting temporarily overrides the setting in the Deck template but does not change it.
TC Source	Select the Timecode source (Live capture only): • VITC or LTC through the RS-422 serial connection on the computer • LTC through the LTC IN connection (XLR) on the Avid Nitris DNA
Heads	Specify the number of extra frames (sometimes called a *handle*) to add before the clip's in-point (Tape only)
Tails	Specify the number of extra frames to add before a clip's out-point (tape only)
Video button	Specify that you want to capture the video channel of the material
Audio button	Specify that you want to capture the audio channel of the material
New Tape button	Add a source tape to the list of sources belonging to the current project—see "Add New Tape Dialog Box" on page 1823. This source name is added to the Tape Library view (see "Tape Library View" on page 1821).
Tape list	Select a tape from the list of sources belonging to the current project
Target button	Navigate and select a folder as the capture target. You cannot create master clips outside the current project, so Avid DS Nitris checks the path to make sure the folder is within the project folder.
Clip Name	Specify a name for the master clip you are creating. *If you don't change the name each time you capture a new clip, Avid DS Nitris uses the previous name and appends a number to it, such as shot.001, shot.002, and so on.*
Target list	Set the location for storing the master clips. The location remains set in the project until you change it. The list can include up to four user-defined folders

Use this	To
Main Explorer Location	Sets the capture target as a bin you selected in the Avid Explorer
Project Root	Sets the capture target as the project folder
Auto Source	Set the capture target as a folder named after the source of the capture. For tape-based capture, the folder uses the tape name.
Transport controls	Control the external device or the sequence in the record viewer—see "Transport Controls (Capture and Output Tools)" on page 1770.
Video/Audio Capture Settings button	Open the video and audio capture settings. These settings are also available in the Capture Settings view—see "Video Capture Settings" on page 1757 and "Audio Capture Settings" on page 1758.
Audio Input Monitor	Open the Audio Input Monitor and other audio settings—see "Setting the Audio Format" and "Formats for Audio Tracks" in the Help.
Audio Input Settings button	Open the audio parameters settings for the deck. These settings are also available in the Deck Configuration view—see "Deck Configuration View" on page 1776.
Video Input Parameters button	Display controls to adjust video input parameters—see "Video Input Parameters" on page 1772.
Sync Source button	Specify the sync source for reference and timing: either tri-level sync or black burst sync (NTSC or PAL). Avid DS Nitris requires that the deck and the Avid Nitris DNA be genlocked to the same timing source when capturing. For a list of sync options for each format, see "Downconverted Output Formats and Sync Sources" in the Help.

Use this	To
Expand/Collapse button	Expand or collapse the window

Formats for Audio Tracks

Audio clips and tracks in Avid DS Nitris can have up to eight channels of audio in any of the following formats:

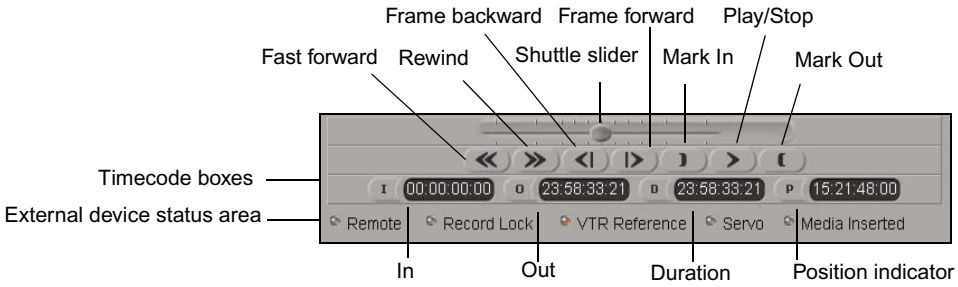
Format	Description
Mono	Single channel of audio
Stereo	Two audio channels: Left and right
Quadraphonic	Four audio channels: Left, right, left rear, right rear
LCRS	Four audio channels: Left, center, right, surround
4 Stream	Four audio channels: Output 1 to 4
5.1	Six audio channels: Left, right, center, Low Frequency Emitter (LFE), left surround, right surround
6.1	Seven audio channels: Left, right, center, Low Frequency Emitter (LFE), surround center, Side left, Side right
7.1	Eight audio channels: Left, right, center, Low Frequency Emitter (LFE), left surround, right surround, left center, right center
8 Stream	Eight audio channels: Output 1 to 8

You can select these formats in the Input Monitor tab of the Capture Tool.

Transport Controls (Capture and Output Tools)

Transport controls let you remotely control an external device, such as a tape deck. You can also click a button to use these transports to control a sequence in the Record view. The following views include transport controls:

- Capture Tool
- Output Tool

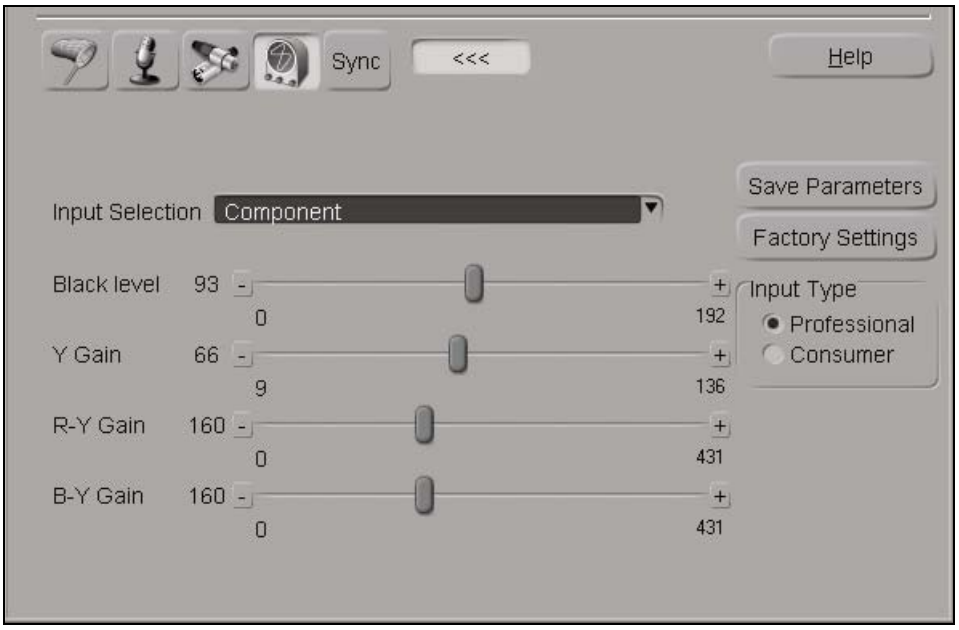


Use this	To
Shuttle Slider	Jog or shuttle forward or backward on the tape
Fast Forward	Fast forward through the tape
Rewind	Rewind the tape quickly
Frame Forward	Move ahead one frame
Frame Backward	Move back one frame
Mark In	Mark an in-point.
Play/Stop	Play or stop the tape
Mark Out	Mark an out-point
Timecode boxes	Display timecode for in-point, out-point, duration, and position indicator. You can enter a timecode and display the specified frame in a viewer. For more information, see "Timecode Boxes (Timeline Status Bar)" on page 1967.
External Device Status Area	Give you feedback on the external device connected to your system
Remote	Specifies if the external device is in Remote mode. When Remote is enabled, it turns green, otherwise it is grayed out.

Use this	To
Record Lock	Specifies if the Record Inhibit tab is enabled on the tape. When Record Inhibit is enabled, it turns red, otherwise it is grayed out.
VTR Reference	Specifies if the external device receives proper video reference or external sync. When the external device is receiving proper video reference or sync, it turns green, otherwise it is red.
Servo	Specifies if the deck has reached servo lock state. When Servo Lock is enabled, it turns green, otherwise it is grayed out. If this option does not turn green during capture or output pre-roll, you must increase the pre-roll time.
Media Inserted	Specifies if a tape is inserted in the external device. When a tape is inserted, it turns green, otherwise it is grayed out.

Video Input Parameters

The Video Input Parameters panel lets you adjust the video signal for capture from an external device.



Option	Description
Input Selection	Lets you select the input source you want to use for capturing video media. For systems with an Avid Nitris DNA, you can select and adjust video parameters for the following input signals: • Component • Composite • S-Video *HD sequences require Serial Digital input. You cannot adjust video input for Serial Digital.*
Input Type	Sets the Avid Nitris DNA to capture material at the best quality, depending on the type of input device: consumer or professional.
Save Parameters	Saves the current settings. You can save one set of parameters for each video signal.
Factory Settings	Resets the sliders to the default settings for your hardware

Option	Description
Black level	A measurement of luminance in the video signal that is referenced to the blackest point in the visible picture
Gain (Composite and S-Video) Y Gain (Component)	A measurement of luma (Y) in the video signal that is the whitest point in the visible picture. For this release, the slider adjusts both the white and black levels simultaneously (contrast). Use this slider along with the Black level slider to set the correct white and black levels.
R-Y Gain (Component)	The red (R) minus luminance (Y) color-difference signal of an analog component system in the SMPTE NTSC video standard
B-Y Gain (Component)	The blue (B) minus luminance (Y) color-difference signal of an analog component system in the SMPTE NTSC video standard
Hue (Composite and S-Video)	An attribution of color perception based on varying proportions of red, green, and blue in the video signal. Also known as *color phase*.
Saturation (Composite and S-Video)	A measurement of chrominance or the intensity of color in the video signal

Capture File Formats

Avid DS Nitris supports a wide range of video and audio file formats. You can capture from any of the following formats:

File format	File extension	Supports alpha	Supports compression
AIFF (uncompressed)	.aif, .aiff, .aifc	-	-
Alias	.als	No	No
AVI	.avi	Yes	Yes
Avid DS (Video Hal)	.gen,.omf	No	No
Bitmap (Windows)	.bmp	No	Yes

File format	File extension	Supports alpha	Supports compression
Broadcast WAVE (BWF) (Windows)	.wav	-	-
Chyron	.chr	Yes	No
DPX	.dpx	Yes	No
CINEON	.fido	No	Yes
JFIF (JPEG)	.jpeg, .jfif, .jpg	No	No
MAP	.map	No	No
Meridien™	.gen,.omf	No	No
Microsoft Windows Paintbrush	.pcx	No	No
MXF(Material Exchange Format)	.mxf		Yes
MP3	.mp3	-	-
PGM	.pgm	No	Yes
Photoshop	.psd	Yes	Yes
PICT	.pict, .pct	Yes	Yes
PNG	.png	Yes	Yes
PPM	.ppm	No	Yes
QuickTime	.mov, .qt	Yes	Yes
SGI	.sgi, .rgb	Yes	Yes
SOFTIMAGE® (3D & XSI®)	.pic	Yes	Yes
TIFF	.tif,.tiff	Yes	Yes
Targa	.tga	Yes	Yes
WAV	.wav	-	-
Wavefront	.rla	Yes	No

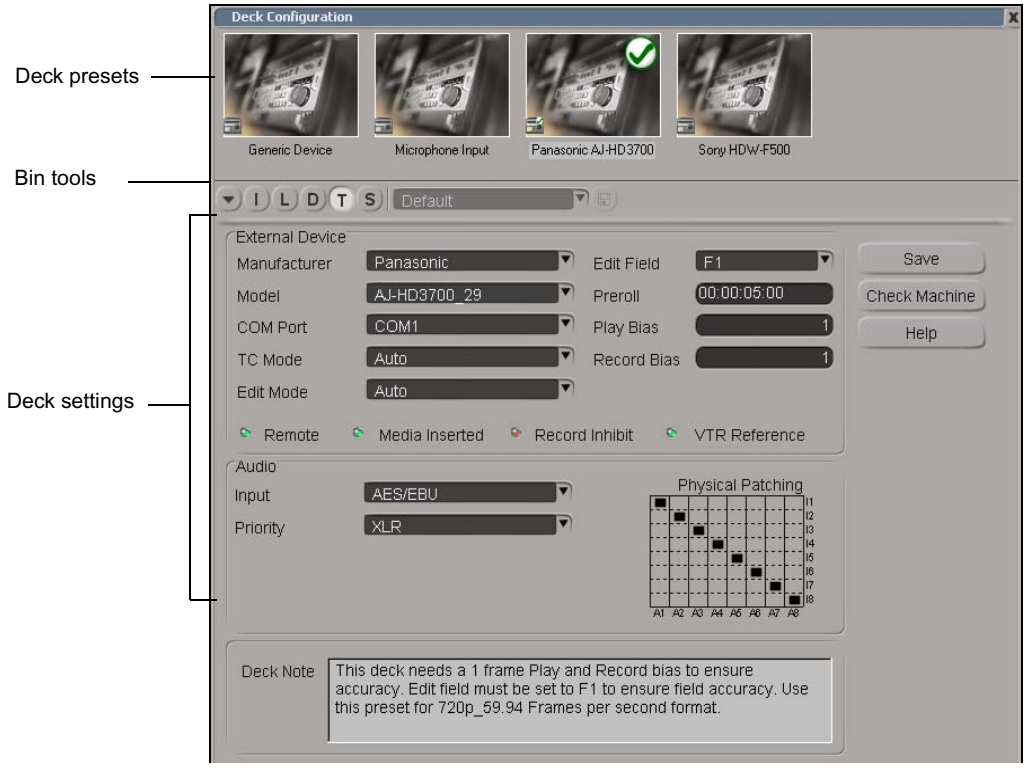
File format	File extension	Supports alpha	Supports compression
Windows Media	.wmv, .wma, .asf	No	Yes
YUV	.yuv	No	Yes
YUV 16	.yuv16	No	Yes

Deck Configuration View

The Deck Configuration view lets you configure the external device. You can select the manufacturer and model number of your device, where it is connected to your system, and other settings that affect both capture and output. You can save any configuration as a preset, so that you can easily switch from one device to another.

To access the Deck Configuration view:

- In an Avid Explorer panel, open the Views folder and click Deck Configuration.



Option	Description
Deck presets	Each preset represents an external device configuration. You can select a preset from the list. For information about the Microphone preset, see "Capturing Audio through a Microphone" in the Help.
Bin Tools	Lets you change the view—see "Blend Property Editor" in the Help. Click the Fast Menu button to add, import, or export deck presets.
External Device	Settings to configure the deck or other external device.
Manufacturer	Lets you select the manufacturer of the external device that you want to configure

Option	Description
Model	Lets you select the model number of the external device that you want to configure. If the model of your deck is not listed, it has not been tested by Avid and its accuracy or usability is not guaranteed. In most cases, however, you can use the deck for capture. Select a similar model from the same manufacturer. After completing the configuration, check some basic operations, such as cueing to a specific timecode and checking the accuracy of the capture and output to tape.
COM Port	Lets you select either COM 1 or COM 2, depending on which COM port connects the deck to your system
TC Mode	Determines the mode at which your device reads timecode. • Auto: Allows the deck or external device to decide which timecode to read. • LTC: Sets the external device to read only LTC (Longitudinal Timecode). Your device may experience some difficulty reading LTC when the tape is not moving or moving very slowly. • VITC: Sets the external device to read only VITC (Vertical Interval Timecode). Unlike LTC, your device can read VITC when the tape is moving very slowly or not moving at all. Audio devices do not read VITC timecode. If you are capturing from a DAT machine, select the LTC option.

Option	Description
Edit Mode	Determines how the external device records the material to tape. • **Auto:** Select this option to record the sequence onto a prestriped tape (a tape with prerecorded control track and timecode) This option lets you add material to existing material on the tape. It also deactivates all channels during capture to prevent any interruption of signal between the deck and your system. The recording begins at the timecode that is set in the I field of the Output Tool. If you want to insert material at a particular timecode on the tape (known as an *insert edit*), make sure the in-point of the sequence matches the in-point that you set in the Output tool. • **Assemble:** Select this option to record the material onto a new tape (without control track or timecode) or completely record over all tracks of an existing tape. A blank tape must have enough stripe at the beginning to allow for preroll. The selected sequence is recorded from the in-point of the tape, which you must set in the Output Tool. If the Output Tool is set for Assemble mode, the Edit mode indicator flashes red to bring your attention to the selection. *Assemble edit results in several garbage frames appearing at the end of your edit. To work around this inherent limitation, you can set an in-point at the beginning of your sequence, an out-point ten frames after the end of your sequence, and then output from in to out. This records a series of black frames between the end of your sequence and the garbage frames.*
Edit Field	Determines the field on which the edit begins. • Deck Setting: Uses the Edit Field setting that is set on the external device. • F1: Begins the edit on field 1. • F2: Begins the edit on field 2. • F1/F2: Begins the edit by recording the same information on fields 1 and 2.
Preroll	Specifies the amount of time the external device plays before it starts to capture or output. You should have enough pre-roll to ensure that the external device is playing at a fast enough speed to reach servo lock state.

Option	Description
Play Bias	Specifies the number of frames needed to compensate for any signal delay from the external device to your system when capturing material. Play bias can be either positive or negative. The Play Bias option offsets the timeline whereas the Record Bias option offsets the VCR timecode entry point.
Record Bias	Specifies the number of frames needed to compensate for any signal delay from your system to the external device when outputting material. Record bias can be either positive or negative.
External Device Status Area	Give you feedback on the external device connected to your system
Remote	Specifies if the external device is in Remote mode. When Remote is enabled, it turns green, otherwise it is grayed out.
Media Inserted	Specifies if a tape is inserted in the external device. When a tape is inserted, it turns green, otherwise it is grayed out.
Record Inhibit	Specifies if the Record Inhibit tab is enabled on the tape. When Record Inhibit is enabled, it turns red, otherwise it is grayed out.
VTR Reference	Specifies if the external device receives proper video reference or external sync. When the external device is receiving proper video reference or sync, it turns green, otherwise it is red.
Save button	Saves the settings as a deck preset.
Check Machine button	Re-establishes the remote connection and verifies that the external device is communicating properly with your workstation. Every time you change the external device configuration, you should use the Check Machine command.
Audio	Settings for configuring the audio input signal.
Input	Lets you select an audio input format that is supported by the installed audio hardware. The selected format may change the number of channels available in the track patching matrix in the Deck Configuration view, the number of channels in the Output Tool, as well as the number of output channels on the mixer in the top timeline. Avid DS Nitris hardware includes support for AES/EBU, ADAT, S/PDIF, Analog, and SDI Embedded. *For a list of decks from which you can capture SDI embedded audio, see the Avid DS Support Center.*

Option	Description
Priority	Sets the audio input format priority for audio hardware supporting several formats. This controls which input plug is checked first for the presence of an audio device.
Audio Physical Patching	Reflects how the physical audio inputs coming from the external device are connected to your workstation. The assignment can be changed by clicking in the appropriate square in the matrix—see "Using the Physical Patching Matrix" in the Help.
Deck Notes	Displays information about the selected template (read-only). Not all templates include notes.

Deck Menu

To access the Deck menu:

- In the top section of the Deck Configuration view, right-click a preset.

Option	Description
Activate	Sets the selected deck as the device for capture. A green check mark indicates the active deck.
Save	Saves the options as a deck preset
Rename	Lets you rename the deck preset
Delete	Deletes the deck preset

The Fast menu in the Deck Configuration view includes the following options:

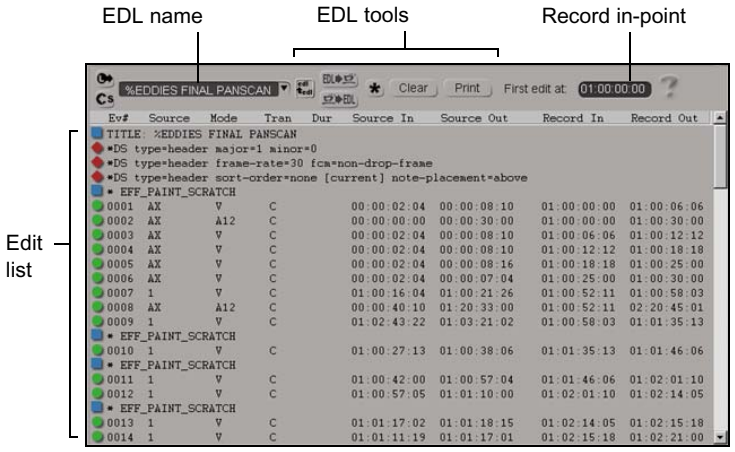
Option	Description
Add New Deck Preset	Adds a deck preset icon to the top section of the view
Import Deck Presets	Opens a dialog box that lets you select a folder of presets to import
Export Deck Presets	Opens a dialog box that lets you select a folder of presets to export

EDL View

The EDL view is where you import and conform an EDL (Edit Decision List) that was created on another system, or where you create an EDL from a Avid DS Nitris sequence.

To access the EDL view:

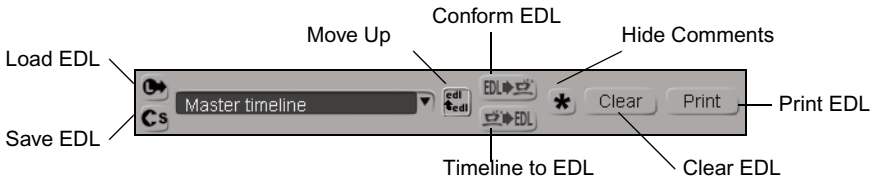
- Select **View > Single-Instance Views** > **EDL**.



Use this	To
EDL name	Select an EDL that has been imported into the EDL view.
EDL Tools	Load or save the EDL.
Record in-point (First Edit at)	Set the record in timecode for the first edit.
Edit List	View the list of events in an EDL.

EDL Tools

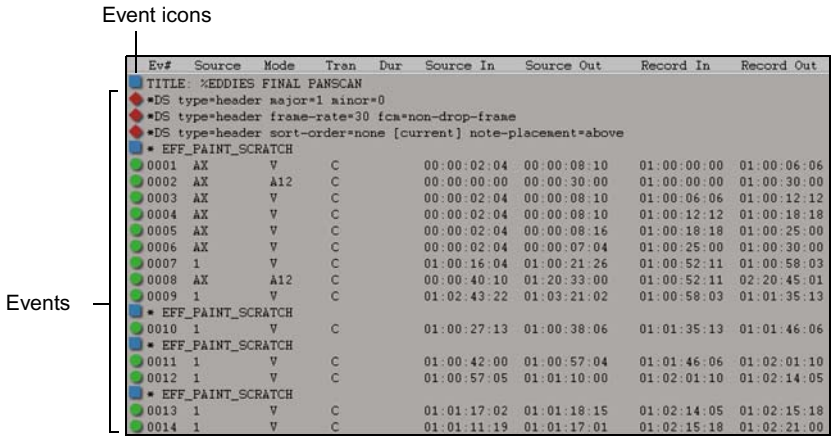
The EDL tools let you import or export an EDL, load an EDL onto the timeline, log EDL events as clips in a bin, print an EDL, and manipulate the view of the EDL list.



Use this	To
Load EDL	Import an EDL file into the EDL view.
Save EDL	Save the EDL to file.
Move Up	Move up a level in the EDL list. A master EDL and submaster EDLs are created when you have container clips in your sequence. You can quickly move between the sub and master EDLs using the Move Up button.
Timeline to EDL	Create an EDL from clips on the timeline.
Conform EDL	Create a master clip in a bin and/or create clips and transitions on the timeline for each selected EDL event. When you click the Conform button, the EDL conform dialog box is displayed.
Hide comments	Show or hide any comments in the EDL list.
EDL to Background	Create clips on the background tracks for each EDL event.
Clear EDL	Clear the current EDL.
Print EDL	Prints the current EDL. The Print EDL dialog box is displayed, which lets you determine the number of copies to print and the page orientation.

Edit List

The EDL list contains information about each edit in your sequence. Each entry in the list is referred to as an event.



Use this	To
Events	Correspond to clips in the sequence.
Event icons	Identify the type of edit being performed. Blue squares are comments in the original EDL. These can be hidden from view using the Hide comments tool. Green circles are edits. Red diamonds are specific Avid DS Nitris comments.
Ev # (event number)	Identify the number of this event.
Source	Tape name for this event.
Mode	Identify the channels. V refers to video and A to audio. There can be up to eight audio channels.
Tran	Specify the transition type that has been applied. C is a cut, D a dissolve, W a wipe, KI a key in, KO a key out, and KB a key background.
Dur	Indicate the length of the transition in frames. This only applies to dissolves and keys. For other transitions, it remains blank.

Use this	To
Source In	View the timecode at the in-point of the source media.
Source Out	View the timecode at the out-point of the source media.
Record In	View the timecode at the in-point of the recording.
Record Out	View the timecode at the out-point of the recording.

Ripple Sources Dialog Box

The Ripple Sources dialog box lets you specify an amount by which the source timecodes of your EDL are shifted positively or negatively.

To access the Ripple Source dialog box:

- Right-click the main area of the EDL view and select **Ripple Sources**.

Use this	To
Enter the amount to ripple source timecodes by	Enter a timecode, either positive or negative, by which the EDL's source timecodes will be shifted.
Ripple Effect	Apply the ripple effect to a particular source.
Apply to All Edits from This Source	Select a source from the list for which to apply the ripple.

EDL Conform Dialog Box

The EDL Conform dialog box lets you determine which procedures are performed during a conform. You can also set the heads and tails of each clip and view the names of the source tapes used by the clips in the EDL.

To access the EDL Conform dialog box:

- In the EDL view, click the **Conform EDL** button.

Option	Description
Create Master Clips in the Following Folder	Indicates the folder in which you want to create logged master clips
Browse (...)	Lets you navigate the file system and select a folder for logged master clips. Avid DS Nitris limits your selection to a folder within the project folder.
Settings	Lets you specify whether logs are created, clips are loaded onto the timeline, or both
Create Logs	Creates logs of the clips from information contained in the EDL
Create Timeline Clips	Creates clips, and transitions on the timeline from information contained in the EDL
Create Both	Creates logs of the clips in the Avid Explorer and loads them with transitions on the timeline
Overwrite Overlay Tracks	Overwrites the clips on the timeline at the same timecodes. If this option is not selected, the clips will be edited to a new video track.
Tapes	Sets the heads and tails for each clip
Heads	Specifies the number of extra frames to add before the clip's in-point
Tails	Specifies the number of extra frames to add after the clip's out-point
Audio Input Configuration	Displays a list of tape and/or file names referenced in the EDL and the corresponding number of inputs
Tape Name	Displays a list of tape and/or file names referenced in the EDL
Event Number	Displays the event numbers that contain media from the selected tape
Audio Channels	Lets you assign the physical audio inputs to specific audio channels for the recapture process. Clips imported from an EDL only support audio channels in mono format.

Option	Description
Set	Saves the audio input assignments for each source tape name
Conform	Loads the EDL onto the timeline and/or creates corresponding master clips in the Avid Explorer

EDL Properties Dialog Box

The EDL Properties dialog box lets you specify options for the currently displayed EDL.

To access the EDL Properties dialog box:

- Right-click the main area of the EDL view and select **Properties**.

Use this	To
EDL Title	Display the name of the current EDL.
Heal Unnecessary Edits	Create a single master clip for any source events that contain connected timecodes. When you deselect this option, separate clips are created.
Show Record Timecodes As Drop Frame	Display the EDL in drop-frame timecode. *The option is inactive when a PAL list is displayed.*

Print EDL Dialog Box

The Print EDL dialog box displays the current default printer and lets you specify the number of copies to print as well as the orientation of the page.

To access the Print EDL dialog box:

- In the EDL view, click the **Print** button.

Option	Description
Current default printer	Displays the name of your default printer
Number of copies	Specifies how many copies of the EDL will be printed
Page Orientation	Specifies the page orientation of the printed EDL
Portrait	Prints the EDL in portrait format
Landscape	Prints the EDL in landscape format
Print	Prints the EDL on the default printer

EDL Menu

The EDL menu lets you choose a mode by which to sort the edit list. It also opens dialog boxes that let you change the source name, ripple sources, and modify properties of the edit list.

To access the EDL menu:

- Right-click the main area of the EDL view.

Command	Description
Sort	Displays a list of modes by which you can sort your edit list
A-mode	Sorts the contents of the edit list by record in timecode
B-mode	Sorts the contents of the edit list by source in timecode
C-mode	Sorts the contents of the edit list by source name and then by source in timecode
Event Number	Sorts the contents of the edit list by event number
Source Name	Sorts the contents of the edit list by source name
Mode	Sorts the contents of the edit list by mode
Transition	Sorts the contents of the edit list by transition type

Command	Description
Duration	Sorts the contents of the edit list by duration
Source In	Sorts the contents of the edit list by source in timecode
Source Out	Sorts the contents of the edit list by source out timecode
Record In	Sorts the contents of the edit list by record in timecode
Record Out	Sorts the contents of the edit list by record out timecode
Do Not Sort	Sorts the contents based on the original order of events in the edit list. This is the default setting.
Change Source Name	Opens the Change Source name dialog box
Ripple Sources	Opens the Ripple Sources dialog box
Properties	Opens the EDL property editor

Explorer Recapture Options Dialog Box

The Explorer Recapture Options dialog box lets you set options before you recapture media from logged clips.

By default, all audio channels are active. The actual number of available channels depends on the installed audio hardware and the selected audio format, as configured in the Capture Tool or Deck Configuration. Configured channels are indicated by a filled-in square.

You can select the video and audio tracks you want to recapture.You can choose not to recapture tracks that you originally captured, but you cannot capture new tracks. For example, if you created a clip by capturing video only, you cannot recapture the clip with video and audio.

To access the Explorer Recapture Options dialog box:

- In a bin, right-click a clip and select **Recapture with Options.**

Use this	To
Video	Recapture video footage
Audio	Recapture audio footage
Track strip	Click each audio track that you want to capture. You can recapture only tracks that were logged or captured with the original clip; you cannot capture new tracks.
Time Delay	Recapture master clips from the Avid Explorer at a specific date and time. This is useful when you're using 3D rendered image files in your sequence. You can render the 3D image files at night, set the Time Delay option to begin capture after the render is complete and have everything captured by the next morning. The Time Delay option is only valid for media that was originally imported from file. The date/time properties on your computer determine when to start and end your recapture. Make sure your clock is accurate, so that the recapture occurs at the desired time.

Export Preferences Dialog Box

The Export Preferences dialog box lets you save a customized preference set in a desired location.

Use this	To
Bin Tools (Top)	Navigate through and manage the contents of your bins.
Bin Tools (Bottom)	Change the way the contents of the bin are displayed. These tools appear for all bin contents.
File Name	Enter a name for your preset.
File Types	Choose a file type for your preset.

Export to File Dialog Box

The Export to File dialog box lets you export an image of the frame on which the position indicator is currently located.

Use this	To
Bin Tools (Top)	Navigate through and manage the contents of your bins.
Bin Tools (Bottom)	Change the way the contents of the bin are displayed. These tools appear for all bin contents.
File Name	Enter a name for your preset.
File Types	Choose a file type for your preset.

External Controller Setup View

The External Controller Setup view lets you assign the controls on the external controller to any of the hundreds of commands available in Avid DS Nitris.

To access the External Controller Setup view

- Select **View > Single-Instance Views > External Controller Setup**.

Use this	To
External Controllers	Select the controller that's connected to your system. Several controllers can be connected at the same time.
Controls	View all the controls on the selected controller. When a control is mapped to a command in Avid DS Nitris, the command name is displayed next to the control in the Controls list.
Command Categories	View categories of commands in Avid DS Nitris. Commands belonging to the selected category appear in the Commands list. You can view all commands at the same time.

Use this	To
Commands	View all the Avid DS Nitris commands in the selected category. When a command is mapped to an external control, the control name is displayed next to the command in the Commands list.
Display	Specify whether to show the assigned items, unassigned items, or both.
Assigned	Filter the Controls or Commands list to display items that are currently assigned.
Unassigned	Filter the Controls or Commands list to display items that are currently unassigned.
Load	To load a command mapping preset.
Save	To save a command mapping preset.
Apply	Apply the current mapping. This button is available only when you change the command mapping.

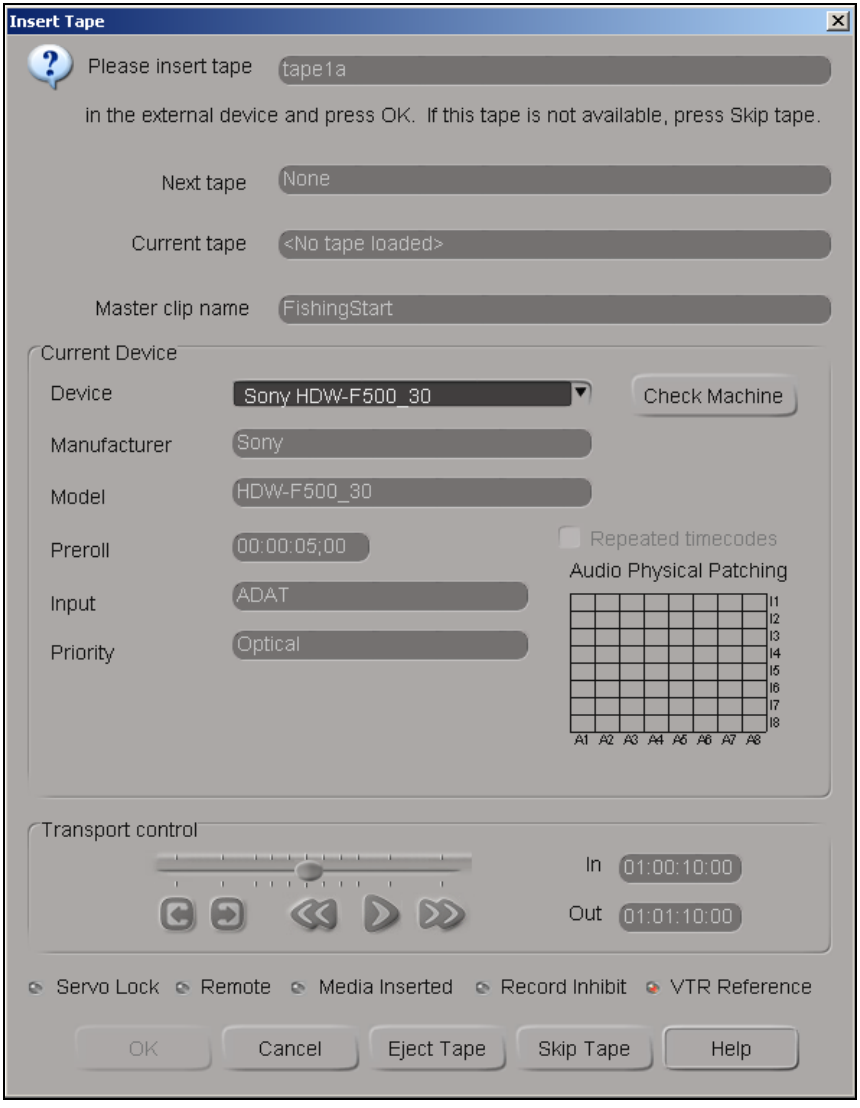
Import Preferences Dialog Box

The Import Preferences dialog box lets you import a preference set from a desired location.

Use this	To
Bin Tools (Top)	Navigate through and manage the contents of your bins.
Bin Tools (Bottom)	Change the way the contents of the bin are displayed. These tools appear for all bin contents.
File Name	Enter a name for your preset.
File Types	Choose a file type for your preset.

Insert Tape Dialog Box

The Insert Tape dialog box displays the names of the tapes required for batch capture, the master clip to be recaptured, and the settings of the external device. You can also control the external device from within this dialog box. It is displayed during the batch capture process—see "Batch Capturing" in the Help.



Option	Description
Please insert tape	Displays the name of the tape to be inserted into the deck so the clip can be recaptured
Next tape	Displays the name of the next tape to be inserted into the deck
Current tape	Displays the name of the tape currently inserted in the deck.
Master clip name	Displays the name of the clip to be recaptured
Current Device	Displays the current device preset selected
Device	Displays the current External Device configuration preset. Select a different device from the Device list—see "Configuring the External Device" in the Help.
Manufacturer	Displays the manufacturer name of the external device that you want to input from or output to
Model	Displays the model number of the external device that you want to input from or output to
Pre-roll	Specifies the number of frames the external device plays before it starts to capture or output. You should have enough pre-roll to ensure that the external device is playing at a fast enough speed to reach servo lock state.
Input	Displays the audio input format that is supported by the installed audio hardware. The selected format may change the number of channels available in the track patching matrix in the Audio Input panel of the Capture Tool, the number of channels in the Output Tool, as well as the number of output channels on the mixer in the top timeline. Avid DS Nitris hardware includes support for AES/EBU, ADAT, S/PDIF, Analog, and SDI Embedded.
Priority	Displays the audio format priority for audio hardware supporting several formats. This controls which input plug is checked first for the presence of an audio device.

Option	Description
Check Machine button	Re-establishes the remote connection and verifies that the external device is communicating properly with your workstation. Every time you change the external device configuration, you should use the Check Machine command.
Repeated timecodes	Notifies the system that the tape from which you are capturing material may contain timecode that appears more than once. This option disables the streaming capture functionality, and allows you to manually cue the tape to the appropriate timecode.
Audio Physical Patching	Reflects how the physical audio inputs coming from the external device are connected to your workstation
Transport control	Lets you remote-control external devices so you can cue it up before recapturing
Shuttle Slider	Lets you jog or shuttle forward or backward on the tape
Frame Forward	Lets you move ahead one frame
Frame Backward	Lets you move back one frame
Rewind	Lets you rewind the tape quickly
Play/Stop	Lets you play or stop the tape
Fast Forward	Lets you fast forward through the tape
In	Displays the point at which the recapture begins
Out	Displays the point at which the recapture stops
Servo Lock	Specifies if the deck has reached servo lock state. When Servo Lock is enabled, it turns green, otherwise it is greyed out. If this option does not turn green during capture or output pre-roll, you must increase the pre-roll time.
Remote	Specifies if the external device is in Remote mode. When Remote is enabled, it turns green, otherwise it is dimmed.

Option	Description
Media Inserted	Specifies if a tape is inserted in the external device. When a tape is inserted, it turns green, otherwise it is dimmed.
Record Inhibit	Specifies if the Record Inhibit tab is enabled on the tape. When Record Inhibit is enabled, it turns red, otherwise it is dimmed.
VTR Reference	Specifies if the external device receives proper video reference or external sync. When the external device is receiving proper video reference or sync, it turns green, otherwise it is red.
Eject Tape button	Ejects the tape from the external device
Skip Tape button	Ignores the clips on the current tape and moves on to the next tape in the capture list

MediaManager Setup View

The MediaManager Setup view lets you select a MediaManager host or add a new host.

To access the MediaManager Setup view:

- In an Avid Explorer panel, open the Views folder and click MediaManager.

To access a MediaManager host:

- Double-click the icon for your MediaManager host.

To add a MediaManager host:

- Double-click the Add MediaManager icon and supply the host name.

MediaManager View

The MediaManager view displays the main window of the MediaManager application, from which you can conform a sequence checked in to MediaManager. For more information on using MediaManager, see the MediaManager Help.

MediaManager Settings

MediaManager settings let you create Avid DS Nitris master clips from a sequence stored on a MediaManager server.

To show or hide the MediaManager settings:

- In the bin tools, click the **AAF/AFE Settings** button.

Option	Description
Create Associated Clips	Creates Avid DS Nitris master clips from a sequence or clips that you drag onto the timeline or onto a folder in the Avid Explorer. Deselect this option to avoid creating another set of master clips.
Force Creation of External Tape Sources	Appends the MediaManager project name to the master clip source names when creating master clips. Select this option to distinguish between clips that are created from tapes associated with the conform and clips that are not.
Timeline Drop Settings	
Create associated clips in the following folder	Displays the folder that will hold the Avid DS Nitris master clips when you drop a clip or sequence on the timeline
Browse button	Browses your project folder to specify a folder to hold the new master clips

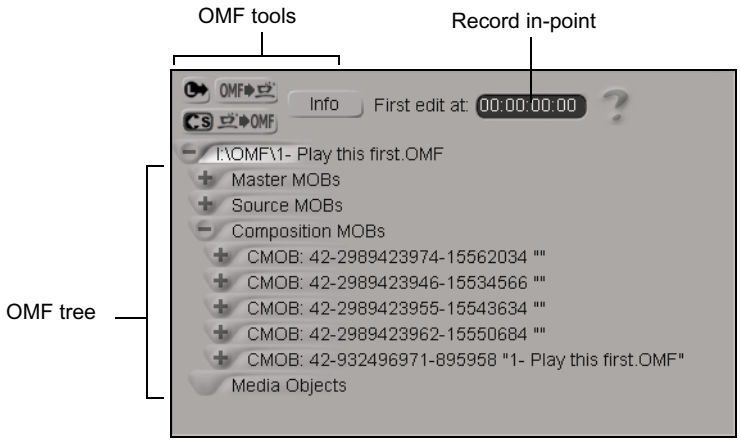
Option	Description
Lock Path	Keeps the same folder for any new master clips you create. Deselect this option to create master clips in folders that match the names of the bins. Deselecting this option keeps the original project structure when conforming with AFE files.

OMF (Open Media Framework) View

The OMF view lets you import OMF compositions created on other systems or export parts of your sequence in the OMF file format.

To access the OMF view:

- Select **View >Single-Instance Views > OMF**.

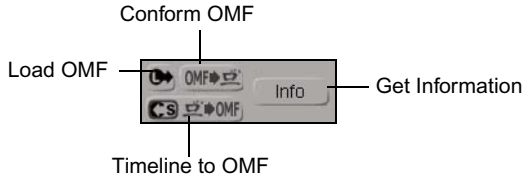


Use this	To
OMF tools	Load, save, and create OMF files.
Record in-point (First edit at)	Set the timecode where the first edit will be recorded.
OMF tree	View the contents of the OMF file.

OMF Tools

The OMF tools let you import or export an OMF file, load an OMF file on the timeline, create an OMF file from clips on the timeline, log OMF clips in a bin, and get information about the OMF file.

When you export an OMF file, only the audio portion of your timeline gets exported. Any video information is ignored. The OMF file that you export, will always include both the compositional information as well as the audio media.



Use this	To
Load OMF	Import an OMF file into the OMF view.
Conform OMF	Create clips, transitions, and supported effects on the timeline and/or create logs in a bin from information contained in the OMF file.
Timeline to OMF	Create and save an OMF file from the audio clips on the timeline. The OMF file will contain both the compositional information as well as the audio media. The contents of the OMF file are also displayed in the OMF view. *The Timeline to OMF command only exports the audio tracks. All video tracks are ignored.*
Info	Display extra information about the selected object in the OMF list.

OMF Conform Dialog Box

The OMF Conform dialog box lets you determine which procedures are performed during a conform, as well as the type of audio media that will be imported with the OMF file.

To access the OMF Conform dialog box:

- Click the **Conform OMF** button in the OMF view.

Option	Description
Create Master Clips in the Following Folder	Indicates the path of the folder in which you want to create logged master clips
Browse (...)	Lets you navigate the file system and select a folder for logged master clips. Avid DS Nitris limits your selection to a folder within the project folder.
Settings	Lets you specify whether logs are created, the clips are loaded onto the timeline, or both
Create Logs	Creates logs of the clips in the Avid Explorer from information contained in the OMF file
Create Timeline Clips	Creates clips, transitions, and supported effects on the timeline from information contained in the OMF file
Create Both	Creates logs of the clips in the Avid Explorer and loads them with transitions and supported effects on the timeline
Force Creation of External Tape Sources	Appends the OMF project name to the master clip source names when creating master clips. Select this option to distinguish between clips that are created from tapes associated with the conform and clips that are not.
Tapes	Sets the heads and tails to each of the imported clips
Heads	Specifies the number of extra frames to add before the clip's in-point
Tails	Specifies the number of extra frames to add after the clip's out-point
Import Audio Data	Activates the import of audio into the current project
Audio	Determines which type of media is imported with the OMF file and where it will be stored
Import All Media	Imports all the media contained in the OMF file into the current project

Option	Description
Only Import Used Media	Imports only the media used in the actual sequence into the current project
Sample Rate	Sets the sample rate at which you want to import the audio material. The higher the sampling rate, the more accurate the conversion will be.
Bit Depth	Sets the bit depth of the audio media to be imported. The bit depth determines the number of bits used to represent an audio sample. The higher the bit depth, the more precise the conversion will be.
Capture To	Specifies a destination storage device for the audio media
Audio Input Configuration	Displays a list of tape and/or file names referenced in the OMF file and the corresponding number of inputs
Tape Name	Displays a list of tape and/or file names referenced in the OMF file
Clip Name	Displays the list of clips associated with the selected tape
Audio Channels	Lets you re-assign the physical audio inputs to specific audio channels for the recapture process. Audio channels loaded from an OMF are only available in mono format.
Set	Saves the audio input assignments for each source tape name

Export Composition Dialog Box

The Export Composition dialog box lets you specify whether or not audio media will be embedded in the OMF file. You can also specify the amount of the clip to export using clip handles.

You can only consolidate and add heads and tails to audio media that originates from tape. If you conform master clips that originate from file, you have two options: you can either disregard the media or export the clip's entire media to the OMF file.

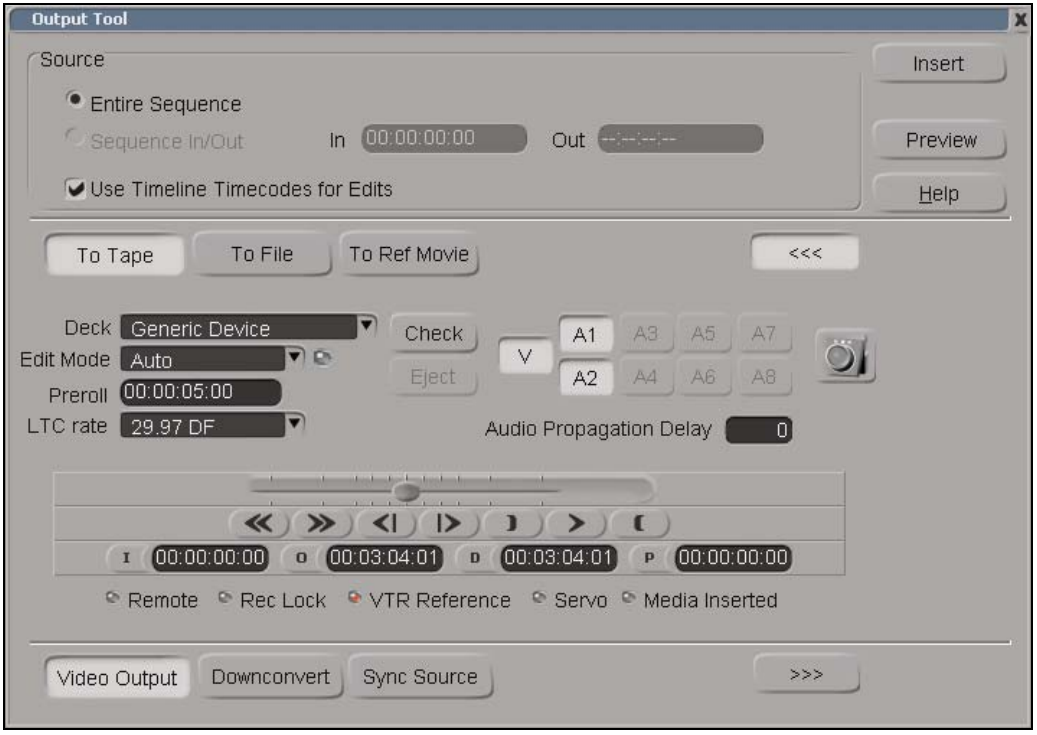
Use this	To
Audio Tracks	Specify whether to include audio media in the OMF file you are exporting
Embed Media	Include the audio media in the OMF file you are exporting
Consolidate	Specify how much of the audio clip to include in the OMF file you are exporting. If not selected, the entire span of the master clip is included in the OMF file. If selected, only the material used on the timeline plus any additional frames specified in the heads and tails section will be included in the OMF file.
Bit Depth	Specify the bit depth for the audio:16 or 24.
Handles Length	Specify the number of frames before and after the clip you want to include in the OMF file
Heads	Specify the number of frames before the material used on the timeline to be included in the OMF file
Tails	Specify the number of frames after the material used on the timeline to be included in the OMF file

Output Tool

The Output Tool lets you specify settings for outputting your media. You need to specify the material to be output and its destination, as well as options such as the output resolution and compression factor.

To access the Output Tool:

- Select **View > Single-Instance Views > Output**.

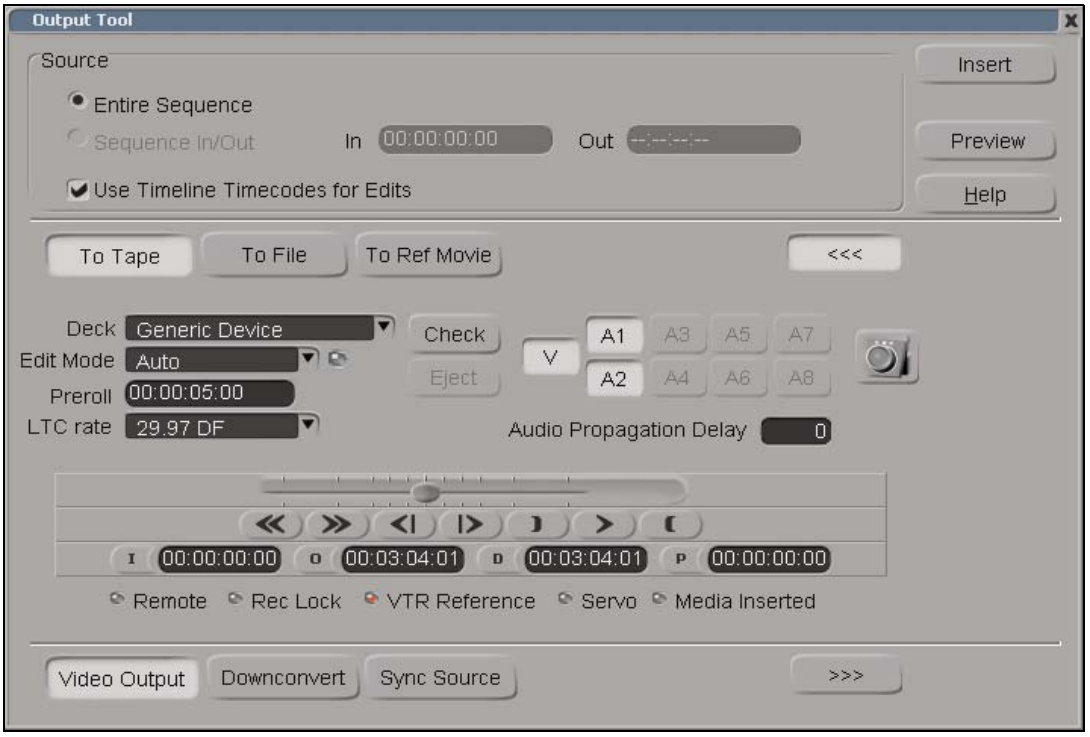


Output Tool (Output to Tape)

Use these options to output a sequence to tape.

To access the Output to Tape controls:

1. Select **View > Single-Instance Views > Output**.
2. Click the **Output to Tape** button.



Use this	To
Source	Specify the material you want to output
Entire Sequence	Output the entire timeline. Within a container clip, only the clips on the the container timeline are output.
Sequence In/Out	Output a section of the sequence marked by in-points and out-points in the timeline. The timecodes of the in-point and out-point are displayed in the In and Out text boxes.
Use Tineline Timecodes for Edits	To record to tape using the timecodes specified in the timeline (including in-point and out-points). For example, if you want to perform an insert edit for a specific region of a sequence, mark the in-point and out-point, select **Sequence In/Out**, and select **Use Timeline Timecodes for Edits**.

Use this	To
Insert/Assemble button	Begin the output process. The label indicates the selected Edit mode.
Preview button	View the sequence before outputting.
Deck	Display the current External Device configuration preset. You can select a different device from the device list—see "Configuring the External Device" in the Help.
Edit Mode	Specify how the external device records the material to tape. • **Auto:** Select this option to record the sequence onto a prestriped tape (a tape with prerecorded control track and timecode) This option lets you add material to existing material on the tape. It also deactivates all channels during capture to prevent any interruption of signal between the deck and your system. The recording begins at the timecode that is set in the I field of the Output Tool. If you want to insert material at a particular timecode on the tape (known as an *insert edit*), make sure the in-point of the sequence matches the in-point that you set in the Output tool. • **Assemble:** Select this option to record the material onto a new tape (without control track or timecode) or completely record over all tracks of an existing tape. A blank tape must have enough stripe at the beginning to allow for preroll. The selected sequence is recorded from the in-point of the tape, which you must set in the Output Tool. If the Output Tool is set for Assemble mode, the Edit mode indicator flashes red to bring your attention to the selection. *Assemble edit results in several garbage frames appearing at the end of your edit. To work around this inherent limitation, you can set an in-point at the beginning of your sequence, an out-point ten frames after the end of your sequence, and then output from in to out. This records a series of black frames between the end of your sequence and the garbage frames.* This setting temporarily overrides the setting in the deck template but does not change it—see "Configuring the External Device for Output" in the Help.

Use this	To
Preroll	Set a custom preroll for the deck. This setting temporarily overrides the setting in the deck template but does not change it.
LTC rate	To record LTC (longitudinal timecode) through the LTC Out connector on the Avid Nitris DNA. The LTC frame rate matches the sequence frame rate. For 29.97 (NTSC) you can select 29.97 (non-drop-frame) or 29.97 DF (drop-frame). LTC is output at the sequence timecode.
Eject button	Eject the tape from the external device.
Check button	Re-establish the remote connection and verify that the external device is communicating properly with your workstation. Before outputting, you should click the Check command.
V	Output the video channel to the external device or file.
A1 to A8	Output the selected audio channel(s) to the external device. Click the buttons corresponding to the channels you want to output. The number of available audio channels depends on the installed audio hardware and the configuration to which it is set.
Audio Propagation Delay	Correct any frame delays in audio when you output your sequence to tape. Enter the number of frames that will compensate for this delay. *This problem usually occurs when there are a number of audio devices connected between your Avid DS Nitris workstation and the output deck.*
 Timeline/Deck Control button	Switch transport controls from the external device to the record viewer
Transport controls	Control the external device or the sequence in the record viewer—see "Transport Controls (Capture and Output Tools)" on page 1770.
Video Output button	Select the output signal. For systems with an Avid Nitris DNA, you can adjust the video parameters—see "Video Output Parameters" on page 1811.

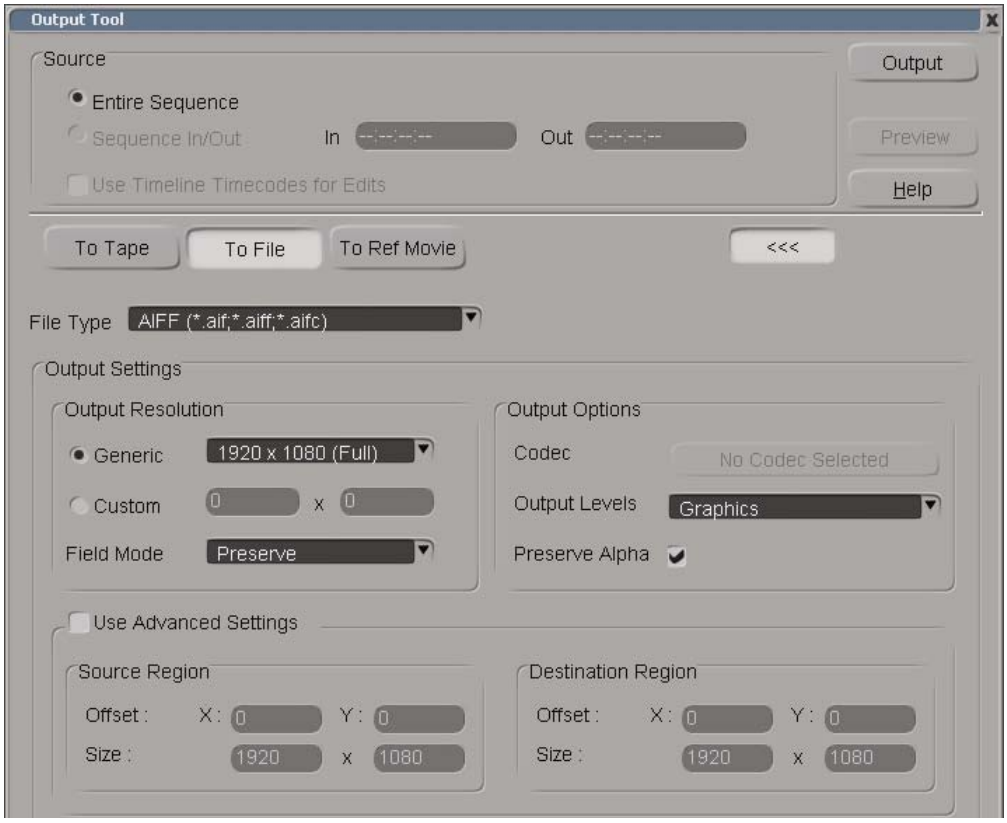
Use this	To
Downconvert button	Select options for downconverting HD sequences to SD or converting HD sequences to another HD format—see “Downconverted Output Formats and Sync Sources” on page 1814.
Sync Source button	For systems with an Avid Nitris DNA, select the type of sync signal for output: Tri-Level for HD and NTSC Black Burst or PAL Black Burst for SD—see “Downconverted Output Formats and Sync Sources” on page 1814..

Output Tool (Output to File)

Use these options to output a sequence to one or more graphics files or a single movie file.

To access the Output to File controls:

1. Select **View > Single-Instance Views > Output**.
2. Click the **Output to File** button.



Use this	To
Source	Specify the material you want to output.
Entire Sequence	Output the entire timeline. Within a container clip, only the clips on the the container timeline are output.
Sequence In/Out	Output a section of the sequence marked by in-points and out-points in the timeline. The timecodes of the in-point and out-point are displayed in the In and Out text boxes.
Output button	Begin the output process.
File Type	Specify the format of the file to be output—see Output File Formats.
Output Resolution	Set parameters for the size and field mode of the outputl.

Use this	To
Generic	Select a standard resolution for the output.
Custom	Specify a custom output resolution.
Field Mode	Specify the field dominance of the exported media. If you are working with progressive or low-motion media in an interlaced sequence, select Ignore to maximize the output quality. Otherwise select Preserve to keep the field dominance, or Invert to change the field dominance (from odd to even, or even to odd). The Preserve and Invert options preserve field motion and prevent any field artifacts. This option is automatically set to Ignore when you are working with a progressive sequence. For more information, see "About Field Dominance" in the Help.
Output Options	Set additonal parameters for output.
Codec	Specify the codec to be used in the compression of the output file. You can choose any codec that is already installed on your machine. This option is available only when generating files in formats that support compression.
Output Levels	Specify how Avid DS Nitris interprets the pixel values within a frame. Graphics: Use this option when exporting media to be used in print or on the web. Video: Use this option when exporting video that must not be clipped, such as a portion of a video clip that is being sent to a video paint system for cleanup or repair. Auto: Use this option to export at the levels used for the sequence. For more information, see "Media Capture Settings" on page 1759.
Preserve Alpha	Preserve the alpha channel in the generated file. This option can be used only when generating files in formats that support the alpha channel.
Advanced Settings	Specify the size and the specific area to be exported—see Using Advanced Settings to Crop and Resize in the Help.

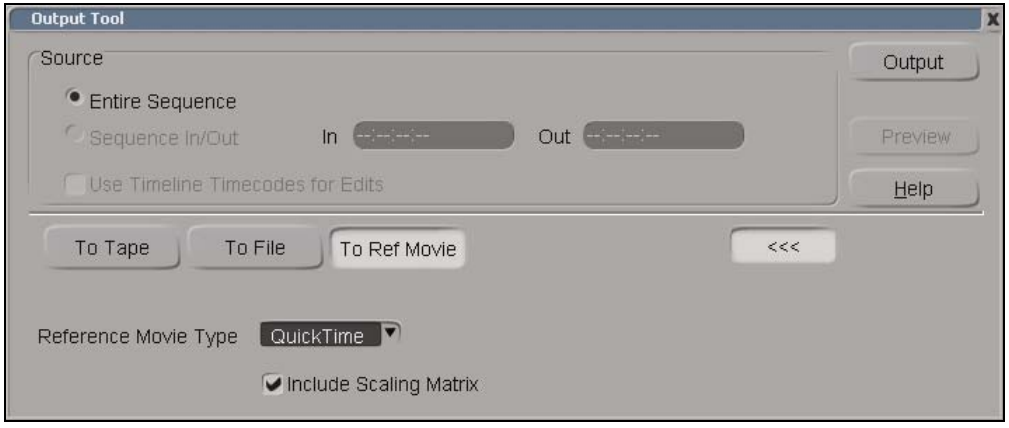
Use this	To
Source Region	Specify the left-corner offset (X and Y positions) of the region and the size of the region (pixel dimensions) in the source image.
Destination Region	Specify the left-corner offset and the size of the region in the exported image.

Output Tool (Output to Reference)

Use these options to output a sequence as an AVI or QuickTime reference movie.

To access the Output to Reference controls:

1. Select **View > Single-Instance Views > Output**.
2. Click the **Output to Reference** button.



Use this	To
Reference Movie Type	Select an AVI or QuickTime reference movie

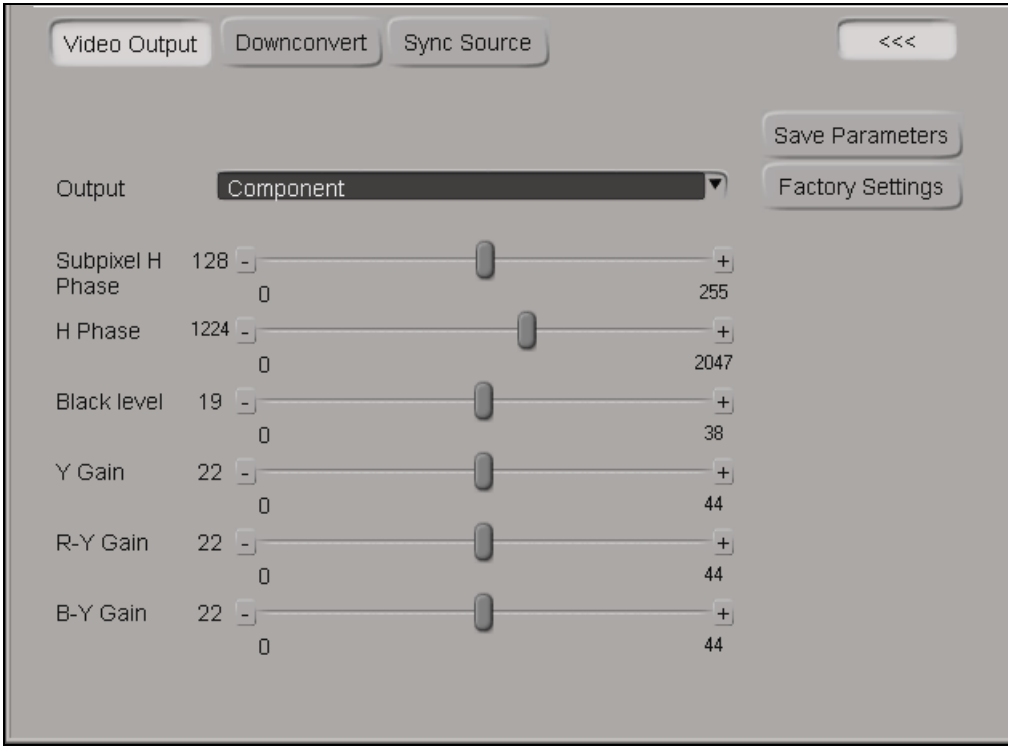
Use this	To
Include Scaling Matrix	(QuickTime only) Add QuickTime scaling to the exported file. This scaling sets a display size for the movie that can result in problems. By default, this option is not selected. QuickTime uses 720x540 pixels for a 4:3 sequence and 720x405 pixels for a 16:9 sequence. Although these sizes display the correct aspect ratio on the computer monitor, they result in a vertical scaling that can create artifacts and interlace problems. To discard the scaling matrix and avoid these problems, do not select this option.

Video Output Parameters

The Video Output Parameters panel lets you calibrate the video signal for output to an external device (Avid Nitris DNA only).

To access the Video Output Parameters panel:

1. Select **View > Single-Instance Views > Output**.
2. Click the **Video Output** button.



Option	Description
Video list	Lets you select the video signal you want to calibrate: Composite, HD Analog Out and HD H Phase, SD Component, SD Serial Digital, or S-Video.
Save Parameters	Saves the settings. as the default. You can save one set of parameters for each type of signal.
Factory Settings	Resets the sliders to all the default settings for your hardware
Color Space (HD Analog Out)	Lets you select the color space for the output signal: YUV (video) or RGB (graphics)
Subpixel H Phase	The horizontal blanking interval used to synchronize the timing of two or more video signals below the pixel level

Option	Description
H Phase HD H Phase	The horizontal blanking interval used to synchronize the timing of two or more video signals
Black level	A measurement of luminance in the video signal that is referenced to the blackest point in the visible picture
Gain (Composite and S-Video) Y Gain (Component) Y PbPr Overall Gain (HD Analog YUV) GBR Overall Gain (HD Analog RGB)	A measurement of luma (Y) in the video signal that is the whitest point in the visible picture
R-Y Gain (Component) Pr Gain (HD Analog YUV) R Gain (HD Analog RGB)	The red (R) minus luminance (Y) color-difference signal of an analog component system in the SMPTE NTSC video standard
B-Y Gain (Component) Pb Gain (HD Analog YUV) B Gain (HD Analog RGB)	The blue (B) minus luminance (Y) color-difference signal of an analog component system in the SMPTE NTSC video standard
Hue (Composite and S-Video)	An attribution of color perception based on varying proportions of red, green, and blue in the video signal. Also known as *color phase*.
Saturation (Composite and S-Video)	A measurement of chrominance or the intensity of color in the video signal
SC Phase	A control for timing two or more signals based on the color burst portion of a composite or S-Video signal

Downconverted Output Formats and Sync Sources

The Output Tool lets you convert or downconvert a high-definition (HD or film) sequence in one of several HD or standard-definition (SD) formats, depending on the original format of your sequence (Avid Nitris DNA workstation only).

The following illustrations show the SD format options for HD material.

High Definition

SD - Anamorphic

SD - Letterbox

SD - Center Cut

Sequence Format	Converted HD Output	Converted SD Output	Compatible Sync Source
1080PsF 23.97	1080i 59.94	NTSC Letterbox NTSC Center Crop NTSC Anamorphic	Tri-Level
1080PsF 24	1080i 60	—	Tri-Level
1080PsF 25	—	PAL Letterbox PAL Center Crop PAL Anamorphic	Tri-Level PAL Black Burst

Sequence Format	Converted HD Output	Converted SD Output	Compatible Sync Source
1080PsF 29.97	—	NTSC Letterbox NTSC Center Crop NTSC Anamorphic	Tri-Level NTSC Black Burst
1080PsF 30	—	—	Tri-Level
1080i 50		PAL Letterbox PAL Center Crop PAL Anamorphic	Tri-Level PAL Black Burst
1080i 59.94	720p 59.94	NTSC Letterbox NTSC Center Crop NTSC Anamorphic	Tri-Level NTSC Black Burst
1080i 60	720p 60	—	Tri-Level
720p 59.94	1080i 59.94	NTSC Letterbox NTSC Center Crop NTSC Anamorphic	Tri-Level NTSC Black Burst
720p 60	1080i 60	—	Tri-Level
2k and 4k Film 23.97 fps[a]	1080p Center Crop 1080p Padding 1080i 59.94	NTSC Letterbox NTSC Center Crop NTSC Anamorphic NTSC Padding	Tri-Level
2k and 4k Film 24 fps[a]	1080p Center Crop 1080p Padding 1080i Center Crop 1080i Padding 1080i 60	—	Tri-Level
2k and 4k Film 25 fps[a]	1080p Center Crop 1080p Padding	PAL Letterbox PAL Center Crop PAL Anamorphic PAL Padding	Tri-Level PAL Black Burst
2k and 4k Film 29.97 fps[a]	1080p Center Crop 1080p Padding	NTSC Letterbox NTSC Center Crop NTSC Anamorphic NTSC Padding	Tri-Level NTSC Black Burst
2k and 4k Film 30 fps[a]	1080p Center Crop 1080p Padding	—	Tri-Level

a. The converted formats available depend on the specific film format: Full Aperture, Academy, Widescreen, Cinemascope, or Spirit.

Output File Formats

Avid DS Nitris supports a wide range of video and audio file formats. When you export your media as a sequence or as single frames, choose from any of the following formats:

File format	File extension	Supports alpha	Supports compression
AIFF (uncompressed)	.aif, .aiff, .aifc	-	-
Alias	.als	No	No
AVI	.avi	Yes	Yes
Avid DS (Video Hal)	.gen,.omf	No	Yes (8-bit video only)
BMP (Windows Bitmap)	.bmp	No	Yes
Chyron	.chr	Yes	No
Cineon	.fido	No	Yes
DPX	.dpx	No	No
JFIF (JPEG)	.jpg, .jpeg, .jfif	No	No
MAP	.map	No	No
MXF (Material Exchange Format)	.mxf	No	Yes (8-bit video only)
PCX (Microsoft Windows Paintbrush)	.pcx	No	No
PGM	.pgm	No	Yes
Photoshop	.psd	Yes	Yes
PICT	.pct, .pict	Yes	Yes
PNG	.png	Yes	Yes

File format	File extension	Supports alpha	Supports compression
PPM	.ppm	No	Yes
QuickTime	.mov, .qt	Yes	Yes
SGI	.sgi, .rgb	Yes	Yes
Softimage PIC	.pic	Yes	Yes
Targa	.tga	Yes	Yes
TIFF	.tif,.tiff	Yes	Yes
WAV	.wav	-	-
Wavefront	.rla	Yes	No
Windows Media	.wmv, .wma, .asf	No	Yes
YUV	.yuv	No	No
YUV16	.yuv16	No	No

DPX Export Dialog Box (Still Image Export)

If you select Cineon or DPX as a file format for output, a dialog box lets you select the look-up table (LUT) and adjust color values.

Use this	To
Pixel format	View the pixel format of the sequence which you are outputting.
Compression	View the compression of the sequence which you are outputting.

Use this	To
LUT Type	Select the look-up table (LUT) for the export: • Linear: maintains the log values and lets you adjust the white point and black point • Linear>Log: converts the values from linear to log and lets you adjust all RGB controls • From File: Lets you select a file, which determines which controls you can adjust. A dialog box gives you the option of inverting the LUT.
RGB Controls	Adjust the color values of the output. You can type new values or use the sliders. By default, RGB values are equivalent. If you want to adjust an individual R, G, or B value, clear the box in the Lock column for the parameter.
Big Endian Byte Ordering	Write the DPX file so that it can be imported correctly into graphics programs, such as Adobe After Effects® and Avid Media Illusion.
Export Timecode	Specify the starting timecode at which your sequence will be output.
Reset LUT	Return to the default RGB values.
Inverse LUT	Set the opposite values of the current RGB settings, so that you can reverse the LUT settings that were used when the original DPX file was imported.

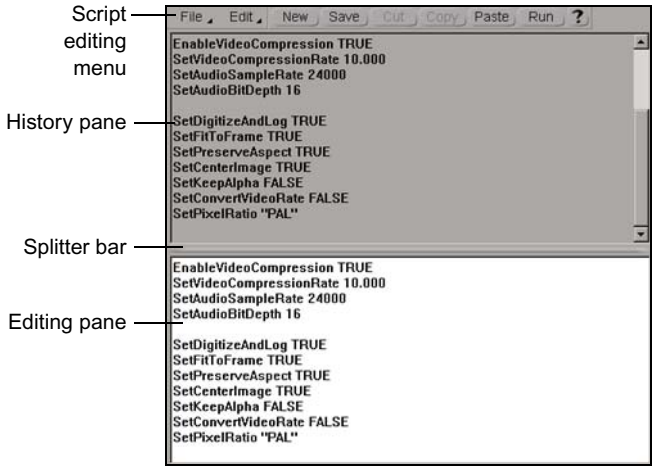
Script Editor View

The Script Editor view is a text editor within Avid DS Nitris that lets you create, modify, run, and manage scripts for both batch capturing and processing. You can easily write a script to automate a commonly performed series of tasks that can save you a great deal of time.

The scripting capability in Avid DS Nitris is limited to capturing media from file.

To access the Script Editor:

- Select **View > Single-Instance Views > Script Editor**.



Use this	To
Script editing menus	Load, save, edit, cut, copy, or paste scripts.
History pane	View the most recently used commands in the current Avid DS Nitris session. You cannot edit the text in the History pane, but you can use it as a source for pasting into the Editing pane. By default, the History pane keeps the last 200 commands, but you can change this number.
Editing pane	Create scripts by typing directly into the pane or cut, copy, or paste information from other sources. This pane retains its contents even after you quit Avid DS Nitris. To clear it click the **New** button.

Script Editor Menus

The Script Editor menus let you create, edit, save, cut, copy, and paste commands or entire scripts.

Use this	To
File	Display commands that let you open and save scripts.

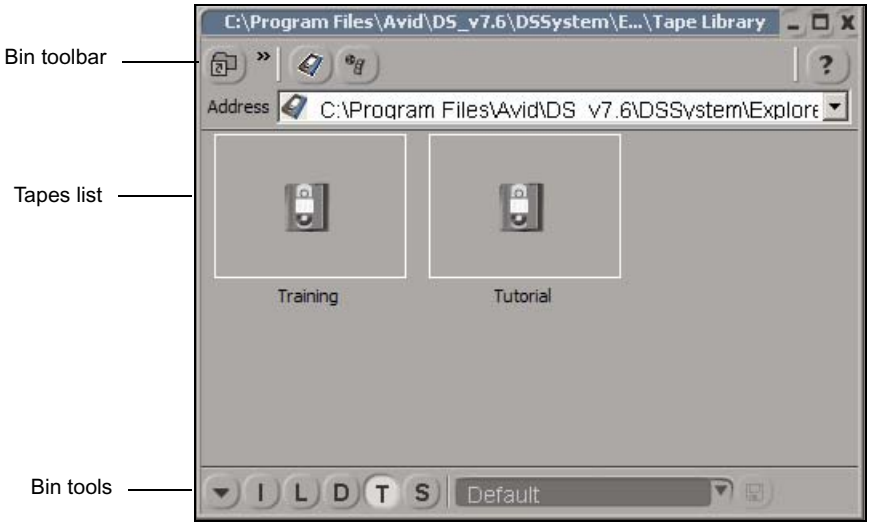
Use this	To
New	Open a new script file.
Open	Open an existing script file.
Save	Save a script to file.
Save As	Save a script file with a different name.
Edit	Display commands that let you modify the text in the script editor.
Undo	Undo your last action.
Cut	Remove a portion of text.
Copy	Copy a portion of text.
Paste	Paste a portion of text that was copied from elsewhere.
Clear Selection	Remove text that has been selected in the Editing pane of the Script Editor.
Select All	Select all text.
Clear History Log	Remove all text from the History pane of the Script Editor.
Clear Script Editor	Remove all text from the Editing pane of the Script Editor.
Run	Start the script.
New	Clear the Script Editor.
Save	Save the contents of the Editing pane to a file.
Cut	Remove a portion of text with the intent of moving it elsewhere.
Copy	Copy a portion of text with the intent of placing it elsewhere.
Paste	Paste a portion of text that was copied from elsewhere.
Run	Start the script.

Tape Library View

The Tape Library view lets you name, view, and manage the tapes used in your current project. You can perform basic operations, such as deleting, purging, and recapturing clips based on their source.

To access the Tape Library view:

- In the My System or Project panel of the Avid Explorer, click **Views > Tape Library**.

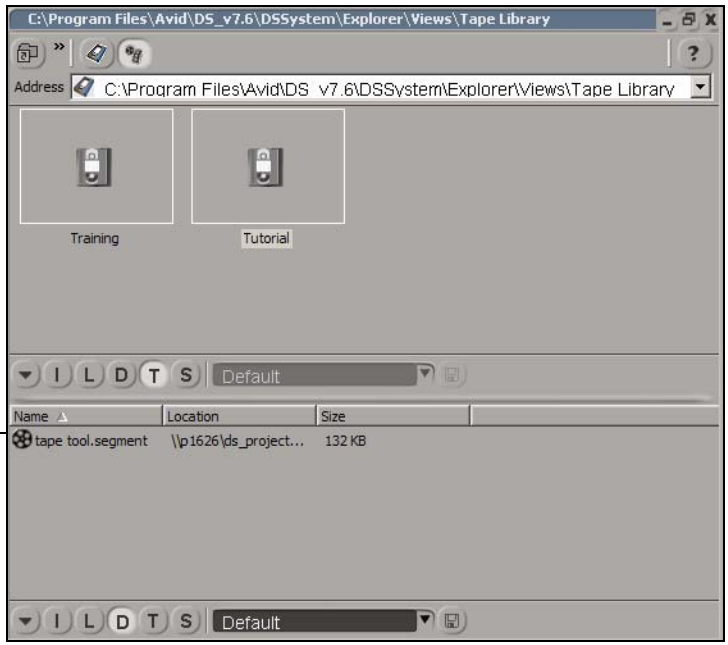


For information about the Tape Tool, see .

To view the clips and sequences associated with a tape:

- Select one or more tapes, and click the **Clip Tray** button:

  The top part of the Tape Library view lists the tapes in your project, and the bottom part lists the master clips and sequences that are associated with the selected tape. Double-click a clip or sequence to display it in the Source viewer.



Sequence associated with selected tape.

You can view the Tape Tool and Clip Tray views at the same time.

Tapes Menu

The Tapes menu lets you perform operations on the selected tape.

To access the Tapes menu:

- Right-click a tape icon.

Option	Description
Delete	Deletes the selected tape and all associated master clips
Rename	Lets you renames the selected tape. A tape name must be less than 32 characters and cannot contain the following characters: / \ : ; * ? “ < > | . ^ #
Change Comment	Lets you change the comment for the selected tape
Purge	Purges media for all master clips associated with the tape

Option	Description
Recapture	Recaptures all master clips associated with the tape
Manual Reel	A check mark indicates that the tape has been marked for user interaction. You can set the Manual Reel option when you create a new tape, or select the option in the context menu. This option disables the streaming capture functionality, and allows you to manually cue the tape to the appropriate timecode. Use this option for tapes that contain repeated timecode, timecode breaks, or other problems.

Add New Tape Dialog Box

The Add New Tape dialog box lets you add a new tape to the project.

To access the Add New Tape dialog box, do one of the following:

- In the Bin Tools section of the Tapes list, click the Fast Menu button or right-click in the background and select **Add New Tape**.
- In the Capture Tool, click the **New Tape** button.

Option	Description
Name	The name associated with the tape. A tape name must be less than 32 characters and cannot contain the following characters: / \ : ; * ? “ < > | . ^ #.
Comment	A comment about the tape. This comment is displayed in a bin when you select the Details or Script view.
Manual Reel	Marks the tape for user interaction. This option disables the streaming capture functionality, and allows you to manually cue the tape to the appropriate timecode. Use this option for tapes that contain repeated timecode, timecode breaks, or other problems. You can also select or deselect this option by right-clicking a tape icon. **If you flag a tape with the Manual Reel option during capture, don’t deactivate it during recapture because it may cause recapture errors.**

Tape Tool

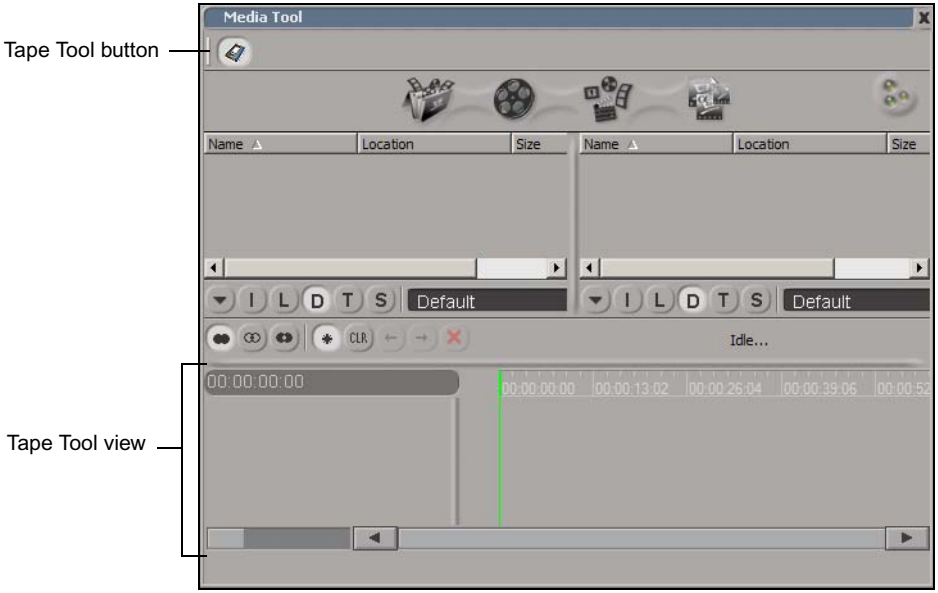
The Tape Tool view lets you see the media on one or more tapes, their qualities, and the parts of the media that are used in a selected clip or sequence. The Tape Tool view contains a list of audio and video media, and a 24-hour timeline that shows you where the media is situated. In this view, you can also upconvert and downconvert audio, and purge media.

You can access the Tape Tool view from three different locations: the Media Tool, Tape Library, and your project bin in Avid Explorer.

To access the Tape Tool:

1. Do one of the following:
   - Select **Data Management > Media Tool**.
   - In the My System or Project panel of the Avid Explorer, click **Views > Tape Library**.
   - In Project panel of the Avid Explorer, select your project to display the project bin.
2. In the respective view or bin, click the **Tape Tool** button.

   The bottom portion of the view/bin displays a timecode box on the right side and a timeline on the left.



Viewing Media

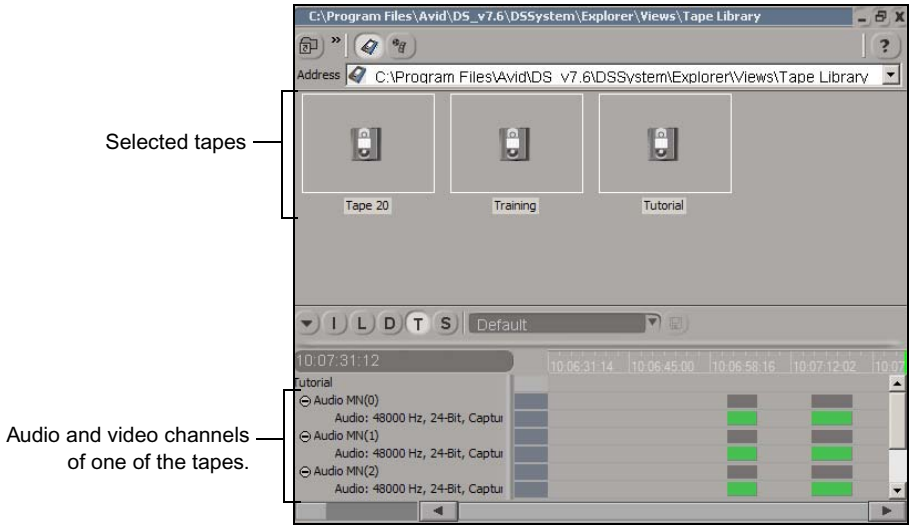
Regardless of how you access the Tape Tool, you can view the media of a selected clip, sequence, or tape, as well as their qualities. Also, you can view the media available on the tape(s) associated with your sequence, and the time span of the media that's actually used in a selected sequence.

You can only select tapes in the Tape Library view.

To view a tape's media:

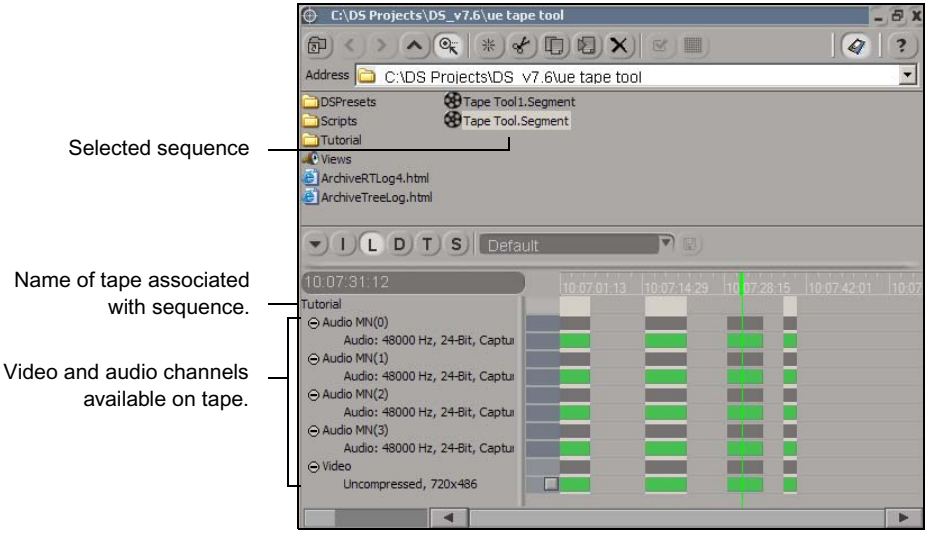
- In the Tape Library, select one or more tapes, and click the **Tape Tool** button.

  The top part of the Tape Tool view lists the tapes in your project, and the bottom part displays a list of audio and video channels on the selected tape(s).



To view a clip or sequence's media:

- In the Tape Tool view, select a clip or sequence.



The name of the tape from associated with the selected sequence is displayed at the top of the list in the left panel. The audio and video channels on the tape are displayed at the bottom of the panel.

Viewing the Format and Qualities of Media

The format and quality of media is automatically displayed beside each audio or video channel in the left panel of the Tape Tool view. You can, however, view additional information on a video channel.

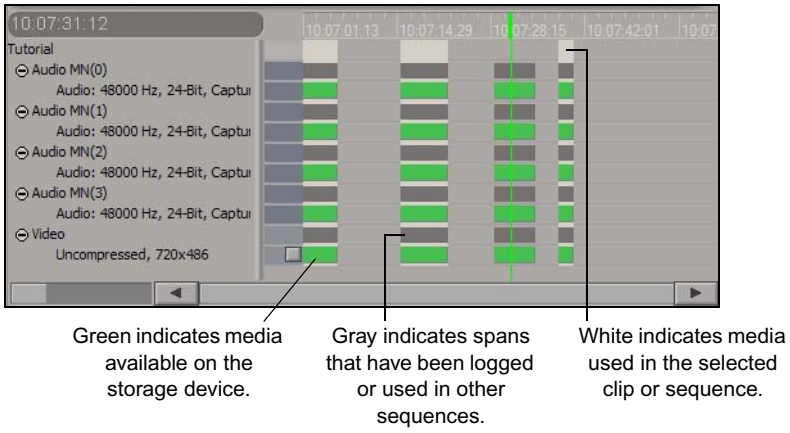
To view additional information on a video channel:

- In the bottom-left panel of the Tape Tool view, select a video channel.

  Additional video information is displayed at the bottom of the panel.

Identifying Media in the Tape Tool Timeline

The media on the Tape Tool timeline is identified by different colors.



Using the Tape Tool Timeline

The Tape Tool timeline is a 24-hour timeline that's similar to the main timeline; there is a timescale and position indicator to show the location of media in a selected sequence.

If your sequence has many clips, they may not all be visible on the timeline. You can pan the timeline to view different sections of your sequence. You can also view the sequence in the Source viewer.

Using the Tape Tool timeline, you can also add source effects. For more information, see Working with Source Effects.

To pan the Tape Tool timeline, do one of the following:

- At the bottom of the left or right panel, drag the timeline scroll bar left or right.
- In the left panel, click the arrows to pan left or right.

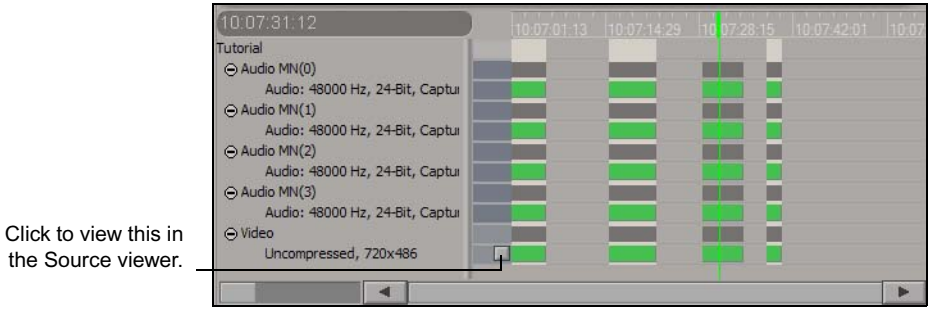
To switch between the Tape Tool timeline and the record timeline:

1. In the timeline navigation bar, click the **Source/Record Timeline** button.

   The button turns green and the media that's used in the selected sequence is displayed on the main timeline.
2. Click the **Source/Record Timeline** button again to switch back to the main timeline.

To view a video channel in the Source viewer:

- In the Tape Tool timeline, click the small box beside a video channel.



The media in the video channel is displayed in the Source viewer.

Timeline Recapture Dialog Box

The Timeline Recapture dialog box lets you set options before you recapture clips from the timeline.

To access the Timeline Recapture dialog box:

- In the editing toolbar, right-click the Media IO button and select one of the following:
  - **Recapture Entire Timeline with Options**
  - **Recapture Selection with Options**

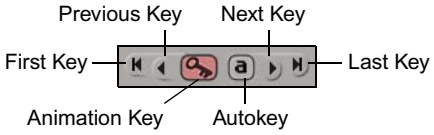
Option	Description
Heads	Specifies the number of frames before the clips to be recaptured
Tails	Specifies the number of frames after the clips to be recaptured
Recapture Only Active Material	Recapture material marked as active. When you select this option, clips with time effects (Timewarp, Interlace, Deinterlace, 3:2 Expand, or 3:2 Contract) are recaptured in their entirety regardless of the active areas. For all other types of container clips, only the active portions of the container clips are recaptured.
Time Delay	Recapture master clips from the timeline at a specific date and time . This is useful when you're using 3D rendered image files in your sequence. You can render the 3D image files at night, set the Time Delay option to begin capture after the render is complete and have everything captured by the next morning. The Time Delay option is only valid for media that was originally imported from file. The date/time properties on your computer determine when to start and end your recapture. Make sure your clock is accurate, so that the recapture occurs at the desired time.

Chapter 3
Editing Reference

This chapter includes reference information on features you use during editing.

Animation Controls (Global in Status Bar)

The global animation controls in the status bar let you turn automatic keyframing on or off, set a keyframe manually, and move between keyframes.



Use this	To
|< (First Key)	Move the position indicator to the first keyframe
< (Previous Key)	Move the position indicator to the previous keyframe
Animation Key	Set a keyframe at the current frame with the current property settings. Right-click this button to display the Animation Key menu—see "Animation Key Menu" on page 1832.
Autokey	Automatically create a keyframe when you make any adjustments to properties. That is, you do not have to click the Animation Key button each time you change a property.
> (Next Key)	Move the position indicator to the next keyframe

Use this	To
>| (Last Key)	Move the position indicator to the last keyframe

Animation Key Menu

The Animation Key menu lets you create and edit animation, as well as change the curve interpolation type.

To access the Animation Key menu, do one of the following:

- Right-click the **Animation Key** button in any property editor.
- Right-click the global animation key in the status bar.

Use this	To
Animation Editor	Display the animation editor—see "Understanding the Animation Editor" in the Help.
Remove Key	Remove every available keyframe at the current position indicator location
Remove Animation	Remove all function curves in this animation
First Key	Move the position indicator to the first keyframe in the function curve
Last Key	Move to the position indicator to the last keyframe in the function curve
Cut Key	Cut every available keyframe at the current position indicator location
Copy Key	Copy every available keyframe at the current position indicator location
Paste Key	Paste every available keyframe, at the current position indicator location, to their respective curve *You can only paste to effects of the same type as the effects copied to the Clipboard.*

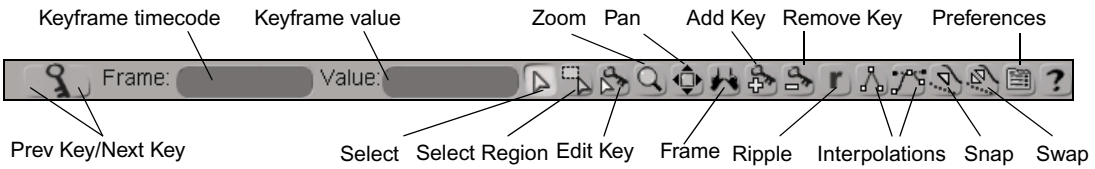
Use this	To
Autokey	Turn Autokey mode on or off. Automatically creates keyframes as you adjust the settings. ***Tip**: You can activate this mode by clicking the Autokey button at the bottom-right of the desktop.*
Constant	Change the function curve to a constant curve. This option has no effect on a motion path.
Linear	Change the function curve to a linear curve
Bézier	Change the function curve to a Bézier curve

Animation Tools

The animation tools are represented as buttons in the animation editor. These tools let you move within the animation graph, and adjust the values or time of the keyframes of a function curve.

To access the animation editor, do one of the following:

- Select **View** > **Single-Instance Views** > **Animation Editor**.
- In a property editor with animation controls, right-click the **Animation Key** button and select **Animation Editor**.



Use this	To
Select (mode)	Select a function curve or keyframe.
Select Region	Select a region of the function curve. You can use this tool when cutting, copying, or pasting function curves.

Use this	To
Edit Key (mode)	Enter Edit Key mode. When you are in this mode: left-click to select/translate keys, middle-click to add keys, and right-click to delete keys.
Zoom (mode)	Zoom in or out on the animation graph.
Pan (mode)	Pan the animation graph.
Frame	Frame the currently selected curves.
Add Key (mode)	Add a keyframe when you click the animation graph.
Remove Key (mode)	Delete any keyframes that you select.
Ripple	When selected before pasting, moves key points to accommodate the inserted region.
Linear Interpolation	Repeat the value of a key point. The movement is characterized by sudden changes at keyframes and static positions between keyframes.
Spline Interpolation	Spline interpolation accelerates and decelerates to ease into and out of each keyframe, resulting in a smooth transition. The degree of acceleration and deceleration before and after the keyframe is determined by the tangent handles of the key point.
Snap	Snap the ghost curve to the currently selected function curve.
Swap	Swap the currently selected function curve with the ghost function curve.
Preferences	Display the Animation Editor Preferences property editor to adjust the graph properties.
Prev Key/Next Key	Navigate between keyframes in an animation
Keyframe timecode	Display the timecode of the selected keyframe. You can type a new timecode to edit the selected keyframe. If more than one keyframe is selected, no timecode is displayed.
Keyframe value	Display the value of the selected keyframe. You can type a new value to edit the selected keyframe(s). If more than one keyframe is selected, no value is displayed.

Animation Editor Menus

The animation editor menus let you create, edit, and view a selected property's function curve. For information about the animation editor, see "Understanding the Animation Editor" in the Help.

File Menu (Animation Editor)

The File menu lets you open, save, and import your files, and access the Curve Editor to set your user preferences.

Use this	To
Open	Open a saved function curve
Save	Save a function curve as a raw function curve file
Import (.fraw)	Import raw function curves
Export (.fraw)	Export raw function curves
Preferences	Display the Animation Editor Preferences property page

Edit Menu (Animation Editor)

The Edit menu lets you cut, paste, and select keys, regions, or curves, and access advanced snapping and swapping features.

Use this	To
Cut	Cut a selected region, function curve, or key
Copy	Copy a selected region, function curve, or key
Paste	Paste a selected region, function curve, or key
Select Tool	Select a function curve or keyframe
Select Region Tool	Select a 2D region of the animation graph. The curve region edit controls let you move, stretch, or compress all the key points within the selected region as a group.

Use this	To
Select All Keys	Select all keys on all selected function curves
Select All Curves	Select all function curves currently displayed in the animation graph
Deselect All	Deselect all keys and function curves
Snapshot	Snap the ghost curve to the currently selected function curve
Swap w. Snapshot	Swap the selected function curve with the ghost function curve
Snap to Grid	Snap the key point to the nearest X (time) and Y (value) coordinates
Snap to Frame	Snap the key point to the nearest frame on the animation graph's X axis
Move Keys to Nearest Frame	Move existing floating keys to the nearest frame
Discrete Time	Keep keys on keyframes when stretching or scaling function curves
Interactive Update	Simultaneously update the image in the viewer as you modify the function curve of the animation, when selected. *When deselected, each modification must be completed before the image is updated.*

View Menu (Animation Editor)

The View menu lets you view function curves, show/hide features such as key coordinates and labels, and display snapshot curves. You can also pan and zoom, frame, and display rulers and grid lines.

Use this	To
All Parameters	View the function curves for all the animatable parameters in the animation graph

Use this	To
Animated Parameters	Display only the animated parameters in the animation graph
Marked Parameters	Display only the marked parameters in the animation graph
Clear All Curves	Hide all function curves in the animation graph until you select one of the other available view commands
Filter	Shows or hides the Animation Filter list at the top of the animation tree.
Edit Filter	Opens the Edit Filter dialog box for setting criteria for displaying function curves.
Keys on Unselected Curves	Show or hides key points on all unselected function curves in the animation graph
Slopes on Unselected Keys	Show or hides the slopes of all unselected keys on a selected function curve
Curve and Axis Labels	Show or hides the labels on selected function curves and the X and Y axes in the animation graph
Keys Coordinates	Show or hides the time and value of a selected key
Snapshot Curve	Display a temporary copy of the original function curve. When moving a key point or part of a curve, it creates a “snapshot” of the curve’s original location.
Normalized in Y (Value)	View and compare multiple curves that have a broad range of values. Normalizing the Y axis lets you view the full range of each function curve.
Pan Tool	Pan the animation graph
Zoom Tool	Zoom in or out on the animation graph
Automatic Pan	Pan the animation graph during playback
Automatic Framing	Automatically set the animation graph view around the selected object (timeline or elsewhere). If this option is not selected, then the animation graph retains the last zoom setting.

Use this	To
Frame Selection	Frame the selected curves and keys by resetting the pan and zoom, so they fit in the animation graph within a specified range
Frame Region	Frame the selected region by resetting the pan and zoom, so they fit in the animation graph within a specified range
Frame Selected Curves	Frame the selected curves by resetting the pan and zoom, so they fit in the animation graph within a specified range
Frame All Curves	Frame all the function curves by resetting the pan and zoom, so they fit in the animation graph within a specified range
Frame to Timeline	Frame all the function curves by resetting the graph view to the time span specified in the timeline controls
Grid	Turn the grid lines on or off
Rulers	Turn the X and Y axis rulers on or off
Locators	Display any locators, in the selected time span, on the timeline ruler
Meta Curve Region	Mark the timecode of keyframes, or groups of keyframes, with a red locator below the animation graph
Display for selected curves only	Display the Meta Curve region for selected curves only
Display for all curves	Display the Meta Curve region for all curves
Hide Meta Curve region	Hide the Meta Curve region

Keys Menu (Animation Editor)

The Keys menu lets you control the selected keyframe's key and tangent handles. You can lock key values, break and unify tangent handles, as well as control the slope of inserted keys.

Use this	To
Lock in X (Time)	Lock the key's location in time on the X axis, allowing movement only in the Y direction
Lock in Y (Value)	Lock the key's value on the Y axis, allowing movement only in the X direction
Lock Slope Orientation	Lock the angle of the tangent handles of the selected key points
Lock Slope Length	Keep the length of the tangent handles constant
Unlock All Keys	Unlock all keys that were previously locked in X and Y values
Unlock All Slopes	Unlock all tangent handles that were previously locked in slope length and angle
Unify Slope	Lock the slope together at 180 degrees to each other
Break Slope	Freely move slopes as you drag each tangent handle individually
Automatic Slope	Automatically set the slope of an inserted key to the slopes of neighboring keys
Zero Slope	Constrain key points to a slope of zero. The tangent handles remain horizontal, so that only the slope tension can be modified
Plateau Slope	Set the slope of an inserted key automatically to zero if the next key has the same value, or if that key is a local minima or maxima. This is useful to hold key point values to prevent the automatic interpolation from going above or below your keyframed values.
Remove Animation	Remove all keyframes from selected curves
Remove Key	Remove selected keyframes
Insert Key at Current Time	Insert key points for all selected curves at a given frame
Delete Key at Current Time	Delete key points for all selected curves at a given frame

Use this	To
Edit Key Tool	Turn Edit Key mode on or off. In this mode, left-click to select/translate keys, middle-click to add keys, and right-click to delete keys.
Add Key Tool	Turn Add Key mode on or off
Remove Key Tool	Turn Remove Key mode on or off

Curves Menu (Animation Editor)

The Curves menu lets you control the appearance of function curves. You can choose the interpolation and extrapolation modes, introduce cycles, as well as adjust the function curve using resampling, smoothing, and fitting tools.

Use this	To
Constant Interpolation	Repeat the value of a keyframe until the next one. The movement is characterized by sudden changes and then static positions.
Linear Interpolation	Connect key points by straight line segments. The movements are characterized by sudden changes at each key point.
Spline Interpolation	Result in a smooth transition. Uses a curved spline interpolation. The interpolation accelerates and decelerates to ease into and out of each keyframe.
Constant Extrapolation	Extrapolate the value of the Y axis from the first frame to the first keyframe and the value of the Y axis from the last keyframe to the last frame. This results in a hold of motion before and after the movement.
Gradient Extrapolation	Extrapolate the increment calculated between the first and second key points and applies it from the first frame to the first keyframe
Cycle	Repeat the function curve shape/pattern defined by key points. This results in the cycling of that pattern from the first keyframe to the last.
Relative Cycle	Repeat the selected function curve such that the next cycle begins at the same value as the end of the previous cycle

Use this	To
Freeze Cycle	Freeze the selected function curve to a selected time span
Flip X (Time)	Flip the values of the X (Time) coordinates about the average value of the time of all selected keyframes
Flip Y (Value)	Flip the values of the Y (Value) coordinates about the average value of the Value of all selected keyframes
Resample	Generate a key every ‘x’ time step units. The time step units can be set in the Curve Editor property editor (Curve Processing property page).
Smooth	Remove sharp spikes and jags from a function curve by averaging between keyframes. You can adjust the filter size in the Curve Editor property editor (Curve Processing property page). A high filter size will give you a much straighter curve.
Fit	Remove redundant keyframing while preserving the original shape of a function curve
Make Rotations Continuous	Recalculate the rotation values to avoid flipping. Creates a continuous rotation function curve.

Animation Editor Preferences

The Animation Editor Preferences property editor lets you set your viewing and displaying preferences, as well as curve processing and pasting options.

To access the Animation Editor Preferences property editor:

- From the Animation Editor, select **File** > **Preferences**.

Editor Property Page (Animation Editor Preferences)

The Editor property page lets you control various settings of the animation editor, including how the grid is displayed and how the viewer is updated.

Option	Description
Grids	Controls the properties of the grid displayed in the animation editor. You can set the properties for the horizontal and vertical directions separately.
Display Grid	Turns grid display on or off
Snap Grid	Turns grid snapping on or off
Rulers	Controls properties of the ruler displayed along axes of animation editor. You can set the properties for the horizontal and vertical directions separately.
X or Y value	Sets spacing between ruler increments
Show	Turns ruler display on or off
View	Lets you control display of keys, key coordinates, slopes, snapshot curves, and playback cursor.
Keys Coordinates	Shows or hides time and value of a selected key
Slopes on Unselected Keys	Shows or hides key points on all unselected keys on a selected curve
Keys on Unselected Curves	Turns between showing and hiding key points on all unselected curves in the animation graph
Snapshot Curve	Displays temporary copy of original function curve. When moving a key point or part of a curve, a “snapshot” of the curve’s original location is taken.
Pan & Zoom tool by default	Activates the Pan & Zoom tool whenever you select the Pan tools from the animation editor
Interactive Update	Simultaneously updates the image in the viewer as you drag the function curve of the animation. When deselected, you must drag and release before the image updates.
Active	Turns Interactive Update on or off
Speed	Sets the Interactive Update speed. The higher the speed, the faster the update will occur as you drag the function curve.

Keys Property Page (Animation Editor Preferences)

The Key property page contains information about selected keyframes in the animation editor and contains controls for setting the interpolation between keyframes.

Option	Description
Frame	Specifies frame number of selected key. To move a keyframe, type a frame number and press Enter.
Value	Specifies value of selected key. To change it, type a new value and press Enter.
Previous Key	Lets you go to previous keyframe
Next Key	Lets you go to next keyframe
Interpolation	Controls how values are calculated for frames between keyframes on the selected function curves
Constant	Repeats value of a keyframe until the next one. The movement is characterized by sudden changes and then static positions.
Linear	Uses linear interpolation by connecting keyframes with straight line segments. The movement is characterized by sudden changes at each key point.
Spline	Results in a smooth transition. Uses a curved spline interpolation. The interpolation accelerates and decelerates to ease into and out of each keyframe.
Slope	Controls how slope moves
Unified	Keeps slopes together as they move, keeping a constant angle between them
Broken	Lets slopes move freely as you drag each handle individually

Curve Processing (Animation Editor Preferences)

The Curve Processing property page lets you define the smoothing, fitting, and resampling of function curves.

Option	Description
Smoothing	Removes sharp spikes and jags from a function curve by averaging between keyframes
Average Filter	Smooths function curve by applying a moving average. The weights of the average are uniformly distributed.
Filter Size	Defines number of keys that comprise the filter. The higher the filter size, the straighter the curve.
Gaussian Filter	Smooths function curve by applying a moving average. The weights of the average are distributed as a bell curve. This usually gives better results than the average filter.
Variance	Controls degree of smoothing. The higher the variance, the smoother the function curve. *This option applies to the Gaussian filter only.*
Fitting	Removes redundant keyframes while preserving original shape of a function curve
Tolerance	Adjusts closeness of fit. Smaller values will maintain the original shape of the curve better by using more keys, while larger values will use less keys and will result in a fit that deviates from the original curve.
Resampling	Generates a key every “x” time step units on the function curve
Time Step	Specifies interval at which keys are inserted when using resampling option
Keep Existing Keys	Keeps keys that existed before adding keys through resampling option
Smooth	Removes sharp spikes and jags from a function curve by averaging between keyframes
Fit	Removes redundant keyframing while preserving original shape of a function curve
Resample	Generates key every “x” time step units. The time step units can be set in the Curve Editor property editor (Curve Processing property page).

Paste Options (Animation Editor Preferences)

The Paste Options property page lets you control how key points, function curves, and curve segments are pasted, as well as set continuity options for pasted regions.

Option	Description
Paste Options	Controls how key points, function curves, and curve segments are pasted from the system memory
Insert	Inserts key points on system memory before current selection when pasting from system memory. The current selection is moved to the right.
Replace	Replaces current selection with key points on Clipboard when pasting from the system memory
Absolute	Inserts key at the value it was cut
Relative	Inserts key on the curve, creating a “Y” offset
Continuity Options	Controls how key point values are integrated into the pasted area
Left Key	Specifies the value to be used in calculating the key point to be inserted at the left of the paste region
Use Average	Inserts a key to the left of the paste region by taking an average of the values of the pasted and original curves at that point
Use Left Value	Inserts a key to the left of the paste region by using the value of the original curve at that point
Use Right Value	Inserts a key to the left of the paste region by using the value of the pasted curve at that point
Right Key	Specifies value used in calculating the key point to be inserted at the right of the paste region
Use Average	Inserts a key at the right of the paste region by taking an average of the values of the pasted and original curves at that point
Use Left Value	Inserts a key to the right of the paste region by using the value of the pasted curve at that point

Option	Description
Use Right Value	Inserts a key to the right of the paste region by using the value of the original curve at that point

Animation Graph Menu

The animation graph menu lets you create, edit, and view a selected property's function curve.

To access the animation graph menu:

- Right-click an empty area of the animation graph.

Use this	To
File	Open, save, and import your files, and access the Curve Editor to set user preferences
Open	Open a saved function curve
Save	Save a function curve as a raw function curve file
Edit	Cut, paste, and select keys, regions, or curves, and access snapping and swapping features
Cut	Cut a selected region, function curve, or key
Copy	Copy a selected region, function curve, or key
Paste	Paste a selected region, function curve, or key
Select All Keys	Select all keys on all the currently selected curves
Select All Curves	Select all function curves currently displayed in the animation graph
Deselect All	Deselect all keys and function curves
Snapshot	Snap the ghost curve to the selected function curve
Swap w. Snapshot	Swap the selected function curve with the ghost function curve
Snap to Grid	Snap the key point to the nearest X (time) and Y (value) coordinates

Use this	To
Snap to Frame	Snap the key point to the nearest frame on the animation graph's X axis
Move Keys to Nearest Frame	Move existing floating keys to the nearest frame
Discrete Time	Keep keys on keyframes when stretching or scaling function curves
Interactive Update	Simultaneously updates the image in the viewer as you modify the function curve of the animation, when selected. *When deselected, each modification must be completed before the image is updated.*
View	Let you view function curves, show/hide features, such as key coordinates and labels, and display snapshot curves. It also contains commands for framing and displaying rulers and grid lines.
Keys on Unselected Curves	Show or hides key points on all unselected function curves in the animation graph
Slopes on Unselected Keys	Show or hides the slopes of all unselected keys on a selected function curve
Curve and Axis Labels	Show or hides the labels on selected function curves and the X and Y axes in the animation graph
Keys Coordinates	Show or hides the time and value of a selected key
Snapshot Curve	Display a temporary copy of the original function curve. Moving a key point or part of a curve creates a "snapshot" of the curve's original location.
Normalized in Y (Value)	View and compare multiple curves that have a broad range of values. Normalizing the Y axis lets you view the full range of each function curve.
Frame Selection	Frame the currently selected curves and keys by resetting the pan and zoom, so they fit in the animation graph within a specified range
Frame Region	Frame the selected region by resetting the pan and zoom, so they fit in the animation graph within a specified range

Use this	To
Frame Selected Keys	Frame the selected keys by resetting the pan and zoom, so they fit in the animation graph within a specified range
Frame Selected Curves	Frame the selected curves by resetting the pan and zoom, so they fit in the animation graph within a specified range
Frame All Curves	Frame all the function curves by resetting the pan and zoom, so they fit in the animation graph within a specified range
Grid	Turn the grid lines on or off
Rulers	Turn the X and Y axis rulers on or off
Locators	Display any locators, in the selected time span, on the timeline ruler
Meta Curve Region	Mark the timecode of keyframes, or groups of keyframes, with a red locator below the animation graph
Keys	Control key and tangent handle options. You can lock key values, break and unify tangent handles, as well as control the slope of inserted keys.
Lock in X (Time)	Lock the key's location in time on the X axis, allowing movement only in the Y direction
Lock in Y (Value)	Lock the key's value on the Y axis, allowing movement only in the X direction
Lock Slope Orientation	Lock the angle of the tangent handles of the selected key points
Lock Slope Length	Keep the length of the tangent handles constant
Unlock All Keys	Unlock all keys that were previously locked in X and Y values
Unlock All Slopes	Unlock all slopes whose tangent handles were previously locked
Unify Slope	Lock the slope together at 180 degrees to each other
Break Slope	Freely move the slopes as you drag each tangent handle individually

Use this	To
Automatic Slope	Automatically set the slope of an inserted key to the slopes of neighboring keys
Zero Slope	Constrain key points to a slope of zero. The tangent handles remain horizontal, so that only the slope tension can be modified
Plateau Slope	Set the slope of an inserted key automatically to zero if the next key has the same value, or if that key is a local minima or maxima. This is useful for holding key point values to prevent the automatic interpolation from going above or below your keyframed values.
Remove Animation	Remove all keyframes from selected curves
Remove Key	Remove selected keyframes
Edit Key Tool	Turn Edit Key mode on or off. In this mode, left-click to select/translate keys, middle-click to add keys, and right-click to delete keys.
Curves	Control the appearance of function curves. You can choose the interpolation and extrapolation modes, introduce cycles, as well as adjust the function curve using resampling, smoothing, and fitting tools.
Constant Interpolation	Repeat the value of a keyframe until the next one. The movement is characterized by sudden changes and then static positions.
Linear Interpolation	Connect key points by straight line segments. The movements are characterized by sudden changes at each key point.
Spline Interpolation	Result in a smooth transition. Uses a curved spline interpolation. The interpolation accelerates and decelerates to ease into and out of each keyframe.
Constant Extrapolation	Extrapolate the value of the Y axis from the first frame to the first keyframe and the value of the Y axis from the last keyframe to the last frame. This results in a hold of motion before and after the movement.
Gradient Extrapolation	Extrapolate the increment calculated between the first and second key points and applies it from the first frame to the first keyframe

Use this	To
Cycle	Repeat the function curve shape/pattern defined by key points. This results in the cycling of that pattern from the first keyframe to the last.
Relative Cycle	Repeat the selected function curve such that the next cycle begins at the same value as the end of the previous cycle
Freeze Cycle	Freeze the selected function curve to a selected time span
Flip X (Time)	Flip the values of the X (Time) coordinates about the average value of the time of all selected keyframes
Flip Y (Value)	Flip the values of the Y (Value) coordinates about the average value of the Value of all selected keyframes
Resample	Generate a key every ‘x’ time step units. The time step units can be set in the Curve Editor property editor (Curve Processing property page).
Smooth	Remove sharp spikes and jags from a function curve by averaging between keyframes. You can adjust the filter size in the Curve Editor property editor (Curve Processing property page). A high filter size will give you a much straighter curve.
Fit	Remove redundant keyframing while preserving the original shape of a function curve

Animation Tree Menu

The Animation Tree pop-up menu lets you import and export a selected property’s function curve. For information about the animation tree, see “Using the Animation Tree” in the Help.

To access the Animation Tree menu:

- Right-click a property in the animation tree.

Use this	To
Import	Choose a function curve to import

Use this	To
Export	Save the selected property's function curve

Edit Animation Menu

The Edit Animation pop-up menu lets you open the animation editor, locate and remove keyframes, and set keyframes automatically.

To access the Edit Animation menu:

1. From the taskbar, click the **Compositing** button.
2. In the Layers view, right-click the **Animation Key** button.

Command	Description
Animation Editor	Displays the animation editor
Remove Keyframe	Removes the selected keyframe from the function curve
Remove Animation	Removes all function curves from this animation
First Key	Moves to the first keyframe in the function curve
Last Key	Moves to the last keyframe in the function curve
Autokey	Turns Autokey mode on or off. Automatically creates keyframes as you adjust the settings. ***Tip**: You can activate this mode by clicking the Autokey button at the bottom-right of the desktop.*

Edit Filter Dialog Box

The Edit Filter dialog box lets you customize the animation tree to display only those parameters that meet a specific set of criteria.

To access the Edit Filter dialog box:

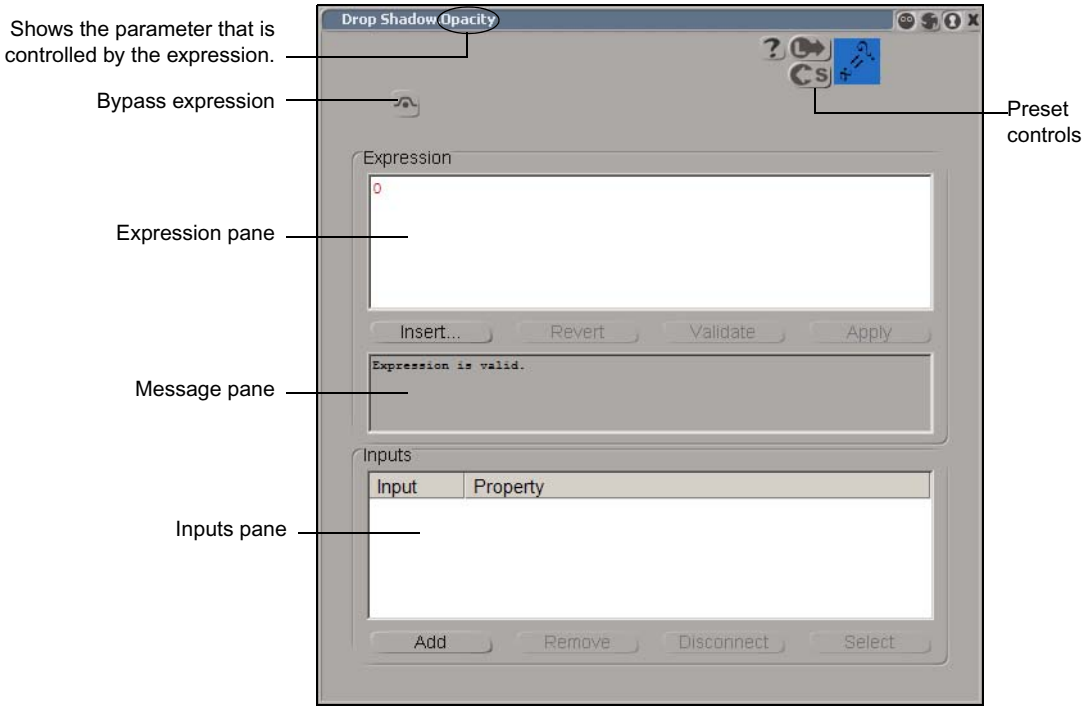
- In the animation editor, select **View > Edit Filter**.

Command	Description
Criterion	Contains six different criterion for filtering parameters including: Contains, Does Not Contain, Equal, Does Not Equal, Begins With, and Ends With.
Value	The field in which you enter the specific criteria used to filter the display of parameters in the animation tree.
Filter Name	Displays a list of filters.
Clear	Clears all the fields.
Delete	Deletes the selected filter from the Filter Name list.
Save	Saves the criteria specified for a filter. The saved filter appears in the Filter Name list in this dialog box and in the Filter list at the top of the animation (when enabled).

Expression Editor

The expression editor is where you write, edit, validate, and apply expressions, as well as create, connect, and disconnect inputs for an expression. An input is the parameter(s) that you choose to use in an expression. For example, if you want the amount of blur to be related to a DVE's X and Y, then you'll need to have two inputs.

Also, by using the preset controls, you can save your expression for use on other parameters.



Option	Description
Bypass	Bypasses the expression, so that it is not applied to the parameter.
Expression	

Option	Description
Expression pane	A text editor where you enter an expression by typing or choosing items from the menu.
Insert	Lets you add a mathematical function.
Revert	Undoes any changes made to the expression text in the property page.
Validate	Checks if the expression is valid, but does not apply it.
Apply	Applies the expression.
Message pane	An area that updates as you work, indicating whether an expression is valid or not.
Inputs	
Inputs pane	Displays a list of inputs, properties, and their connection status.
Add	Adds an input.
Remove	Removes an input.
Disconnect	Disconnects an input.
Select	Selects the effect to which the input is associated.

Insert Menu

The Insert menu provides a complete list of inputs, operators, functions, and constants to use when creating expressions. Operators are like a+b, functions like sin(a), and constants like TRUE.

When adding mathematical operators, the token and accompanying text are inserted as tokens in the expression pane of the expression editor. For example, the Add operator puts the following in the expression pane:

<expr1> + <expr2>

All you have to do is replace “expr1” and “expr2” with values.

All trigonometric functions are in degrees.

Option	Description
Input	Lists the current inputs.
Constants	
True	**TRUE**: Used in Boolean expressions and is equivalent to 1.0.
False	**FALSE**: Used in Boolean expressions and is equivalent to 0.0.
PI	**PI**: Equivalent to 3.142.
E	**E**: Equivalent to 2.718.
Frame Size in X	**Fx**: Represents the size (in pixels) of the image frame's X axis.
Frame Size in Y	**Fy**: Represents the size (in pixels) of the image frame's Y axis.
Time	
Current Frame	**Fc**: Represents the current frame number.
Current Time (seconds)	**T**: Represents the current time in seconds. This value depends on the current frame and the frame rate defined for the scene.
Frame Rate	**Fr**: Represents the current frame rate. This token is useful for writing an expression that would produce the same numeric results no matter what the frame rate is.
Convert from seconds to frames	**seconds_to_frames(<expr>)**: Converts the expression to frames for the current frame rate.
Convert from SMPTE to frames	**smpte_to_frames("HH:MM:SS:FF")**: Converts the SMPTE time to frames for the current frame rate.
Time Modifier	**at_frame(<expr-to-evaluate>, <time-expr>)**: Evaluates the first expression at the specified time of the current timeline.
Arithmetic	*Operators follow the standard of precedence. Items are enclosed in brackets first, then * and /, followed by + and -.*
Plus	**<expr1> + <expr2>**: Math operator + (plus).
Minus	**<expr1> - <expr2>**: Math operator - (minus).

Option	Description
Negation	**-<expr1>**: Math operator - (negation).
Multiply	**<expr1> * <expr2>**: Math operator * (multiply).
Divide	**<expr1> / <expr2>**: Math operator / (divide).
Comparison	Comparison operators compare the values on both sides of an equation.
Equal To	**<expr1> = = <expr2>**: Boolean operator = = (equal to). This equation is true if they have the same value and false if they do not.
Less than	**<expr1> < <expr2>**: Boolean operator < (less than). This equation is true if the value of the expression on the left is smaller than the value on the right. Otherwise, the equation is false.
Less than or Equal	**<expr1> <= <expr2>**: Boolean operator **<=** (less than or equal). The equation is true if the value of the expression on the left is smaller than or equal to the value on the right. Otherwise, the equation is false.
Greater than	**<expr1> > <expr2>**: Boolean operator **>** (greater than). The equation is true if the value of the expression on the left is greater than the value on the right. Otherwise, the equation is false.
Greater than or Equal	**<expr1> >= <expr2>**: Boolean operator **>=** (greater than or equal). The equation is true if the value of the expression on the left is greater than or equal to the value on the right. Otherwise, the equation is false.
Not Equal to	**<expr1> != <expr2>**: Boolean operator **!=** (not equal to) in the expression pane. The equation is true if the values on both sides of the equation are not equal. If they are equal, the equation is false.
Logical	
And	**<expr1> && <expr2>**: Boolean operator **&&** (And). This equation is true if both sides of the equation are true.
Or	**<expr1>** ‖ **<expr2>**: Boolean operator ‖ (Or). This equation is true if one side of the equation or the other is true.

Option	Description
Not	**!<expr>**: Boolean operator **!** (Not). This token negates the expression that follows the token.
Assignment	**<var> = <expr>**: The assignment operator = (equal). Assigns the value of the right side of the equation to the variable on the left.
Trigonometry	
Sine	**sin(<expr>)**: Evaluates the sine of an expression.
Cosine	**cos(<expr>)**: Evaluates the cosine of an expression.
Tangent	**tan(<expr>)**: Evaluates the tangent of an expression.
ArcSine	**asin(<expr>)**: Evaluates the arcsine function (the inverse of sine) of an expression. *The input argument of the arcsine function should be between -1 and 1. Outside this range, the arcsine is undefined and the asin token returns 0. The output of the asin token is in degrees.*
ArcCosine	**acos(<expr>)**: Evaluates the arccosine function (the inverse of cosine) of an expression. *The input argument of the arccosine function should be between -1 and 1. Outside this range, the arccosine is undefined and the acos token returns 0. The output of the acos token is in degrees.*
ArcTangent	**atan(<expr>)**: Evaluates the arctangent function (the inverse of tangent) of an expression. The output of the atan token is a value in degrees between -90 and 90.
Exponent	
Logarithm	**log(<expr>)**: Evaluates the natural (base e or Napierian) logarithm of an expression.
Exponential	**exp(<expr>)**: Evaluates the value of e raised to the power of the expression, where e is the natural (Napierian) base of logarithms, or approximately 2.718.

Option	Description
Power	**pow(<expr1>, <expr2>)**: Evaluates the value of expr1 raised to the power of expr2. You can use this function to calculate roots other than the square root, which you can get more simply with square root (below). For example: pow(Input1, 1/3) Returns the cubic root of the value of Input1.
Square Root	**sqrt(<expr>)**: Evaluates the square root of an expression.
Value	
Absolute	**abs(<expr>)**: Returns the absolute (positive) value of an expression.
Floor	**floor(<expr>)**: Returns a value that is rounded down.
Ceiling	**ceil(<expr>)**: Returns a value that is rounded up.
Round	**round(<expr>)**: Returns a value that is rounded up to the closest integer.
Minimum	**min(<expr1>, <expr2>)**: Evaluates two expressions and returns the lower value. You can add more expressions separated by commas, and the function will return the minimum value of all of them. For example: min(<expr1>, min(<expr2>, min(<expr3>, <expr4>)))
Maximum	**max(<expr1>, <expr2>)**: Evaluates two expressions and returns the higher value. You can add more expressions separated by commas, and the function will return the maximum value of all of them. For example: max(<expr1>, max(<expr2>, max(<expr3>, <expr4>)))
Modulo	**fmod(<expr1>, <expr2>)**: Returns the remainder when expr1 is divided by expr2.

Option	Description
Read Only	**readonly(<expr>)**: Makes the expression non-reversible. You can also use this function to make a non-reversible expression reversible. For example: Non-reversible: Input1 + Input2 Reversible: Input1 + readonly(Input2)
Conditions	
Condition	**cond(<condition>, <expr-if-TRUE>, <expr-if-FALSE>)**: Returns one of two values, depending on whether a specified condition is true. • **<condition>** is the expression defining the condition (its value is logical and is considered to be false if it's equal to 0, and true otherwise). • **<expr-if-TRUE>** is the expression that will be evaluated if the condition is true. • **<expr-if-FALSE>** is the expression that will be evaluated if the condition is false. For example: cond(Fc < 50, Input1 * 2, 10) Returns the value of Input1 multiplied by 2 if the current frame number is less than 50; otherwise, returns 10. The following operators can be used to create a condition expression, including: Equal to, Not Equal to, Less than, Less than or Equal to, Greater than, Greater than or Equal, Or, And, and Not.
Random	These functions generate random values in various ways. The seed value can vary over time. The seed range can be between 0 and 32768.
Random: 0 or 1	**randBool(<seed>)**: Generates 0 or 1 randomly at each frame. You can use these random values with Boolean expressions, where 0 = false and 1 = true.
Random: 0.0 to 1.0	**rand_0_1(<seed>)**: Generates a random number between 0 and 1 at each frame.

Option	Description
Random Custom	**RAND(<seed> , <min> , <max>)**: Generates a random number at each frame between the minimum and maximum values you specify.
Noise	**noise(<x>,<y>,<z>)**: Generates random but continuous values between 0 and 1 at each frame. You can then multiply and add to the result to obtain noise patterns in any value range. Replace the dummy arguments as follows: • **<x>, <y>, <z>**: Replace each argument with an expression. Different combinations result in different noise patterns. At least one argument should be an expression that varies over time; for example, Fc or T. You can multiply or divide the variable expression to change the frequency of the noise.
Declarations	
Variable	**var <name> = <expr>**: Creates a variable of the given name and initializes the starting value with the expression on the right.

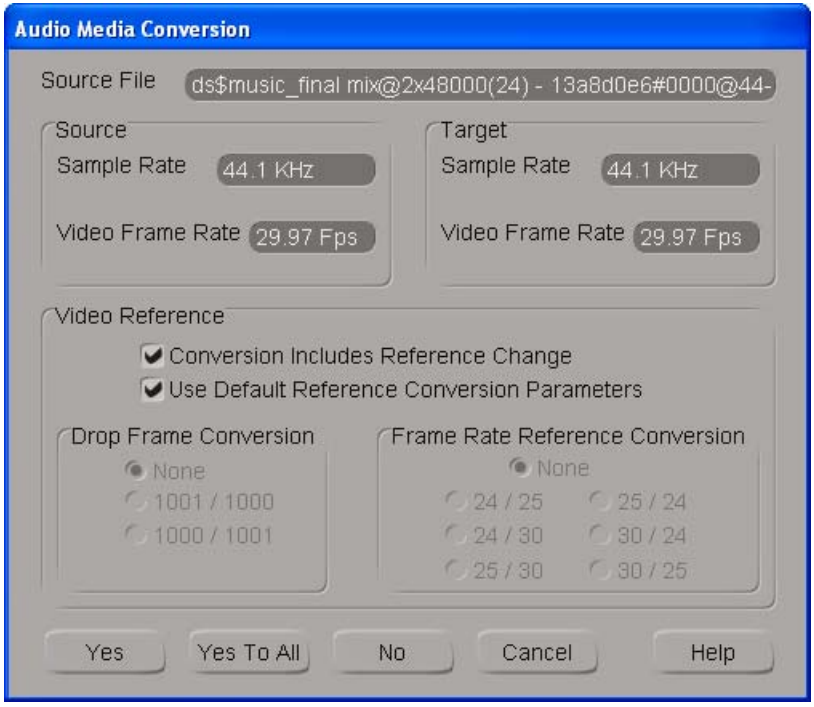
Sub-Expression	**sub <name> = <expr>;**: Creates a sub-expression of the given name. When the sub-expression name is used, the sub is replaced with <expr>, and evaluated at the time.
	For example, if the current frame is 0 and Input1's value at frame 0 is 10 and at frame 50 is 30, consider the following:
	`var VarName = Input1;`
	`sub SubName = Input1;`
	`var VarResult = at_frame( VarName, 50 );`
	`var SubResult = at_frame( SubName, 50 );`
	The two results would not have the same value. VarName was assigned a value when it was created, so VarResult will be 10. On the other hand, SubName is reevaluated every time it is used, so SubResult will have a value of 30.

Audio Media Conversion

When you change the frame rate of a sequence, you need to adjust the audio clips so they stay in sync with the video.

To access the Audio Media Conversion dialog box, do one of the following:

- In the Media Tool, right-click an audio media file and select **up/down convert audio**.
- In the Tape Tool, right-click an audio media file and select **Audio Up/Down Convert**.



Option	Description
Source File	The audio clip you are converting.
Source pane	The parameters of the source clip. You cannot edit these parameters.
Sample Rate	The sample rate at which the clip was captured.
Video Frame Rate	The video rate at which the clip was captured.
Target pane	The parameters of the current sequence. You cannot edit these parameters.
Sample Rate	The sample rate of the current sequence.
Video Frame Rate	The video rate of the current sequence
Video Reference pane	The controls that enable audio conversion
Conversion includes Reference Change	Converts the video frame rate of the selected clip.
Use Default Reference Conversion Parameters	Lets Avid DS Nitris make the most appropriate conversion for the audio clip.
Drop Frame Conversion pane	If the “Use Default Reference Conversion Parameters” option is not selected, lets you select the appropriate conversion: • None • 1001/1000: drop-frame to non-drop-frame • 1000/1001: non-drop-frame to drop-frame
Frame Rate Reference Conversion pane	Lets you select the appropriate frame rate conversion.

Audio Effects

The audio effects let you adjust the output signal of an audio clip. You can apply audio effects to clips, tracks, or mixer input strips.

Since all audio effects are real-time effects, except for the Timewarp effect, you can hear the results upon playback without having to process the effect.

If you are adjusting parameters in an audio property editor during playback, you may notice a slight time lapse before you hear the results of the change. This will not affect the quality of the final output to tape or file.

Effect name	Description
Crossfade	Applies an audio transition between two clips so that the sound of the outgoing clip fades out as the sound of the incoming clip fades in—see “Crossfade Property Editor” on page 1897.
Dynamics	Controls the dynamic range of the audio signal—see “Dynamics Property Editor” on page 1868.
Equalizers (EQ)	Boosts or cuts a specific band of frequencies in the audio signal—see • “Parametric EQ Property Editor” on page 1873 • “3 Band Tone Control Property Editor” on page 1864, • “4 Band Parametric EQ Property Editor” on page 1864 • “10 Band Graphic EQ Property Editor” on page 1866
Fade	Animates the volume of the audio signal over time—see “Fade Property Editor (Audio Effect)” on page 1872
Gain	Boosts or cuts the decibel level of the audio output signal—see “Gain Property Editor” on page 1872
Reverb	Simulates the many reflections of a sound that can be heard within a room—see “Reverb Property Editor” on page 1873
Timewarp	Alters the length and speed of an audio clip without affecting the original pitch—see “Timewarp (audio) Property Editor” on page 1874 and “Timewarp (audio timezone) Property Editor” on page 1875

Effect name	Description
VST™ Host	Lets you apply VST plug-in effects to your clip—see "VST Host Property Editor" on page 1876

3 Band Tone Control Property Editor

The 3 Band Tone Control effect lets you boost or cut the bass, middle, and treble frequency ranges in the audio clip's spectrum of signals. You can boost or cut the signal in a decibel range of –15 dB to +15 dB. You can also boost the overall gain.

Option	Description
Input Gain (dB)	Specifies amount of gain (in decibels) to be added to or cut from the whole signal spectrum
Bass (dB)	Boosts or cuts bass frequency range. Bass uses a shelving EQ with a slope of 6 dB/octave and a corner frequency of 100 Hz. Type a positive number to boost the signal strength and a negative number to cut it.
Middle (dB)	Boosts or cuts middle frequency range. Middle uses a Q factor of 0.8 and a center frequency of 2 kHz. Type a positive number to boost the signal strength and a negative number to cut it.
Treble (dB)	Boosts or cuts treble frequency range. Treble uses a high-pass shelving EQ with a slope of 6dB/octave and a corner frequency of 8 kHz. Type a positive number to boost the signal strength and a negative number to cut it.

4 Band Parametric EQ Property Editor

The 4 Band Parametric EQ effect lets you boost or cut a specific band of frequencies in an audio clip. For example, you can increase the bass or compensate for high frequency loss. You can also boost the overall output gain. You can apply this effect to a maximum of four different frequency bands.

Each of the property pages (1 to 4) lets you boost or cut a specific band of frequencies in an audio clip.

Band 1 Property Page (4 Band Parametric EQ)

The Band 1 property page lets you boost or cut a specific band of frequencies in an audio clip, as well as boost or cut the overall output gain.

Option	Description
Input Gain	Specifies amount of gain (in decibels) to add to or cut from the overall signal
Gain (dB)	Specifies number of decibels to boost or cut the band of selected frequencies. Range of boost and cut is ± 24 dB.
Frequency (Hz)	Specifies center frequency at which you want the effect to be applied
Q	Enters a Q factor (resonance). The higher the Q factor, the wider the bandwidth affected. This factor applies only to the Peaking gain curve type.
Peaking	Uses Peaking gain curve type. The effect occurs at the frequency specified for the Frequency (Hz) parameter and falls off according to the specified Q factor.
LF Shelving	Uses Low Frequency Shelving gain curve type. The effect starts at the low end of the frequency spectrum and continues up to the frequency specified for the Frequency (Hz) parameter. The Q factor is fixed.
HF Shelving	Uses High Frequency Shelving gain curve type. The effect starts at the high end of the frequency spectrum and continues up to the frequency specified for the Frequency (Hz) parameter. The Q factor is fixed.

Bands 2 - 4 Property Page (4 Band Parametric EQ)

Each of the Bands 2 - 4 property pages let you boost or cut a specific band of frequencies in an audio clip.

Option	Description
Gain (dB)	Specifies number of decibels to boost or cut the band of selected frequencies. Range of boost and cut is ± 24 dB.
Frequency (Hz)	Specifies center frequency at which you want the effect to be applied
Q	Enters a Q factor (resonance). The higher the Q factor, the wider the bandwidth affected. This factor applies only to the Peaking gain curve type.
Peaking	Uses Peaking gain curve type. The effect occurs at the frequency specified for the Frequency (Hz) parameter and falls off according to the specified Q factor.
LF Shelving	Uses Low Frequency Shelving gain curve type. The effect starts at the low end of the frequency spectrum and continues up to the frequency specified for the Frequency (Hz) parameter. The Q factor is fixed.
HF Shelving	Uses High Frequency Shelving gain curve type. The effect starts at the high end of the frequency spectrum and continues up to the frequency specified for the Frequency (Hz) parameter. The Q factor is fixed.

10 Band Graphic EQ Property Editor

The 10 Band Graphic EQ effect lets you boost or cut the output signal at preset frequencies with preset bandwidths ranging from 31 Hz to 16 kHz. The bands are separated by exactly one octave, and each band has a bandwidth of one octave. You can boost or cut the signal in a decibel range of –15 dB to +15 dB.

Bands 1 - 4 Property Page (10 Band Graphic EQ)

The Bands 1–4 property page let you boost or cut the output signal at the following frequencies: 31 Hz, 67 Hz, 125 Hz, and 250 Hz.

Option	Description
Input Gain (dB)	Controls amount of gain (in decibels) to add to or cut from overall signal

Option	Description
31 Hz	Controls amount of gain (in decibels) to add to or cut from a one-octave bandwidth at 31 Hz. Values: -15 to +15 dB.
67 Hz	Controls amount of gain (in decibels) to add to or cut from a one-octave bandwidth at 67 Hz. Values: -15 to +15 dB.
125Hz	Controls amount of gain (in decibels) to add to or cut from a one-octave bandwidth at 125 Hz. Values: -15 to +15 dB
250 Hz	Controls amount of gain (in decibels) to add to or cut from a one-octave bandwidth at 250 Hz. Values: -15 to +15 dB.

Bands 5 - 10 Property Page (10 Band Graphic EQ)

The Bands 5-10 property page lets you boost or cut the output signal at the following frequencies: 0.5 kHz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, and 16 kHz.

Option	Description
0.5 kHz	Controls amount of gain (in decibels) to add to or cut from a one-octave bandwidth at 0.5 kHz. Values: -15 to +15 dB.
1 kHz	Controls amount of gain (in decibels) to add to or cut from a one-octave bandwidth at 1 kHz. Values: -15 to +15 dB.
2 kHz	Controls amount of gain (in decibels) to add to or cut from a one-octave bandwidth at 2 kHz. Values: -15 to +15 dB.
4 kHz	Controls amount of gain (in decibels) to add to or cut from a one-octave bandwidth at 4 kHz. Values: -15 to +15 dB.
8 kHz	Controls amount of gain (in decibels) to add to or cut from a one-octave bandwidth at 8 kHz. Values: -15 to +15 dB.
16 kHz	Controls amount of gain (in decibels) to add to or cut from a one-octave bandwidth at 16 kHz. Values: -15 to +15 dB.

Dynamics Effects

The following table lists the various Dynamics effects.

Effect name	Description
Dynamics	Controls the dynamic range of the audio signal
2-1 Compression at -18 dB	Reduces the signal strength of the portion of the audio signal above -18 dB by a ratio of 2-1
3-1 Compression at -18 dB	Reduces the signal strength of the portion of the audio signal above -18 dB by a ratio of 3-1
Hard Limiter at -6 dB	Keeps the audio signal strength from exceeding a maximum of -6 dB
Hard Noise Gate at -35 dB	Cuts off the sound when the audio signal strength drops below -35 dB
Soft Limiter at -6 dB	Reduces the signal strength of the portion of the audio signal above -6 dB by a ratio of 5-1 and keeps the maximum to -4 dB
Soft Knee	Reduces the signal strength of the portion of the audio signal above -20 dB and keeps the maximum to -8 dB

Dynamics Property Editor

The Dynamics effect lets you adjust the dynamic range of an audio clip.

General Property Page (Dynamics)

The General property page lets you set parameters for the five dynamics processes available in the Dynamics property editor: Gate, Expander, Compressor 1, Compressor 2, and Limiter. The operations of each of these effects are interrelated. You apply these processes by specifying a threshold above which (or in some cases below which) they take effect.

A general method of proceeding is to:

1. Set the parameters in the General property page.
2. Set the ratios (as needed) in the Threshold property page.

3. Adjust the process thresholds in the Threshold property page.

Option	Description
Attack Time (msec)	Controls how quickly Dynamics effect responds when a signal exceeds the threshold level for the process. Values: 0.02 to 300 milliseconds.
Release Time (msec)	Controls how quickly the dynamic response recovers to normal operation when the signal falls below the threshold for a process. Values: 1 millisecond to 5 seconds.

The attack and release times affect the speed at which the dynamics processors respond when signals go above or below any of the threshold settings. By carefully setting these parameters, you can make the results of the dynamics processing subtler and less obtrusive.

Threshold Property Page (Dynamics)

The Threshold property page lets you control the thresholds for the five available dynamics processes. When you set the threshold, you are specifying the signal strength at which the process begins functioning.

You can use one or more of these processes to adjust the sound level in your audio clips. Avid DS Nitris implements these processes from the bottom of the parameter list upwards: Gate, Expander, Compressor 1, Compressor 2, and Limiter.

Compressors 1 and 2 perform the same process: By specifying different ratios and thresholds, you can use each to accomplish a different objective.

The Ratio controls let you set input versus output level ratios for the Expander, Compressor 1, and Compressor 2 dynamics processes. These ratios control the degree of compression or expansion on the output signal. That is, the degree to which the dynamic range of the signal is restricted or increased.

Option	Description
Limiter Threshold (dB)	Cuts signal strength of all sounds above specified signal strength threshold down to the threshold itself. It does this by using an almost infinite compression ratio (99:1). Values: -90 to 0 dB. Use this process when recording signals to a medium that has a particular dynamic saturation point above which the signal will be distorted. *The Limiter threshold cannot be set lower than the Compressor 2 threshold.*
Compressor 2 Threshold (dB)	Reduces signal strength of sounds above the specified signal strength threshold, according to the ratio you set for Compressor 1 in the Ratio property page. By pushing higher levels down, the overall dynamic range is reduced or “compressed”. Values: -90 to 0 dB. Use this process to make an overall mix comply with the more limited dynamic range of a particular broadcast or recording medium. *The Compressor 2 threshold cannot be set higher than the Limiter threshold or lower than the Compressor 1 threshold.*
Ratio	Sets input side of input/output level ratio for Compressor 2. Values: 1:1 to 20:1. For example, if you set the ratio to 4:1 (an input value of 4), sounds that are 4 dB over the threshold are reduced to 1 dB over the threshold. Sounds that are 2 dB over the threshold are reduced to 0.5 dB over the threshold, and so on.
Compressor 1 Threshold (dB)	Reduces signal strength of sounds above specified signal strength threshold, according to the ratio you set for Compressor 1 in the Ratio property page. By pushing higher levels down, the overall dynamic range is reduced or “compressed”. Values: -90 to 0 dB. Use this process to make an overall mix comply with the more limited dynamic range of a particular broadcast or recording medium. *The Compressor 1 threshold cannot be set higher than the Compressor 2 threshold or lower than the Expander threshold.*

Option	Description
Ratio	Sets input side of input/output level ratio for Compressor 1. Values: 1:1 to 20:1. For example, if you set the ratio to 2:1 (an input value of 2), sounds that are 10 dB over the threshold are reduced to 5 dB over the threshold. Sounds that are 4 dB over the threshold are reduced to 2 dB over the threshold, and so on.
Expander Threshold (dB)	Reduces signal strength of sounds that fall below specified signal strength threshold, according to the ratio you set for the Expander in the Ratio property page. By pushing low levels signals even lower, the overall dynamic range of the output is expanded, relative to the input signal. Values: -90 to 0 dB. This option is typically used to reduce low level noise. It gives a smoother result than the Gate Threshold. *The Expander threshold cannot be set higher than the Compressor 1 threshold or lower than the Gate threshold.*
Ratio	Sets output side of input/output level ratio for the Expander. Values: 1:1 to 1:20. For example, if you set the ratio to 1:4 (an output value of 4), an input signal that is 1 dB below the threshold is reduced to 4 dB below the threshold in the output. A sound that is 2 dB below the threshold is reduced to 8 dB below the threshold, and so on.
Gate Threshold (dB)	Turns off the output signal (completely blocks the sound) of signals that fall below the specified threshold. A threshold of –144.5 lets all sound through and a threshold of 0 cuts out all sound. To deactivate Gate, set the threshold to –144.5. Values: –144.5 to 0 dB. *The Gate threshold cannot be set higher than the Expander threshold.*
Gain Make-up (dB)	Applies an overall gain to the audio clip after all processes have been applied. Values: –40 to +40 dB.

Ratio Property Page (Dynamics)

The Ratio property page provides a graphical representation of your dynamics settings and is for display only. The graph shown on the property page is a larger version of the one displayed on the Threshold property page. Use the Threshold property page to adjust the dynamics settings shown here.

The red line represents the dynamics function. The horizontal (X) axis of the graph shows the decibel level of the audio input signal, and the vertical (Y) axis of the graph represents the resulting level of the audio output signal.

Fade Property Editor (Audio Effect)

The Fade effect lets you control the fade-in or fade-out volume of the clip. By adjusting the function curve, you can increase or decrease the volume. You can make the fade gradual, sharp, or vary it in any number of ways.

The Fade property editor has the following presets:

- **Dip**—Animates the volume of the audio signal over time
- **Fade In Linear**—Animates the fade-in volume of an audio clip
- **Fade In**—Animates the fade-in volume of an audio clip
- **Fade Out Linear**—Animates the fade-out volume of an audio clip
- **Fade Out**—Animates the fade-out volume of an audio clip

Option	Description
Y direction	Sets volume
X direction	Sets keyframes. The length of the effect bar determines the duration of the effect.
Curve	Uses curve to define the way volume varies in the fade. Move points up to increase volume and down to decrease it. Hold down the A key and click the curve to add more keys. Use the handles to move and control the shape of the curve.
Position indicator	Shows current location of position indicator
Amount	Shows volume of clip at a given time (value of the Y axis). Move the position indicator to view the value at a specific frame.

Gain Property Editor

The Gain effect lets you boost or cut the output gain of an audio clip, by increasing or decreasing the decibel level.

Option	Description
Level (dB)	Controls decibel level of audio clip
Invert Phase	Inverts output signal
Unity	Returns decibel level to default value (0)

Parametric EQ Property Editor

The Parametric EQ effect lets you boost or cut a specific band of frequencies in an audio clip. For example, you can increase the bass or compensate for high frequency loss. You can also boost the overall output gain.

Option	Description
Filter Type: Peaking	Uses the Peaking gain curve type. The effect occurs at the frequency specified for the Frequency (Hz) parameter and falls off according to the specified Q factor.
Boost/Cut (dB)	Controls number of decibels by which band of frequencies is boosted or cut. Type a positive number to boost the signal strength and a negative number to cut it.
Frequency (Hz)	Controls frequency at which effect is applied
Q	Specifies Q factor (resonance). The higher the Q factor, the wider the bandwidth affected.
Output Gain (dB)	Controls amount of gain (in decibels) added to or cut from the overall signal

Reverb Property Editor

The Reverb effect lets you apply a reverberation effect to your clip. The reverberation effect simulates the many reflections of sound that can occur within a room and can be used to add depth to a sound.

To expand and collapse the list of parameters:

- Click the Reverb title in the property editor.

To set a keyframe at the current frame with the current parameter value:

- Click the box next to each parameter.

Option	Description
Room Size	Specifies relative size of room you want to simulate
Wet Level	Specifies amount of effect signal mixed into final output
Dry Level	Specifies amount of original signal mixed into final output
Damping	Specifies amount of sound energy absorbed by room
Pre-Delay	Specifies delay (maximum 50 milliseconds) between dry and wet level signals

Timewarp (audio) Property Editor

The audio Timewarp effect lets you alter the length and speed of an audio clip without affecting the original pitch. You can also adjust the pitch of any source audio with or without a change in its duration.

If your Avid system has a Merging Technologies audio card installed you can use the audio Timewarp effect, Timezone from Merging Technologies—see "Timewarp (audio timezone) Property Editor" on page 1875.

Option	Description
Speed (%)	Specifies resulting playback speed as a percentage of the original speed (may have a positive or negative value)
Duration (SMPTE)	Specifies final duration of the clip in SMPTE timecode (may have a positive or negative value)
CrossFade (ms)	Adjusts the crossfade length in milliseconds, optimizing the performance of the timewarp according to the type of audio material.
Minimum Pitch (Hz)	Sets the minimum or lowest pitch used during the timewarp processing

Option	Description
Pitch Shift	The pitch shift options adjusts the amount of pitch shift and pitch change.
Enable	Actives the pitch shift options when selected
Coarse (semitones)	Adjusts amount of pitch shift. Coarse slider transposes in semitones (half steps)
Fine (cents)	Adjusts the amount of pitch shift. Fine slider transposes in cents (hundredths of a semitone)
Pitch Shift Ratio	Adjusts the amount of transposition (pitch change)

Timewarp (audio timezone) Property Editor

The audio Timewarp effect lets you alter the length and speed of an audio clip without affecting the original pitch. The audio timewarp has been optimized for human speech.

To use the audio Timewarp effect, Timezone from Merging Technologies, you must have a Merging Technologies audio card installed on your system.

General Property Page (Timewarp audio timezone)

The General property page lets you modify the playback speed of an audio clip without affecting the original pitch. There are two methods of changing the speed—by specifying a percentage of the original speed or by typing a new SMPTE duration.

Option	Description
Speed (%)	Specifies resulting playback speed as a percentage of the original speed (may have a positive or negative value)
Duration (SMPTE)	Specifies final duration of the clip in SMPTE timecode (may have a positive or negative value)

Option	Description
Quality	Specifies how you want the clip to be processed. The higher the quality setting, the more processing power, and therefore more time is required to complete the process. For example, set the quality to Fast while you experiment with parameters. Once you've decided on your settings, set the quality to High to process the final result.

Advanced Property Page (Timewarp audio timezone)

The Advanced property page lets you control audio blocks. The audio Timewarp effect is a time domain function; it takes the selected audio clip and slices it into a series of joined blocks.

Option	Description
Blocklength	Specifies size of the audio blocks used to perform the TimeZone processing. In general, percussive sounds, such as drums, piano, and clicks, should use smaller blocklengths, while instruments, such as strings, wind, and flute, should use longer blocklengths. For clips that combine both percussive and tonal sounds, such as music, you will need to experiment with this parameter for the optimal setting.
Crossfading	Specify length of crossfade applied between each audio block during the TimeZone processing
Energy Detection (dB)	Specify energy threshold for processing audio blocks. When this option is selected, only audio blocks that do not exceed the specified energy threshold are processed. This is particularly useful for percussive content or for speech applications. Do not apply Energy Detection when an exact processed file size must be guaranteed.
Apply	Specify whether or not to use Energy Detection

VST Host Property Editor

The VST Host effect lets you use VST plug-in effects to create your audio mix.

Avid DS Nitris implements version 1.0 of the VST Host and works with any VST plug-in effects that support this version of the VST Host.

General Property Page (VST Host)

The General property page lets you select and apply a VST plug-in effect to your audio mix using the Avid DS Nitris interface.

Option	Description
Effect	Specifies plug-in effect you want to use
Program	Lets you select VST format preset for current effect
Load button	Lets you select VST effect program (.fxp) or effect bank (.fxb) file to load. These files contain VST format presets for the current effect.

Editor Property Page (VST Host)

The Editor property page lets you adjust the VST plug-in effect in your audio mix using the effect's own custom interface. This property page is only available if there is a custom interface for the effect.

Avid Explorer Menu

The Avid Explorer menu lets you delete, purge, and show media files, as well as display the properties of the media associated with the selected clip. You can also edit and remove source side effects. It includes both Avid DS Nitris commands and Windows systems commands.

To access the Avid Explorer menu, do one of the following:

- In a bin, right-click an Avid DS Nitris media file or an Avid DS Nitris folder that contains media.
- In a bin, select an Avid DS Nitris media file or an Avid DS Nitris folder that contains media and click the Fast Menu button.
- In an Avid Explorer panel, right-click an Avid DS Nitris folder that contains media.

The contents of the menu depend on the object selected.

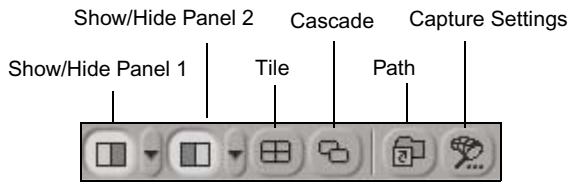
Command	Description
Import to Current Project	Imports the selected clip or sequence into the project in which you are currently working. You have the option of linking to existing media or copying media. Links are kept to the media in the original project to save space on your storage device. *To be able to create a link to media, it must reside on a shared storage device.*
Purge Media	Displays the Purge dialog box, which lets you remove different types of media from your system.
Delete Clip & Unused Media	Removes the master clip and its media from your system. This command verifies if the media is being used by another sequence. If it is, only the master clip is deleted. The media remains on your disk array until you delete the last sequence that uses the media.
Delete Clip & All Media	Removes the sequence, master clip, and media files from your system. *This is a quick way to remove unwanted media, but it can be risky as it does not check to see if the media is being used by other sequences.*
Capture Settings	Displays the Capture Settings dialog box, which lets you set parameters for capturing from file.
Capture	Captures media from the selected file
Recapture	Recapture media for the selected clip.
Recapture with Options	Displays a dialog box that lets you set options for recapturing from tape—see "Explorer Recapture Options Dialog Box" in the Help.
Link	Creates a linked clip from the selected file
Relink	Re-creates links for selected linked clips.
Log	Create a logged clip from the selected file
Show Media	Displays the Media Tool, with selected clips or sequences in the left panel and associated files in the right panel

Command	Description
Properties	Displays the Media Properties dialog box, which contains information about the available media, as well as the original media file
Source Effects	Lets you edit, bypass, or remove applied source effects
Edit Tape Effect	Edits the tape source effect using the effect's property editor
Edit Masterclip Effect	Edits the masterclip source effect using the effect's property editor
Edit Subclip Effect	Edits the subclip source effect using the effect's property editor
Remove Tape Effect	Deletes the source effects properties applied on the tape
Remove Masterclip Effect	Deletes the source effects for this masterclip
Remove Subclip Effect	Deletes the source effects for this subclip
Delete	Deletes the selected media file.
Copy to Storage	Opens the Copy Media dialog box, which lets you copy media files between folders on your storage device
Move to Storage	Opens the Move Media dialog box, which lets you move media files between folders on your storage device
Defragment	Defragments the video media file or files. With the daily process of capturing, deleting, and purging, video files on the video storage are not guaranteed to be contiguous. This fragmentation may result in the skipping of frames during playback. To fix this problem, you can defragment the file or series of files that are causing the problem.
Verify Media	Search the selected media files for corrupted files.
View Frame	Displays various ways to change the video frame that is displayed for media files in the Thumbnails view
First Frame	Displays the first frame of the media file
Middle Frame	Displays the middle frame of the media file

Command	Description
Last Frame	Displays the last frame of the media file
Advanced	Opens the Display Frame Number dialog box, which lets you choose the frame that is displayed in the Thumbnails view

Avid Explorer Tools

Avid Explorer tools let you manage the display of the Avid Explorer view. The following tools appear at the top of the Avid Explorer:

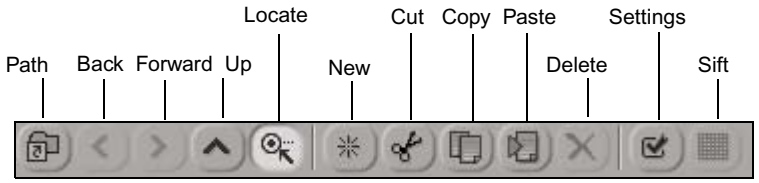


Use this	To
Show/Hide Panel 1	Show or hide the contents of panel 1.
Show/Hide Panel 2	Show or hide the contents of panel 2.
Tile	Arrange displayed bins in a tile pattern.
Cascade	Arrange displayed bins one behind the other with the title bars displayed.
Path	Display a specific bin by selecting a path from the Path menu. You can set the User and Workgroup paths in the User Preferences dialog box (Favorites Property page). The paths that appear in the Local and Remote sections are the same as those that appear in the Open Project dialog box, so adding and removing roots in the Open Project dialog box affects this menu.

Use this	To
Capture Settings	Display the Capture Settings dialog box, which lets you set parameters to capture material—see "Capture Settings View" in the Help.

Bin Tools (Top)

The following tools are available at the top of a bin:



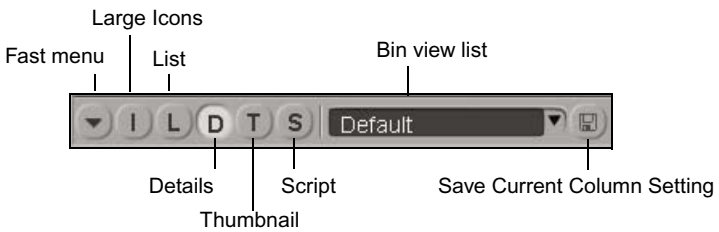
The tools available vary, according to the type of bin. For example, the Tape Library view does not include the Cut, Copy, and Paste buttons.

Use this	To
Path	Display a specific bin by selecting a path from the Path menu. You can set the User and Workgroup paths in the User Preferences dialog box (Favorites Property page). The paths that appear in the Local and Remote sections are the same as those that appear in the Open Project dialog box, so adding and removing roots in the Open Project dialog box affects this menu.
Back	Show the previous bin
Forward	Show the next bin
Up	Move up one level in the tree

Use this	To
Locate	Set how the bin is highlighted in the tree. When you select the icon and use the Back, Forward, or Up buttons to change the bin display, the folder displayed is highlighted in the tree. When you deselect the icon, the folder you originally opened remains highlighted in the tree, even when you change the bin display.
New	Create a new object, depending on the bin. In most cases, use it to create a new folder.
Cut	Cut objects from a bin to the clipboard.
Copy	Copy objects from a bin to the clipboard.
Paste	Paste objects from the clipboard to a bin.
Delete	Delete objects from a bin.
Settings	Select the column headings that you want to display—see "Bin Columns" in the Help.
Sift	Display objects the match the selected sift criteria—see "Sifting Files" in the Help.

Bin Tools (Bottom)

The tools at the bottom of the bin let you change the way the contents of the bin are displayed. These tools appear for all bin contents.



Use this	To
Fast menu	Display a menu of commands. If no object is selected, the Avid Explorer System menu is displayed. This menu is similar to the Windows context menu. If an object is selected, the Avid Explorer menu is displayed. The exact contents depend on the type of object selected. The same menus appear if you right-click in the background of a bin or on an object in the bin. For information on options in the Avid Explorer menu, select the **Help** option.
Large Icons	Display the files in the bin with large icons.
List	Display the files in the bin with small icons in list format.
Details	Display the files in the bin as a list with details, using columns. You can choose which columns to display, in what order, choose a sorting methods, and save your display as a customized view.
Thumbnail	Display the files in the bin as pictorial icons. This view is especially useful for media files. You can rearrange the thumbnails in any order within the bin by clicking and dragging.
Script	Display the files in the bin as pictorial icons with an area for comments. Clip information is displayed above the text box. This view is especially useful for media files.
Bin View list	Display a customized view of the bin.
Save Current Column Setting	Name and save the selection of columns as a preset.

Bin Columns

You can specify the types of information you want to display in a bin.

To view available bin columns:

1. Display a bin in Details or Script view.
2. Do one of the following:
   - In the Avid Explorer tool bar, click the **Settings** button.
   - Click the **Fast Menu** button and select **Settings > Add/Remove Columns**.

The following table lists the Avid DS parameters that you can display as columns in a bin.

Option	Description
Avid DS Audio Bit Depth	Displays the audio bit depth of a media file
Avid DS Audio Captured at Video fps	Displays the video frame rate at which an audio media file was captured. This information is useful when working in a project that uses a different video frame rate.
Avid DS Audio Channels	Displays the number of audio channels in a media file
Avid DS Audio Format	Displays the Avid DS audio format of a media file. Avid DS audio is captured and stored in WAV (PCM) audio format.
Avid DS Audio Sample Rate	Displays the audio sample rate of a media file
Avid DS Channels	Displays the audio or video channel with which the clip is associated: V (video), MN (monaural audio), ST (stereo audio)
Avid DS Class Name	Displays the class of the Avid DS Nitris preset (Blur, DVE, and so on)
Avid DS Comments	Displays any comments describing the clip or sequence
Avid DS Duration	Displays the length or duration of the media file, clip, or sequence. Duration of audio file is shown in seconds; others are shown in frames.
Avid DS In	Displays the in-point of the clip in timecode
Avid DS Out	Displays the out-point of the clip in timecode

Option	Description
Avid DS Physical In	If you are using a deck that can be addressed in a format different from its recording speed, displays the in-point of the clip in timecode as it appears on the deck faceplate
Avid DS Physical Out	Displays the out-point of the clip in timecode as it appears on the deck faceplate
Avid DS Physical Start	Displays the starting timecode of the clip as it appears on the deck faceplate
Avid DS Physical Stop	Displays the ending timecode of the clip as it appears on the deck faceplate
Avid DS Source Name	Displays the original tape name or the word “File”
Avid DS Start	Displays the starting timecode of the media file, clip, or sequence as captured by Avid DS Nitris
Avid DS Stop	Displays the ending timecode of the media file, clip, or sequence as captured by Avid DS Nitris
Avid DS Storage	For media files, displays the name of the storage on which the media is located.
Avid DS Video Bit Depth	Displays the video bit depth of a media file
Avid DS Video Color Space	Displays the color model used to describe the color components of the media file
Avid DS Video Compression	Displays the video compression and the ratio or data rate of the media file
Avid DS Field Dominance	For interlaced media, displays which field (odd of even) occurs first in time
Avid DS Video Format	Displays the video format of a media file, as specified in the sequence preferences
Avid DS Video Fragments	Displays the number of file fragments for a video media file (not available for remote storage, other than Avid Unity)
Avid DS Video Frame Size	Displays the dimensions of the video image of a media file as pixels (width x height)

Option	Description
Avid DS Video Pixel Ratio	Displays the dimensions of the video image of a media file as a ratio (width:height)
Avid DS Video Rendering Precision	Displays the bit depth at which a cache media file was rendered

The following table lists some the major file system parameters:

Option	Description
Attributes	Displays the file attributes. Available attributes include normal, read-only, hidden, system, volume, directory, and archive. ***Tip**: You can modify these attributes by right-clicking a file in Windows Explorer, choosing Properties, and changing the status of the attributes.*
Created	Displays the date on which the clip or sequence was created
Type	Identifies the type of file
Modified	Displays the date on which the clip or sequence was last modified
Name	Displays the clip name or sequence name
Owner	Displays the owner of the file at the Windows level
Size	Displays the size of the file

Blend Property Editor

The Blend effect lets you apply a blend transition between two clips. The color and alpha channels are blended independently and channel masking is enabled.

Timing Property Page (Blend)

The Timing property page lets you create a blend transition between two overlapping clips. The function curve lets you control the timing (rate and duration) of the blend. By modifying the shape of the function curve, you control the timing and percentage of the mix. Adding keyframes to the function curve creates more complex blends.

Option	Description
X axis	Represents SMPTE timecode of the timeline ruler
Y axis	Represents relative transparency of incoming and outgoing clips. The area below the curve represents the transparency of the incoming clip and the area above the curve represents the transparency of the outgoing clip. For example, when the curve is at 50 (half of Y), the frames of the incoming and outgoing clips are each 50% visible. At 0, the incoming clip is 100% visible; at 100, the outgoing clip is 100% visible.
Curve	Defines how the mix varies in the dissolve. Move the key points up to increase the proportion of the original clip, and down to decrease it. You can add or remove key points to vary the mix. *To change the curve type from Bézier to constant or linear, right-click the Animation Key button and select it from the menu.*
Position indicator	Moves position indicator across the function curve graph to view the result of the blend in different parts of the clip. The position indicator in the graph matches the one on the timeline.
Amount	Represents proportion of original clip in the mix at a given time (value of the Y axis). Move the position indicator to view the value at a specific frame.

Cache List View

The Cache List view lets you create a batch list of unprocessed cache files to be sent to Avid DS RP. You can add and remove caches from the list.

Clip Menu

The Clip pop-up menu lets you manipulate individual clips on the timeline.

To access the Clip menu:

- On the timeline, right-click a clip.

Use this	To
Activate	Activate the entire clip, and removes activeness from other clips within the clip's time span
Deactivate	Deactivate the entire clip
Fill Activeness	Within the clip's time span, activate parts of the clip where other clips are not active
Cut Clip	Remove the selected clip and copies it to the Clipboard
Copy Clip	Copy the selected clip to the Clipboard
Delete Clip	Remove the selected clip
Convert Effect Stack to Tree	Convert the stack of effects on the selected clip to an Effects Tree
Convert to Reference Clip	(Video clips only) Convert the selected clip to a reference clip
Save Clip as Sequence	Save the current clip as a separate sequence. The saved clip will contain all effects applied to it. If the clip is processed, the cache will also be saved.
Add Clip Effect	Open the Load Preset dialog box
Clip Cache	(Audio clips only) Process audio clip based effects.
Add Cache	(Video clips only) Add a cache bar to the selected clip on the timeline
Add Cache and Process	(Video clips only) Add a cache bar to the selected clip on the timeline, adds the cache bar to the Cache List view, and displays the Processing Options dialog box—see "Processing Options Dialog Box" in the Help.
Source Effects	Lets you edit, bypass, or remove applied source effects

Use this	To
Edit Tape Effect	Edits the tape source effect using the effect's property editor
Edit Masterclip Effect	Edits the masterclip source effect using the effect's property editor
Edit Subclip Effect	Edits the subclip source effect using the effect's property editor
Remove Tape Effect	Deletes the source effects properties applied on the tape
Remove Masterclip Effect	Deletes the source effects for this masterclip
Remove Subclip Effect	Deletes the source effect for this subclip
Add Locator	Add locators to the selected clip
At Playback Position	Add a locator at the position indicator
At Clip Start	Add a locator at the start of the selected clip
At Clip End	Add a locator at the end of the selected clip
At Edit Points	Add locators at the position of edit points
Delete All Locators on Clip	Remove all locators from the selected clip
Frame This Clip	Reset timeline zoom and pan to frame the selected clip. The clip will cover the entire visible time span.
Create Background Container	(Video clips only) Create and open a background container clip holding the selected clip. The Editing layout is displayed.
Create Composite Container	(Video clips only) Create and open a one-layer composite container clip holding the selected clip. The Compositing layout is displayed.
Create Matte Container	Video clips only) Create and open a matte container clip holding the selected clip and using it as the fill. The Editing layout is displayed.
Create Audio Container	(Audio clips only) Create and open an audio container clip holding the selected clip. The Editing layout is displayed.

Use this	To
Purge Container	(Audio clips only) Purge only the cache media associated with the selected container.
Purge Below	(Audio clips only) Purge any unnecessary cache media that lies below the clip, while keeping the cache real time playable.
Purge	(Audio clips only) Purge the cache media associated with the selected clip.
Convert to Current Sample Rate	(Audio clips only) Convert the sample rate of the selected clip to the sequence's sample rate, as defined in the sequence preferences.
Timewarp Properties	Open the Timewarp on Clip property editor.
Clip Properties	Open the Clip property editor when a time effect is applied.
Composite Properties	Open the Composite property editor
Matte Properties	Open the Matte property editor
Open Viewer	(Video clips only) Display the output of the selected clip in a floating viewer

Clip Activeness Menu

The Clip Activeness pop-up menu lets you delete the clip's activeness.

To access the Clip Activeness menu:

- On the timeline, right-click the clip's activeness bar.

Use this	To
Delete Activeness	Remove the clip's activeness

Clip Property Editor

The Clip property editor lets you view and modify the properties of a clip.

General Property Page (Clip)

The General property page lets you view and modify the properties of a clip, such as changing its name, adding comments, and so on.

Option	Description
Name	Changes name of clip *When renamed, the parent clip in Avid Explorer remains unchanged.*
Comments	Adds comments about clip
Type	Displays clip type: video or audio
Conversion Mode	Determines how presets and media are converted from one video format to another
Center, Keep Original Size	Centers media in viewer along both X and Y axes. This option does not modify the original size of the media.
Scale to Fit	Scales media in both X and Y axes to fit sequence settings
Scale, Keep Aspect Ratio	Scales media in both X and Y axes to fit sequence settings, but retains ratio between width and height. It takes the larger axis of the image and scales it to fit in the viewer. Then it centers the image on the other axis, creating black bands on both sides. An example of this conversion mode would be the Letterbox format which converts film to video.
Keep Original Size and Position	Displays media in viewer without modifying original size or position of the media. The lower-left corner of the image is placed at the coordinates (0,0) in the viewer.
Fit X-axis, Keep Aspect Ratio	Scales media in X axis to fit sequence settings, then scales image along Y axis to keep the ratio between width and height intact. If the resulting image is larger or smaller than the sequence settings, it is centered along the Y-axis.
Fit Y-axis, Keep Aspect Ratio	Scales media in Y axis to fit sequence settings, then scales the image along X axis to keep the ratio between width and height intact. If resulting image is larger or smaller than the sequence settings, it is centered along the X axis.

Option	Description
Multiple Conversions	Specifies that a clip has been converted more than once. Since Avid DS can't specify more than one conversion mode, the Multiple Conversions mode is used to let you know that the clip has been converted multiple times.
Level of Detail	Sets level of display detail for selected clip. To view clip details, increase the track height by clicking the triangular button in the upper-right corner of the track control area. You can view frames at three levels of detail: High, Medium, and Low.
High	**Video**: Displays clip frames at regular intervals along the ruler scale **Audio**: Displays waveform at high resolution
Medium	(Video only) Displays start frames for each clip in timeline
Low	**Video**: Displays blank clip, no frame is visible **Audio**: Displays blank clip, no waveform is visible

Source Property Page (Clip)

The Source property page displays timecode information on a clip, in clip time (the timecodes on the original material).

Option	Description
Available Material (clip time)	Displays in and out-points of original media
Start	The timecode at the in-point of the master clip, including unused material
End	The timecode at the out-point of the original media, including unused material
Used in This Timeline (clip time)	Displays in-point and out-point of the active material actually used on the timeline
First In	Timecode at first active edit point of the clip
Last Out	Timecode at last active edit point of the clip

Option	Description
Source	Indicates source of the clip (from file or tape)

Position Property Page (Clip)

The Position property page lets you view timecode information on a clip. This information is shown using the timeline timecodes.

Option	Description
Position in Timeline (timeline time)	Lets you view in-point and out-point of the original media
Start	Timecode at in-point on the original media (this includes unused material)
End	Timecode at out-point on the original media (this includes unused material)
Active Span (timeline time)	Lets you view first and last active edit point
First In	Timecode at first active edit point of the clip
Last Out	Timecode at last active edit point of the clip

Clip Transition Menu

The Clip Transition pop-up menu lets you delete a transition or access the property editor of the applied transition.

To access the Clip Transition menu:

- On the timeline, right-click the transition area between the two clips.

Use this	To
Delete	Remove the selected transition. The different transition types are: Dissolve, Wipe, DVE, Fade, and Morph.

Use this	To
Properties	Open the transition property editor

CmdLine

The CmdLine view lets you record commands as you execute them. The CmdLine view stores a maximum of 25 commands at a time. You can start the Script Editor from the CmdLine view by clicking the Script Editor button. You can also copy and paste commands from the Command list to the Script Editor.

Only Capture commands are scriptable in Avid DS Nitris—see "Using Scripts to Capture Media" in the Help.

To access the CmdLine view:

1. Select **Layout** > **Edit Layout**.
2. Right-click the view switcher and select **Add View**.
3. Right-click anywhere in the new view and select **Set View** > **CmdLine**.

   The Cmdline button is added to the view switcher.
4. Select **Layout** > **Edit Layout**.

   The Edit Layout dialog box is displayed.
5. To save the changes to the layout, click **Save**.
6. Click the **CmdLine** button to display the CmdLine view.

Container Clip Menu

The Container Clip menu lets you create a video, audio, or composite container clip. Container clips represent a group of clips as a single clip on the top timeline. You can create new container clips using one or more clips of the same type.

To access the Container Clip menu:

- On the taskbar, click the **Create Container** button.

Use this	To
Create Background Container	Create and open a background container clip holding the selected clip(s). The Editing layout is displayed.
Create Audio Container	(Audio clips only) Create and open an audio container clip holding the selected clip(s). The Editing layout is displayed.
Create Composite Container	Create and open a composite container clip holding the selected clip(s). The Compositing layout is displayed.

Image Transition Effects

The image transition effects let you create transitions between two overlapping clips on the timeline or between two nodes in an Effects Tree.

Dissolve Property Editor

The Dissolve effect lets you apply a dissolve transition between two clips, or as a filter to a single edit point or a clip. This effect lets you dissolve in a clip, making it gradually more visible, or dissolve out a clip, making it gradually disappear.

The Dissolve effect ensures that the alpha channel is multiplied into color channels before doing the dissolve. If you do not want the alpha channel to affect the color channels, or if you require channel masking services when dissolving, you can use the Blend effect.

You can set keyframes to specify the rate and duration of the dissolve. For example, you can apply a dissolve-out effect to a clip by animating the Dissolve Amount from 100 at a given frame to 0 at the last frame. The frames between the first and last frames gradually fade to black. To define a complicated dissolve profile, you must add keyframes to the function curve to attain the desired results.

Timing Property Page (Dissolve)

The Timing property page lets you control the timing (rate and duration) of the dissolve. The horizontal (X axis) represents the SMPTE timecode. The vertical (Y axis) indicates the amount of the mix. By modifying the slope of the curve you control the timing and percentage of the mix. Adding keyframes to the function curve creates more complex dissolves.

Option	Description
X axis	Represents SMPTE timecode of the timeline ruler
Y axis	Represents relative transparency of incoming and outgoing clips. The area below the curve represents the transparency of the incoming clip and the area above the curve represents the transparency of the outgoing clip. For example, when the curve is at 50 (half of Y), the frames of the incoming and outgoing clips are each 50% visible. At 0, the incoming clip is 100% visible; at 100, the outgoing clip is 100% visible.
Curve	Defines how the mix varies in the dissolve. Move the key points up to increase the proportion of the original clip, and down to decrease it. You can add or remove key points to vary the mix. *To change the curve type from Bézier to constant or linear, right-click the Animation Key button and select it from the menu.*
Position indicator	Moves position indicator across the function curve graph to view the result of the dissolve in different parts of the clip. The position indicator in the graph matches the one on the timeline.
Amount	Represents proportion of original clip in the mix at a given time (value of the Y axis). Move the position indicator to view the value at a specific frame.

Crossfade Property Editor

The Crossfade effect lets you apply a crossfade to the volume of two overlapping audio clips. The default crossfade evenly fades out the volume of the first clip while fading in the second clip. You can adjust the two curves to make the fade in or out more gradual, sharp, or to vary it in different ways.

The Crossfade effect is not suitable for entire tracks since the length of a track is virtually infinite.

Crossfade Function Curve

The crossfade function curve lets you control the rate of progression and the duration of the crossfade. The horizontal (X axis) represents the SMPTE timecode, and the vertical (Y axis) represents the crossfade value.

Option	Description
Y direction	Sets volume
X direction	Sets keyframes. The length of the effect bar determines the duration of the effect.
Curves	Uses curves to define the way the volume of the two clips varies in the crossfade. Move points in the curve up to increase volume and down to decrease it. Hold down the A key and click the curve to add more keys. Use the handles to move and control the shape of the curve.
Position indicator	Shows current location of position indicator

Wipe Property Editor

The Wipe effect lets you create a transition between two overlapping clips, so that the incoming clip is revealed as the outgoing clip moves off the screen according to a specified pattern. You can also apply a border between the two clips by specifying the position, color, and edge softness.

You can also apply a wipe as a timeline, clip, or track effect, in which case the selected clip disappears according to the specified pattern.

Preset Wipe effects from previous version of Avid DS are identified by a V1 (red) located on the thumbnail.

Wipe Property Page (Wipe)

The Wipe property page lets you adjust the wipe style, direction, center offset, and border width and softness.

Option	Description
Wipe Style	Lets you select wipe style—see "Wipes Styles" on page 1901
Direction	Specifies direction of wipe
Forward	Applies wipe in default (defined) direction
Backward	Reverses direction of wipe
Center Offset	Specifies how far the wipe's center is displaced from its original center. The Center Offset is not available for all wipes.
X	Specifies center offset along X axis
Y	Specifies center offset along Y axis
Aspect Ratio	Specifies height to width ratio for Circle wipe
Number of Blocks	Specifies the number of blocks the image is segmented into for the specific wipe effect. The Number of Blocks is not available for all wipes.
X	Specifies the number of blocks along X axis. Values range from 2 to 40.
Y	Specifies the number of blocks along Y axis. Values range from 2 to 30.

Option	Description
Border	Specifies the width of border in pixels. Values range from 0 (no border) to X axis (widest border). For example, NTSC value range is 0 to 720. You can specify the color of the border using the Color property page. *Horizontal and vertical borders remain proportional to each other on wipes such as Box wipes.*
Softness	Controls the softness of outer edges of the border in pixels. Values range from 0 (no softness) to X axis (maximum softness). For example, NTSC value range is 0 to 720.
Amount	Displays wipe at a particular point. For example, setting the position to 50 shows you how the wipe looks at the half-way point. In the default wipe animation, the amount starts at 0 and ends at 100.

Timing Property Page (Wipe)

The Timing property page lets you create a wipe transition. The function curve lets you control the timing (rate and duration) of the wipe. By modifying the shape of the function curve, you control the timing and percentage of the mix. Adding keyframes to the function curve creates more complex wipes.

Option	Description
X axis	Represents SMPTE timecode
Y axis	Represents proportion of wipe that has been completed
Curve	Defines how mix varies in wipe. Move key points up to increase proportion of original clip and down to decrease it. You can add or remove key points to vary the mix. *To change the curve type from Bézier to constant or linear, right-click the Animation Key button and select it from the menu.*

Option	Description
Position indicator	Moves position indicator across animation graph to view the result of the dissolve in different parts of the clip. The position of the position indicator in the graph matches the one on the timeline.
Amount	Represents proportion of original clip in the mix at a given time (value of the Y axis). Move the position indicator to view the value at a specific frame.

Color Property Page (Wipe)

The Color property page contains controls to pick colors or create new colors for effect's borders.

To create new colors, you can pick them from the image in the viewer or you can specify their RGB, YUV, or HSL color model values. You can select from several basic colors and save new colors to the custom color palette.

Option	Description
Color picker	Picks a color from any part of the screen. Click **Color Picker** button and move the pointer (now an eyedropper) to a color on the screen. The color swatch updates and the current color values are displayed. Click to select a color. You can also replace a newly chosen color in the palette by clicking an existing palette color before you pick the new one.
Color swatch	Displays selected or default (black) color.
RGB	Specifies colors using the RGB (red, green, blue) additive color model. The intensity of each color is represented by a number from 0 to 100. 0 represents no light (black) in a channel and 100 represents maximum light (white) intensity in a channel. For example, 0,0,50 represents a dark blue, while 0,0,100 represents a bright blue. To produce a shade of gray set all three of the RGB colors to the same level.
Alpha	Specify the amount of alpha on a scale of 0 to 100. 0 represents no alpha and 100 represents full alpha.

Wipes Styles

	Wipe pattern	Description
	Wipe 001	Vertical left to right
	Wipe 002	Horizontal top to bottom
	Wipe 003	From top left
	Wipe 004	From top right
	Wipe 005	From bottom right
	Wipe 006	From bottom left
	Wipe 007	In from four corners
	Wipe 008	From four centers
	Wipe 021	Barn doors
	Wipe 022	Vertical barn doors
	Wipe 023	From top center
	Wipe 024	From right center
	Wipe 025	From bottom center
	Wipe 026	From left center

	Wipe pattern	Description
	Wipe 041	Diagonal from top left
	Wipe 042	Diagonal from top right
	Wipe 045	Double diagonal bottom left to top right
	Wipe 046	Double diagonal top left to bottom right
	Wipe 061	Triangle from top center
	Wipe 071	Ragged edge from left to right
	Wipe 072	Ragged edge top to bottom
	Wipe 073	Ragged barn doors
	Wipe 074	Ragged vertical barn doors
	Wipe 101	Center Box
	Wipe 102	Diamond
	Wipe 119	Circle
	Wipe 120	Ellipse
	Wipe 203	Radial

	Wipe pattern	Description
	Wipe 234	Radial from left
	Wipe 901	Horizontal Bands
	Wipe 902	Horizontal Blinds
	Wipe 903	Vertical Blinds
	Wipe 999	Plasma

Locator Menu

The Locator pop-up menu lets you remove and jump to locators, and change locator properties.

To access the Locator menu:

- On the timeline ribbon, right-click a locator.

Use this	To
Delete Locator	Remove the selected locator
Go to This Locator	Move the position indicator to the selected locator
Locator Properties	Display the Locator property editor

Locator Property Editor

The Locator property editor lets you view and edit locator properties.

General Property Page (Locator)

The General property page lets you view and change locator properties.

Option	Description
Name	Changes name of locator
Comments	Lets you add a notation or description to the current locator
Color	Lets you change the color of the current locator
Go to This Locator	Moves position indicator to current locator. This is useful when updating the description of several locators.

Position Property Page (Locator)

The Position property page lets you view the position of locators on the timeline.

Option	Description
Position in Timeline Time	Displays position of locator on timeline
Time	Lets you view current timeline position of locator
Position in Clip Time	Displays position of locator on the clip. This parameter is only available when a clip-based locator is selected.
Clip Name	Lets you view the name of the clip at the position of the locator
Time	Lets you view the timecode of the locator in clip time
Go to This Locator	Moves position indicator to current locator

Locator View Menu

The Locator View pop-up menu lets you remove and jump to locators, and change locator properties.

To access the Locator View menu:

- In the Locator view, right-click a locator.

Use this	To
Color	Change the color of the current locator
Delete	Remove the selected locator
Go to Locator	Move the position indicator to the selected locator
Locator Properties	Display the Locator property editor

Media Storage Configuration Dialog Box

The Media Storage Configuration dialog box displays all video and audio storages and Avid media indexing services that are defined for the current project. It also lets you add new storage types, and modify or delete existing storage types. Each storage type is identified by its unique Windows share name.

Option	Description
Installed Media Storages	Lists the storage areas or media indexing services defined for the current project. You can define different storage areas for different projects.
Name	Displays the unique Windows storage area name or service. When you upgrade to a new version of Avid DS, any previously configured storages are automatically detected by the media indexer.
Status	Displays the status of the storage area or service and the local path or location of the storage area. The status should be Normal. If there is a problem with a storage area or service, a descriptive message is displayed in this column.
Description	Specifies the type of storage area or service, such as Avid DS Nitris Audio or Avid Media Indexing Service.

Option	Description
Version	Displays the version number of the storage area or service indexer. Each type of storage and/or service uses a different indexer.
Add	Defines a new storage area or service for the current project.
Remove	Removes a selected storage area or service from the current project. Note that the media is not deleted, and you can connect to this storage area again.
Change	Lets you change the path of the existing storage area or service.
Move Up	Moves the storage area or service up a level in the hierarchy *Avid DS Nitris searches for media files starting from the top of the storage list. It uses the first instance of a media file it finds, so if you have more than one copy of a media file, make sure that the one you want to use is located on the topmost storage area in the list. The order is only important within a given media type, that is, audio or video.* For example, if you're using media files that are on a shared storage system, such as Avid MediaNetwork, and several people are accessing the media files at the same time, the system might not be able to guarantee real-time playback. In this case, you can define a local storage and place it above the shared storage in the hierarchy. You can copy the media files from the shared storage to the local one, so that you have sole access to the media. When Avid DS Nitris searches for the media files, it will search the local storage first since it is higher in the hierarchy, which virtually guarantees real-time playback.
Move Down	Moves the storage area or service down a level in the hierarchy
Refresh	Ensures that the list of configured storages or indexers is up to date
Close	Closes the Media Storage Configuration dialog box

Media Storage Information Dialog Box

The Media Storage Information dialog box lets you specify information about the storage you are adding.

Use this	To
Enter the full network path to the Avid DS media folder to manage	Enter the machine name and folder where the media is stored. e.g. \\W8000-UE\ds_media\video. For Avid Unity, use the browse (...) button to locate the Unity workspace folder e.g., \\Unity\allocation\workspace\mediafolder.
Enable throttling for this storage	Select this option only if you have Avid DS RP installed and running in your workgroup, and you want this storage area to be managed by the Avid Throttle Manager. The Throttle Manager allows for more efficient bandwidth management between your workstation, storage areas, and an Avid DS RP workstation.
Avid DS will index all supported media file types found in this folder, but will only write media of type:	Select the type of media that can be stored in this folder. For media captured in Avid DS, select the **Avid DS generic audio** or **Avid DS generic video**. You will need to create separate storage areas for each. For MXF media, select either **MXF audio** or **MXF video**. You will need to create separate storage areas for each. For OMFI media files, select **None**. If you select **None**, the Avid DS services will still index the media, but no one will be able to capture or process to this folder. i.e. this storage location will not appear in the list of storages in the Processing Options dialog box.

Use this	To
Disk Controller Type	The type of card connected to your storage. Avid DS Nitris automatically detects the cards that are installed in your workstation and displays them in the list. *If you are connecting to a remote storage area on your network, then you must choose CIFS Network.*
Disk Storage Type	The type of storage device connected to your workstation. Avid DS Nitris automatically detects the storages that are connected to your workstation and displays them in the list. You may choose Generic Adapter and Generic Storage but these settings may not fully utilize bandwidth available to you. Therefore, choose the options according to your storage device to obtain the best performance for real-time effects.

Media Options (1/2) Dialog Box

The Media Options (1/2) dialog box lets you select specific clips or sequences for which associated media will be restored.

Use this	To
Only restore media referenced by the following files	Activate the selective restore tool. To restore the entire project, deselect this option, and click OK.
Selective Restore List	Display a list of master clips and/or sequences for which associated media will be restored.
Delete	Remove the selected master clip or sequence from the list.
Add Clip	Add a master clip to the list of items you want to restore.
Add Sequence	Add a sequence to the list of items you want to restore.

Media Options (2/2) Dialog Box

The Media Options (2/2) dialog box lets you select the compression, resolution, or sample rate of the clips that you want to restore.

Use this	To
Media restore options	Choose the type of media and media quality that is to be restored. You can choose media with a specific compression, resolution, or sample rate. When you select a project, Avid DS Nitris automatically detects the type of media used in the project and gives you the appropriate media quality choices.
Restore video media files from tape	Copies the video media from tape to the storage device. **All Compressions**: Restore media at all compressions. **Uncompressed Only**: Restore only the uncompressed media. **Compressed Only**: Restore only the compressed media. **X:1 Only**: Restore only the media with the specified compression ratio. **All Resolutions:** Restore media at all resolutions. **XxY Only:** Restore only the media with the specified resolution **All Bit Depths:** Restore media at all bit depths. **x Bits Only:** Restore only the media with the specified bit depth
Restore video cache files from tape	Copies the project's cached video media from tape to the storage device. Select from the same options as "Restore video media files from tape."
Restore audio media files from disk	Copies the audio media files from disk. **All Sample Rates:** Restore media of all sample rates. **x KHz media only:** Restore only media at the specified sample rate.
Restore audio cache files from disk	Copies the project's cached audio files from disk. Select from the same options as "Restore audio media files from disk."

Media Properties Dialog Box

The Media Properties dialog box lets you view information about available audio and video media and individual files.

If you are trying to see the properties of media that have not been imported into your project, the Media Properties dialog box will only list attributes of the media such as; file size, file type, date created, last modified, and so on. No property pages will be displayed in this dialog box.

For sequences, only the General Property Page is displayed.

To access the Media Properties dialog box:

- Right-click a clip or sequence in a bin and select **Properties**.

Media Property Page (Media Properties)

The Media property page displays information about the various types of media currently available to the master clip.

Option	Description
Type	Displays the type of media
Quality	Identifies the following quality characteristics of the media:
Sample rate	Identifies the audio sample rate
Bit rate	Identifies the audio bit rate
Compression	Identifies uncompressed media or its video compression type and rate
Resolution	Identifies the physical dimensions of the image in pixels. In this case, pixels are considered to be square.
Aspect ratio	Describes the width over height ratio of the image, generally 4:3 or 16:9. This value is expressed in a decimal format for non-standard values.
Color Space	Identifies the color space or pixel format. The color space determines how the color components of the video signal are represented on screen.

Option	Description
Still	Identifies a still image.
Frame rate or field rate	Identifies the frame rate or field rate (number of frames or fields per second). For standard NTSC and PAL formats, the rate is replaced by a format descriptor: NTSC or PAL. *Because stills are composed of only one frame and have no field dominance, they are always identified by a frame rate instead of a field rate. For example, stills captured in HD 1080i 59.94 fields/sec are identified as 29.97 frames/s, 60 fields/sec are identified as 30 frames/sec, and so on.*
Dominance	Identifies the field dominance of the captured media. Field dominance determines the order in which odd and even fields occur over time. The field dominance of the media can be odd, even, or none.
Bit depth	Identifies the video storage bit depth. This information is not available for source media.
Coverage	Identifies whether the available media spans the entire clip or just a portion of the clip
Location	Displays the storage area where the clip was captured. If a clip was imported from file, the path to the original file is displayed.

General Property Page (Media Properties)

The General property page displays information on the selected file and lets you add comments.

Option	Description
Name	Displays the name of the selected file
Comments	Lets you type brief comments that describe the clip or sequence. This helps you manage your media.
Project	Displays the name of the project that contains the selected object
Source	Displays the name of the tape from which this object was captured. You can modify the source name by selecting a new tape name from the list. If a clip was imported from file instead of Source, this parameter is named File.

Option	Description
Created By	Displays the user name of the person who created this clip
Created	Displays the date the file was created
Modified By	Displays the user name of the person who modified this clip
Modified	Displays the date that the information in this file was last changed
Start	**Clip**: Displays the starting timecode of the selected clip **Sequence**: Displays the starting timecode of the selected sequence
End	**Clip**: Displays the ending timecode of the selected clip **Sequence**: Displays the ending timecode of the selected sequence
Duration	Displays the length of clip in timecode
Physical Start	Displays the starting timecode as it appears on the deck's faceplate (for a deck that can be addressed in a format different from its recording speed)
Physical End	Displays the ending timecode as it appears on the deck's faceplate

File Info Property Page (Media Properties)

The File Info property page displays information on the selected file. It provides you with the original location of the file, the file's original video resolution, frame rate, audio sample rate and bit depth, the video settings at which you captured the file, as well as the current status of the original file.

Option	Description
Clip was logged from the following file	Displays the location from where the file was captured
Resolution	Displays the resolution of the original video media file
Frame Rate	Displays the frame rate of the original video media file
Audio	Displays the sample rate and bit depth of the original audio file

Option	Description
Settings	Displays the video settings at which the video media file was captured: Fit to Frame Centered Image Keep Alpha Preserve Aspect Ratio Convert Video Frame Rate Premultiplied Alpha Auto-Dither Video Levels Pixel Ratio
Format-Specific	For master clips imported from DPX or Cineon files, opens the DPX Import dialog box, in which you can modify the parameters of the lookup table (LUT)—see "Capturing from DPX Files" in the Help.
Status	Indicates whether the file is still located in the folder from which it was captured
Relink file	Lets you re-establish the link for a linked file that has been moved from its original location

Track Patching Property Page (Media Properties)

The Track Patching property page displays information on the audio format and audio input assignment. It also lets you reassign the hardware inputs to different audio channels that may be necessary when recapturing audio media.

Option	Description
Audio Format	Displays the audio format of the clip
Physical Assignments	Lets you reassign the physical audio inputs to specific audio channels for the recapture process

Mixer

The mixer combines the audio signals coming from the audio tracks and routes them to the output strips. You can assign the channels of an audio track to a specific output strip.

The mixer has two views, the standard view and the routing view.

To access the mixer:

- From the view switcher, click the **Mixer** button.

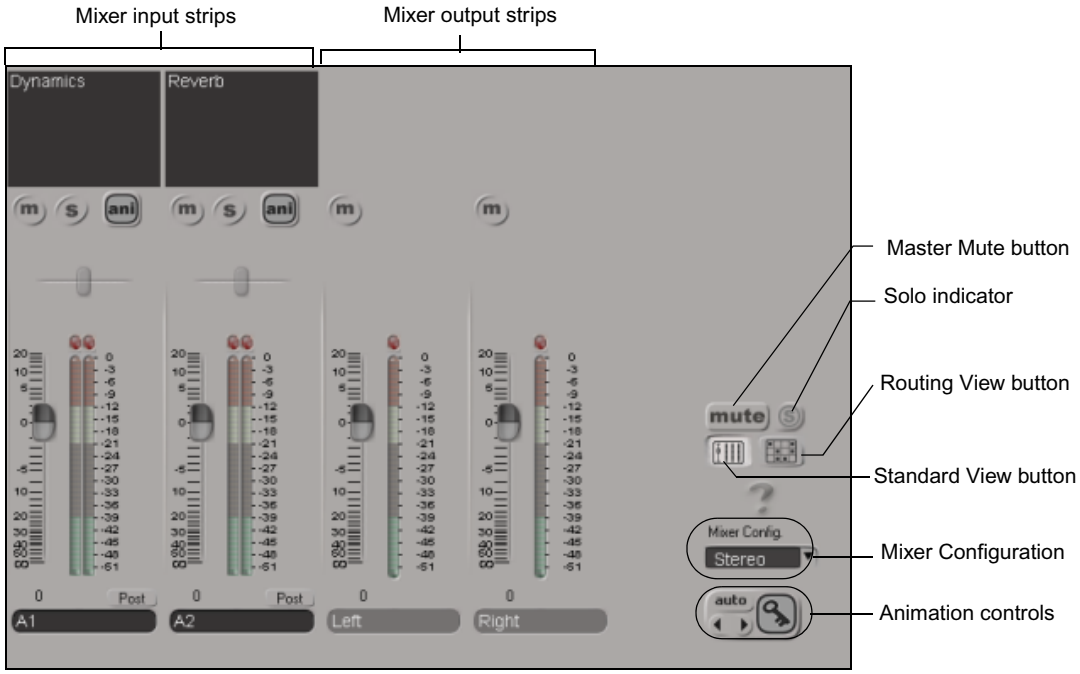
Mixer: Standard View

The standard view is the default view of the mixer. In this view you can add audio effects, adjust the volume levels, pan the signals, and mute or solo the various tracks. You can also animate most of the controls on the mixer.

To access the standard view:

- Click the **Standard View** button.

Mixer: Standard view



Use this	To
Mixer Input strips	Monitor or control the volume of the sound coming from the corresponding audio tracks. You can also add effects to the strip before it is mixed with other strips.
Mixer Output strips	Monitor and control the volume of the sound being output.
Master Mute button	Turn off the audio output.
Solo Indicator	Indicate if any of the mixer strips is soloed.
Standard View button	Displays the standard mixer view with the mixer effects box and the gain control on the mixer input strips.
Routing View button	Displays the mixer routing view that shows the matrix routing panel.
Mixer Configuration	Specify the Mixer output configuration you want to use.

Use this	To
Animation controls	Automate the controls on the input strips. The animation controls let you manually set or delete keyframes. The appearance of the color green on this button indicates the presence of animation in the mixer. From here, you can also remove all animation from the mixer input strips.

Mixer: Routing View

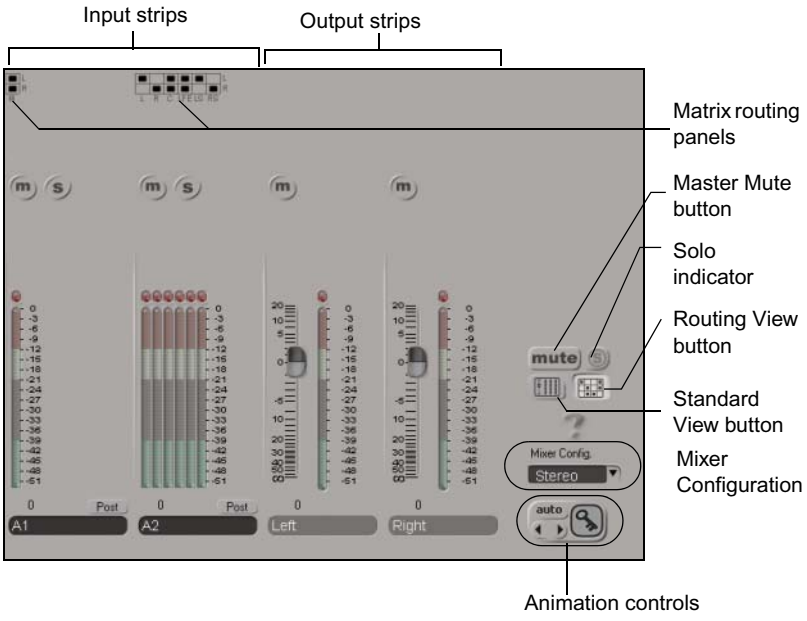
The Routing view contains the Matrix Routing panel for the input strips, which lets you assign the input strips to audio output channels.

Also, in this view, the number of level meters on the input strips matches the number of audio channels on the track. For example, 5.1 tracks have six level meters and 8 stream tracks have eight level meters.

If you've enabled the pan on a mono track, the number of level meters on the input strip matches the number of output channels. This is because the mono signal has been split to allow for the positioning of the sound with the pan control.

To access the routing view:

- Click the **Routing View** button.

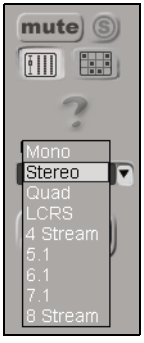


Mixer Configuration Formats

You can capture and output up to eight channels of audio in the following formats.

To change the mixer configuration:

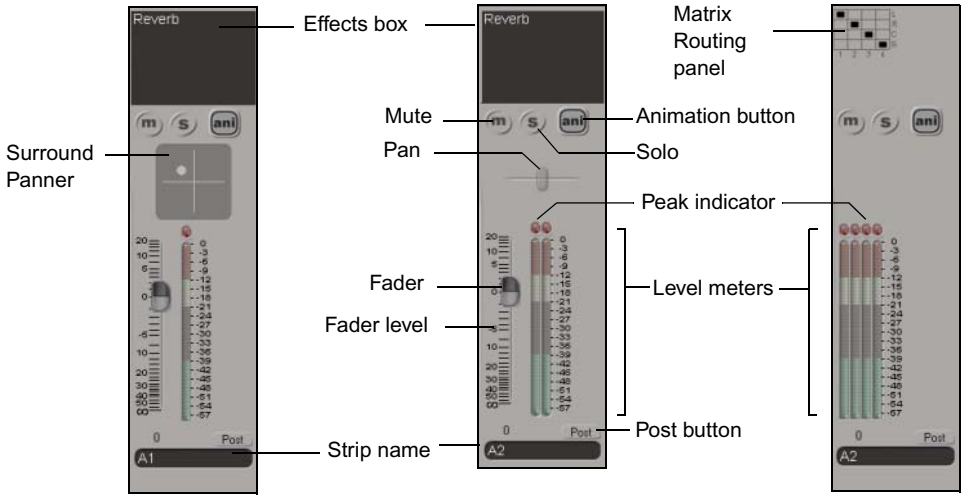
- Click the **Mixer Config** list box and select a configuration.



Format	Description
Mono	Single channel of audio
Stereo	Two audio channels: Left and Right
Quadraphonic	Four audio channels: Left, Right, Left rear, Right rear
LCRS	Four audio channels: Left, Center, Right, Surround
4 Stream	Four audio channels: Outputs 1 to 4
5.1	Six audio channels: Left, Right, Center, Low Frequency Emitter, Left surround, Right surround
6.1	Seven audio channels: Left, Right, Center, Low Frequency Emitter, Surround Center, Side Left, Side Right
7.1	Eight audio channels: Left, Right, Center, Low Frequency Emitter, Left surround, Right surround, Left center, Right center
8 Stream	Eight audio channels: Outputs 1 to 8

Mixer Input Strips

An input strip corresponds to an audio track on the timeline. The strip controls let you add effects and adjust the overall volume and balance of each track. The signals from all strips are then mixed and routed to the output strips.



Mono Input strip with surround panner enabled

Stereo input strip in the default mixer view

Alternate Track view showing Matrix Routing panel

Use this	To
Matrix Routing panel	Specify the output strip to which the audio channels are routed.
Effects box	Apply audio effects to the entire track before it is sent into the mixer. These effects are applied before you make any adjustments using volume and pan controls.
Mute	Turn the sound on or off.
Solo	Isolate the sound so that you hear it on playback. When a strip is soloed, you cannot hear the sounds on the other strips.
Animation button	Activate the controls that you want to animate.
Pan	Adjust the balance to direct the output signal to the proper speaker in a stereo configuration.
Surround Panner	Adjust the balance to direct the output signal to the proper speaker in a surround configuration.

Use this	To
Peak indicator	Monitor the level of the signal coming from the audio track. If a red light appears on the indicator, you should lower the volume on the strip.
Fader	Adjust the volume on the strip before it is sent to the mixer. The fader markings are displayed in decibels and range from 20 dB to -inf dB.
Level meter	Monitor the level of the signal coming from the audio tracks before they are mixed. The level meters range from 0 dB to -inf dB.
Post button	Switch the level meters between a pre-fader and a post-fader display of the audio signal levels. By default the level meters show the pre-fader levels.
Strip name	View or change the name of the input strip. This name is automatically changed on the corresponding audio track on the timeline.

Mixer Animation Menu

The Mixer Animation menu lets you automate the movement of controls on the mixer input strip. You can select the controls that you want to animate from the Mixer Animation menu.

To access the Mixer Animation menu:

- Right-click the animation button on the mixer input strip.

Command	Description
Record Fader Animation	Records the movements of the fader
Record Pan Animation	Records the movements of the pan slider
Record Mute Animation	Records the state of the Mute button
Bypass Fader Animation	Ignores any adjustments made to the fader

Command	Description
Bypass Pan Animation	Ignores any adjustments made to the pan slider
Bypass Mute Animation	Ignores any adjustments made to the Mute button
Delete Fader Animation	Deletes the animation of the fader
Delete Pan Animation	Deletes the animation of the pan slider
Delete Mute Animation	Deletes the animation of the Mute button
Delete All Animation	Deletes the animation of all the mixer controls

Effects Box Menu (Mixer)

The Effects Box pop-up menu lets you add, remove, and edit effects on the mixer input strip.

To access the Effects Box menu:

- In the Mixer view, right-click the effects box.

Command	Description
Add Effect	Adds a new effect to the mixer strip
Delete Effect	Deletes the selected effect
Delete All	Deletes all the effects in the effects box
Bring to Top	Moves the selected effect to the top of the stack
Raise	Moves the selected effect up one position in the stack
Lower	Moves the selected effect down one position in the stack
Push to Bottom	Moves the selected effect to the bottom of the stack
Effect Properties	Opens the selected effect’s property editor

Command	Description
Bypass	Bypasses the selected effect

Pan Menu (Mixer)

The Pan pop-up menu lets you turn panning on or off on the specified track.

To access the Pan menu:

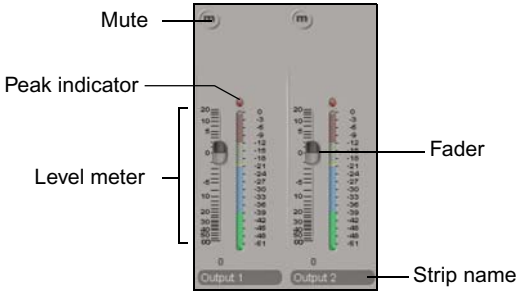
- In the Mixer, right-click the pan control on the mixer input strips.

Command	Description
Enable Pan	Turns panning on or off on this track

Mixer Output Strips

The results of the refinements on all the input strips are mixed and passed to the output strips. Output strips let you adjust the output volume of the audio signals. The number of output strips on the mixer depends on the mixer configuration selected. The signal from the output strips is then directed to an external device.

If you are working within a container clip, the signal is routed to the parent container clip.



Use this	To
Mute	Turn the signal on or off. This prevents the signal from being sent to the output device or parent container clip.
Peak indicator	Monitor the level of the output signal. If a red light appears on the indicator, you should adjust volume on the strip.
Level meter	Monitor the level of the mixed signals before they are sent to the output device.
Fader	Adjust the volume before it is output.
Strip name	View the name of the output strip.

Navigation Menu

The Navigation menu lets you navigate between container clip timelines or the top timeline. The top timeline displays all clips, effects, transitions, and edits within your sequence, while the container clip timeline only shows the clips of which it is comprised.

To access the Navigation menu:

- Select **Navigation**.

Command	Description
Go to Parent Timeline	Opens the parent timeline
Go to Top Timeline	Opens the topmost level of the timeline. It lets you view and edit all clips in the sequences.

NLE Tools Toolbar

The NLE Tools toolbar lets you perform general editing tasks, apply transitions and effects, find and add locators, navigate the timeline, work with container clips and reference clips, process timeline material, purge material, and add cache nodes. This toolbar is in the Editing Layout.

Option	Description
Editing	
Create Video Track	Adds a video track to the timeline. *This command is not available in audio or background container clips.*
Create Audio Track	Adds an audio track to the timeline. *This command is not available in background and composite container clips.*
Magnetism	Turns magnetism on or off on the timeline
Activate	Makes a clip active
Deactivate	Removes a clip's activeness
Cut To	Switches activeness to the selected clip
Add Edit	Slices the selected clip in two, at the position indicator position
Sync Lock	Locks two or more clips together so that their relative positions remain the same. This command sets the sync lock, but also removes it, depending on the selection.
Resync	Resets the synchronization between a slave clip and the master clip when they are offset
Select Sync Peers	Selects all clips in the sync group
Snap In	Trims the selected clip's in-point and applied effects to the location of the position indicator
Snap Out	Trims the selected clip's out-point and applied effects to the location of the position indicator
Select Edit Points	Displays edit handles on in and out-points of selected clips

Option	Description
Link Edits	Links both sides of a broken edit point
Break Link	Breaks the link between two clips at an edit point
Set Ripple End	Sets the end of the ripple at the current position indicator
Match Frame	Locates the master clip or subclip that corresponds to the currently selected clip on the timeline and drops it into the dual viewer
Reverse Match Frame	Locates the frames in a sequence that match the frame selected in the Source viewer.
Match Bin	Performs a match frame and displays the location in the Explorer
Scratch Removal	Applies a Graphics (Scratch Removal) effect with a duration of two frames on the selected clip. By default, the Graphics combo view is displayed with these Scratch Removal properties: Freehand tool with Clone as the brush effect, source frame (relative, -1), and time span (this frame only).
Simple Titling	Applies a Graphics (Simple Titling) effect on selected clip, track, or region. By default, the Graphics combo view is displayed with these Text tool properties: white text, face only, Arial (regular, 36), RGB, and time span (start to end).
Simple Titling on Black	Applies a Simple Titling On Black (Generated) clip on the selected region of a video track. By default, the Graphics combo view is displayed with these Text tool properties: white text, face only, Arial (regular, 36), RGBA, and time span (start to end).
Expand Ref Clip	Opens the selected reference clip
Collapse Ref Clip	Closes the open reference clip and returns to the top timeline
Clip Effect	Applies a clip effect to a selected clip
Track Effect	Applies a track effect to the selected region of a track or the whole track
Timeline Effect	Applies a timeline effect to the selected region of the timeline track or the whole track
Bring Filter to Top	Move the selected effect to the top
Raise Filter	Move the selected effect up one level
Containers	Lets you create different types of container clips
Composite Container	Creates a composite container clip and opens the Compositing layout

Option	Description
Audio Container	Creates an audio container clip
Background Container	Creates a background container clip
Navigation	
Next Edit	Goes to the next edit point
Previous Edit	Goes to the previous edit point
Go to Next Locator	Moves the position indicator to the next locator
Go to Previous Locator	Moves the position indicator to the previous locator
Go to Start of Selection	Moves the position indicator to the beginning of the selected clip, track, or region
Go to End of Selection	Moves the position indicator to the end of the selected clip, track, or region
Go to Top Timeline	Opens the topmost level of the timeline, which lets you view and edit all clips in the sequences
Go to Parent Timeline	Opens the parent timeline
Purge	
Purge Cache	Purges the cache for the current selection(s)
Purge All Caches	Deletes all cache files in the current sequence
Purge Memory Caches	Deletes all interactive memory caches
Time Effects	
3:2 Contract	Recreates the original film sequence at 24 frames per second
3:2 Expand	Produces the proper field sequence for converting a 24-fps clip to a video-compatible 30-fps clip
Deinterlace	Separates the odd and even fields in a video clip
Interlace	Combines the odd and even fields in a video clip
Timewarp	Applies the Timewarp effect to a clip to change its playback rate
Freeze	Freezes the frame at the position indicator

Option	Description
Video Effects	Displays the list of video effects you can apply to the selected clip, track, or region
Transition Effects	Displays the list of transition effects you can apply between two overlapping clips. An edit point must be selected to apply a transition effect.
Generate	
Source Generator Clip	Creates a clip with an effect applied as a background over the selected track region
Black	Create a clip with a black background over the selected track region
White	Create a clip with a white background over the selected track region
Test Pattern	Create a clip with a test pattern over the selected track region
Snapshot to Clip	Creates a master clip from the current frame
Snapshot to File	Saves the current frame as an image file
Timeline to Clip	Converts the selected portion of the timeline to a master clip
Import Photoshop...	Imports layered Photoshop files. This tool lets you import the Photoshop files while preserving all the layer information. A sequence file, with one composite container, is created in the Avid Explorer along with a master clip for each layer. Each layer in the Photoshop file is recreated in the composite container as a layer and corresponding clip on a composite track.
Import Subtitles	Imports subtitles in the current sequence as Graphics On Black generated clips on a new track. Once imported, each subtitle is represented as a titling body that is positioned at the bottom of the safe title area—see "Importing Subtitles".
Audio Effects	Displays a list of audio effects you can apply to the selected clip, track, or region
Processing	
Process	Displays the Processing Options dialog box—see "Processing Options Dialog Box" in the Help.
Add Cache Bar	Adds a cache bar to the selected clip, track, or timeline
Process Reference Clip	Processes the reference clips

Option	Description
Process Timeline and References	Processes the entire timeline, including reference clips
Delete RP Cache Bars	Deletes cache bars created automatically when you send effects to a remote processing station—see "Remote Processing" in the Help. This option does not delete the remote processing jobs associated with the cache bars.
Delete RP Cache Bars and their DMS Jobs	Deletes cache bars and their associated DMS jobs
Delete Successfully Completed DMS Jobs	Deletes jobs managed by DMS that have been successfully completed, but leaves cache bars on the timeline
Delete All DMS Jobs	Deletes all jobs managed by DMS, but leaves cache bars on the timeline
Reconnect to DMS Broker	If the cache bars are not displaying the job status correctly, select this option to reestablish the link to the DMS Broker.
Media IO	
Capture Tool	Opens the Capture Tool.
Output Tool	Opens the Output Tool—see "Output Tool" in the Help.
Capture Settings	Opens the Capture Settings View.
Deck Configuration	Opens the Deck Configuration View.
Capture Only Active Material	When selected, recaptures only active clips on the timeline.
Recapture Entire Timeline	Begins the recapture process, using the settings specified in the Recapture Entire Timeline with Options dialog box—see "Batch Capturing" in the Help.
Recapture Entire Timeline with Options	Opens a dialog box that lets you change the heads and tails of the clip (handles) and set other options.
Recapture Timeline Selection	Begins the recapture process for a selected portion of the timeline, using the settings specified in the Recapture Timeline Selection with Options dialog box.
Recapture Timeline Selection with Options	Opens a dialog box that lets you set options for recapturing a selected portion of the timeline.

Project Manager

The Project Manager displays all the projects on your workstation, and lets you archive, restore, or delete these project files and their media.

To access the Project Manager, do one of the following:

- From the view switcher, click the **Project Manager** button.
- Select **View** > **Single-Instance Views** > **Project Manager**.
- Select **Data Management** > **Project Manager**.

Archive Property Page (Project Manager)

The Archive property page lets you archive any project to tape or disk. You can also select the compression, resolution, or sample rate at which the video or audio media is archived.

Use this	To
Choose a project to archive	View the list of projects on your workstation.
Select Project Directory	Search the specified directory for Avid DS Nitris projects and create a list.
Media archive options	Select the type of media and media quality to be archived. You can choose media with a specific compression, resolution, or sample rate. When you select a project, Avid DS Nitris automatically detects the type of media used in the project and gives you the appropriate media quality choices. *Video files can only be archived to tape, and audio files only archived to disk.*

Use this	To
Archive video media files to tape	Copy the video media to tape. **All Compressions**: Archive media at all compressions. **Uncompressed Only**: Archive only the uncompressed media. **Compressed Only**: Archive only the compressed media. **X:1 Only**: Archive only the media with the specified compression ratio. **All Resolutions:** Archive media at all resolutions. **XxY Only:** Archive only the media with the specified resolution **All Bit Depths:** Archive media at all bit depths. **x Bits Only:** Archive only the media with the specified bit depth
Archive video cache files to tape	Copy the project's cached video media to tape. Select from the same options as "Archive video media files to tape."
Archive audio media files to disk	Copy the audio media to disk. **All Sample Rates:** Archive media of all sample rates. **x KHz media only:** Archive only media at all specified sample rate.
Archive audio cache files to disk	Copy the project's cached audio media to disk. Select from the same options as "Archive audio media files to disk."
Project archive destination	Specify where the project data and audio media, if any, are to be stored. By default, the path is set to \DS Archives*name and date*\.
Archive	Begin the archive process.

Restore Property Page (Project Manager)

The Restore property page lets you restore any archived projects back to the local disk on your workstation. You can choose whether you want to restore only the audio media, video media, or both.

Use this	To
Select an archive to restore from	Choose an archive to restore.

Use this	To
Archive folder	Type a path or use the Browse button to locate the folder where the archived project is stored. By default, archives are stored under \DS Archives*name and date*\.
Select a destination to restore to	Select a folder from which the archive will be restored.
Project name	Type a path or use the Browse button to specify the folder and project name for the restored project data. By default, projects are restored to the DS Projects folder.
Options	Select which types of media to restore.
Select media to restore	Display a dialog box where you can choose the type of media that you want restored. This option is only active when you are restoring a project that contains media.
Restore	Begin restoring the selected archive.

Delete Property Page (Project Manager)

The Delete property page lets you delete any projects on your local workstation and display the size of the project files and their media, as well as the date that it was last modified.

Option	Description
Choose a project to delete	Lets you choose a project to delete
Project	Name of the project
Size	Size of the project files
Video Media	Size of the video media associated to the project
Audio Media	Size of the audio media associated to the project
Last Modified	The last date that any changes were made to the project
Location	The path where the project is located
ID	The identification number given to the project by Avid DS Nitris

Option	Description
Refresh	Updates the list of projects
Delete	Removes the selected project files and their media

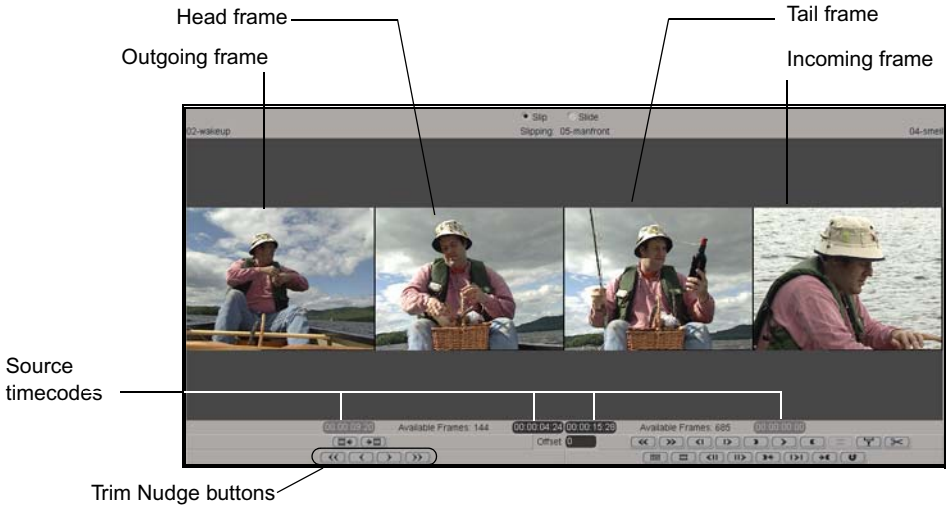
Media Property Page (Project Manager)

The Media property page gives you detailed information on your storage devices. You can find out the exact location and size of your storage, the free disk space available, and the percentage that is full. It also provides information on each of the projects that reside on the storage device.

Use this	To
Selected Storage	Select a storage device.
Description	View the name and location of the storage device, the total disk size, the amount of free space on your disk, and the percentage that is full.
Details of Storage Use	View a list of the projects located on the selected storage device. The list gives you the item or project name, project size, percentage of space taken by each project, and project location.
Delete	Begin deleting media from the selected storage device and project folder.
Refresh	Update the Details of Storage Use list.
Info	View the location of the project selected in the Details of Storage Use list.

Slip/Slide Mode

The Slip/Slide mode lets you slip or slide clips. The Slip option lets you change a clip's contents without affecting its position and duration on the timeline. The Slide option lets you change a clip's location on the timeline without affecting its content. Instead, the previous and next clips are trimmed to accommodate the operation.



Use this	To
Slide	Move a clip to a new timecode without changing its in-points, out-points, or contents. When working with other clips, the activeness of the selected clip remains intact, while the previous and next clips is trimmed or extended to accommodate the operation.
Slip	Keep the selected clip fixed on the timeline while moving the clip's contents.
Outgoing frame (first viewer)	View the frame at the out-point of the previous clip.
Head frame (second viewer)	View the frame at the in-point of the selected clip.
Tail frame (third viewer)	View the frame at the out-point of the selected clip.
Incoming frame (last viewer)	View the frame at the in-point of the next clip.
Source timecodes	View the timecode (for the source media) at the selected edit point. The timecode is displayed for all views.
Available Frames	View the number of frames available for slipping or sliding the selected clip.
Offset	View or set the number of frames to be slipped or slid on the current clip. It shows the number of frames currently slipped/slid for the specified clip/edit point. This number can be changed by typing a new value.

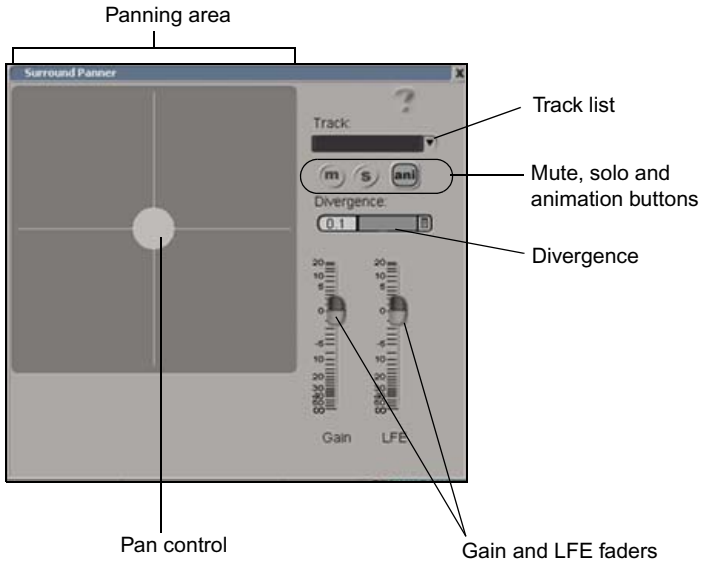
Use this	To
Play Preview	Play the transition area with the pre-roll and post-roll frames in Loop mode.
Trim Nudge buttons	Slip or slide the selected clip by one or ten frames.
< or >	Slip or slide the selected clip forwards or backwards by one frame.
<< or >>	Slip or slide the selected clip forwards or backward by ten frames.
Previous Clip/Next Clip	Move to the previous or next clip in the sequence. This updates the views and timecodes, and resets the offset frame count.

Surround Panner

The Surround Panner lets you specify the positioning and movement of the sound elements in your sequence.

To access the Surround Panner:

- Select **View** > **Single-Instance Views** > **Surround Panner**.



Use this	To
Panning area	Define the boundaries of the room.
Pan control	Specifies the location of the sound within the panning area
Track	Select the track that the Surround Panner will be applied.
Mute	Turn the sound on or off for a particular track.
Solo	Isolate the sound for a particular track.
Animation button	Record animation for the surround panner controls.
Divergence	Specify the size of the sound source.
Gain fader	Adjust the volume on the track. The fader markings are displayed in decibels.
LFE fader	Adjust the volume on the Low Frequency Emitter (LFE).

Test Pattern

The Test Pattern effect generates a clip using a number of different test patterns.

Option	Description
Pattern	Displays list of different test patterns
Preview	Displays preview of selected pattern

Timecode Display Menu

The Timecode Display menu lets you customize the display of the Timecode view, as well as access the Customize Toolbars window.

Option	Description
Source	Displays the timecode and duration of various selections on the timeline, such as clips and markers.
Information	Lets you customize the type of information displayed in the Timecode view.
Clip Info	Displays the name and/or comments of the clip.
Clip Timecode	Displays the timecode format of the ruler or displays timecode in frames.
Timeline Timecode	Displays other timecode formats from 24 to 60fps.
Aesthetic Form	Lets you customize the look of the information displayed in the Timecode view.
Text Size	Specifies size of the timecode in points.
Source Label	Turns the name of the source on or off.
Time Format Label	Turns the display of the timecode on or off.
Add Timecode Display	Adds a timecode display to the Timecode view.

Time Effects

The time effects let you process images by rearranging the fields and frames in a clip.

If you drop a clip of a different frame rate on the timeline, it might not have the same field dominance as the current sequence. Therefore, if you apply a time effect on this clip, you might need to invert the fileds to compensate for the difference in field dominance. This can be done by clicking the Invert Fields button.

3:2 Contract Property Editor

The 3:2 Contract property page lets you remove field artifacts in a clip that was converted from a 24 fps file to a 30 fps video.

This property page does not contain any specific parameters for you to set.

3:2 Expand Property Editor

The 3:2 Expand property page lets you produce the proper field sequence for converting a 24 fps clip to a video-compatible 30 fps clip. To return the clip to its original speed and frame rate, apply a 3:2 Expand after a 3:2 Contract.

This property page does not contain any specific parameters for you to set.

You can also drop a clip on the timeline that has a different frame rate than that of the current sequence. For more information, see Placing Clips of Different Frame Rates on the Timeline.

Deinterlace Property Editor

The Deinterlace property page lets you separate frames into odd and even fields.

A deinterlaced clip is twice the length of a regular clip.

To update the clip's length on the top timeline:

- In the Deinterlace property editor, click **Update Duration**.

  This is done automatically when you create a deinterlace container clip.

After you've finished your modifications on the deinterlaced clip, you can use the Interlace effect to reinterlace your clip.

Option	Description
Interpolation	Specifies if and how to interpolate contents of added frames
None	Performs no interpolation. The added frames are exact duplicates of the adjacent frames. This option is best for clips containing static images.

Option	Description
Linear	Interpolates entire clip. This option is best for clips containing moving images.
Adaptive	Interpolates moving areas of clip only. This option is best for clips that have both a static and moving component.
Motion Thresholds	Specifies how to treat static and moving areas of the clip
No Motion	Affects static areas of image. 0% means deinterlace (this reduces the quality of static images); 100% means no deinterlacing is performed on static areas. *The No Motion Value cannot be higher than the Fast Motion value.*
Fast Motion	Affects moving areas of the image. 0% means it will be deinterlaced; 100% means no deinterlacing is performed on moving areas. Higher values remove more interfield artifacts. The effect must be processed in order to see the changes. *The Fast Motion Value cannot be lower than the No Motion value.*
Default	Resets Motion Threshold parameters to the default values
Invert Field Dominance	Changes order in which odd and even fields are deinterlaced

Interlace Property Editor

The Interlace property page lets you recombine frames in a clip that were separated into odd and even fields using the Deinterlace effect (or were separate prior to capture).

An interlaced clip is half the length of a regular clip.

To update the clip's length on the top timeline:

- In the Interlace property editor, click **Update Duration**.

  This is done automatically when you create an Interlace container clip.

Option	Description
Invert Field Dominance	Changes order in which odd and even fields are interlaced

Timewarp (video) Property Editor

The video Timewarp property editor lets you speed up, slow down, or freeze the action in a clip. You can apply a strobe effect, and change the apparent speed of a clip to a constant speed by modifying its speed or duration. You can also make the clip gradually slow down, speed up or reverse by adjusting the associated speed or duration function curves.

When you increase the duration, the timewarp effect adds duplicates of frames; when you decrease the duration, it removes frames. This gives the appearance of an increase or decrease in speed.

General Property Page (Video Timewarp)

The General property page lets you specify the timewarp mode, the speed and duration of the timewarp, and the frames affected.

You can use the different timewarp modes to apply different changes to the action in a clip. The video timewarp modes are:

- **Constant mode** speeds up or slows down the action in a clip by giving it a new constant speed.
- **Speed mode** applies a variable speed, so that the action speeds up or slows down progressively.
- **Input Speed mode** applies a variable speed based on the source clip in the timewarp container clip.
- **Position mode** rearranges the action completely by changing the position of frames.
- **Hold mode** freezes frames.

The modes are mutually exclusive, meaning that you can select only one at a time. Only the speed controls in the selected mode affect the speed of action.

The Invert Fields option changes the order in which odd and even fields are processed when Field Processing is set in the Processing Options dialog box. The default field dominance setting is determined when you first define your sequence video format as being NTSC or PAL (odd fields first for NTSC, even fields first for PAL). By selecting the Invert Fields option, you invert field dominance.

When you apply a timewarp effect to a clip, the effect modifies the number of frames in the clip. You must click the Update Duration button to update the clip to its new length. When using the Position or Speed mode, the container clip has an infinite duration by default. When you use Update Duration in either of these modes, it has no effect.

Constant Mode (Video Timewarp)

The Constant mode maintains a constant speed throughout the timewarp.

There are two methods of changing the speed—as a percentage of the original speed, or by typing a new speed in frames per second. There are also two ways of changing the duration—by changing the end timecode or the total number of frames.

When you change the speed, you are changing the *apparent* speed of action. The corresponding duration is calculated, and frames are added or removed as needed. Since these controls are interrelated, changing one of them, updates the other three accordingly.

Option	Description
Base Frame	The first frame to which the speed changes are applied. The base frame always uses the source timecode, not the master timecode.
Fix At	Specifies timecode of base frame
First	The first frame of the container clip
Last	The last frame of the container clip
Speed (%)	Applies a new constant speed that you specify as a percentage of the original speed
From	Specifies original speed of action, always equal to 100%. *This value is based on the source material inside the timewarp container clip, and is not editable.*
To	Specifies new speed of action
Speed (Frames Per Second)	Applies a new constant speed that you specify in frames per second

Option	Description
From	Specifies original speed in frames per second. *This value is based on the source material inside the timewarp container clip, and is not editable.*
To	Specifies new speed of action in frames per second
Duration (SMPTE)	Change duration of the clip by typing the desired duration in SMPTE timecode
From	Specifies original duration in SMPTE timecode. *This value is based on the source material inside the timewarp container clip, and is not editable.*
To	Specifies new duration in SMPTE timecode
Duration (Frames)	Change duration by typing the desired number of frames
From	Specifies original duration in frames. *This value is based on the source material inside the timewarp container clip, and is not editable.*
To	Specifies new duration in frames

Speed Mode (Video Timewarp)

The Speed mode lets you vary the rate of playback over time.

Option	Description
Base Frame	The first frame to which the speed changes are applied. The base frame always uses the source timecode, not the master timecode.
Fix At	Specifies timecode of base frame. This frame identifies where the start frame for a reversal will begin.
First	The first frame of the container clip
Last	The last frame of the container clip
X axis	Timecode on the top timeline ruler
Y axis	Apparent speed of action as a percentage of the original speed
Curve	Modifies the curve to adjust the apparent speed at different parts of the clip. Ctrl-click the curve to add more points with handles that you can move to further control the shape of the curve. *Moving a portion of the curve below zero makes the clip play backward.*
Position indicator	Move the position indicator across the graph to view different parts of the clip
Speed	Specifies speed of function curve at the current position indicator position

Input Speed Mode (Video Timewarp)

The Input Speed mode lets you set the speed of the timewarp based on the source clip.

Option	Description
Base Frame	The first frame to which the speed changes are applied. The base frame always uses the source timecode, not the master timecode.
Fix At	Specifies timecode of base frame
First	The first frame of the container clip
Last	The last frame of the container clip
X axis	Timecode inside the timewarp container
Y axis	Apparent speed of action as a percentage of the original speed
Curve	Modifies curve to adjust the apparent speed at different parts of the clip
Position indicator	Move position indicator across the graph to view different parts of the clip
Speed	Specifies speed of curve at the position indicator
Show Input Frames	Displays current frames of source clip

Position Mode (Video Timewarp)

The Position mode lets you vary the speed of the clip by changing the position of frames on the container clip's timeline.

The Position function curve lets you change the apparent speed graphically by adjusting the position of frames at different key points. For example, to start the clip at the fifth frame, play to the tenth frame, and then end on the first frame, you move key points on the function curve. You can vary the slope of the curve to adjust the apparent speed.

Option	Description
Base Frame	The first frame to which the speed changes are applied. The base frame always uses the source timecode, not the master timecode.
Fix At	Specifies timecode of base frame
First	The first frame of the container clip
Last	The last frame of the container clip
X axis	Represents timecode on the top timeline ruler
Y axis	Represents original timecode of each frame inside the timewarp container clip
Curve	Modifies the curve to adjust the position of frames at different parts of the clip. Press Ctrl and click the curve to add more points with handles that you can move to further control the shape of the curve.
Position indicator	Moves position indicator across the graph to view different parts of the clip
Position	Specifies apparent speed at the position indicator

Hold Mode (Video Timewarp)

The Hold mode gives part of the clip a speed of zero by freezing a specific frame. You can replace the entire clip with this frame, hold the frame for the rest of the clip, or hold the frame for a specific duration. You can also apply a strobe effect to the clip.

Option	Description
Hold Frame	Indicates frame that you want to hold
Fix At	Specifies timecode of the frame to hold, using the source timecode
First	Holds first frame in timewarp container clip
Last	Holds last frame in timewarp container clip
Mode	Specify length of time to hold frame
Replace Entire Clip with this Frame	Replaces every frame in the container clip with the Hold Frame
Hold this Frame Indefinitely	Changes apparent speed to 0 from the Hold Frame to the end of the clip
Ease In	Gradually reduces apparent speed for the specified number of frames before the Hold Frame
Hold This Frame for a Fixed Duration	Changes apparent speed to 0 for part of the clip by freezing one frame
Duration	Specifies the number of frames during which the specified frame is frozen
Ease In	Gradually reduces the apparent speed for the specified number of frames before the Hold Frame. The speed is reduced from the original speed to 0.
Ease Out	Gradually increases the apparent speed for the specified number of frames after the Hold Frame. The speed increases from 0 to the clip's original speed.
Strobe	Repeats a number of frame(s) and then skips forward by the same number. Strobe is applied to the entire container clip.

Option	Description
Frequency	Specifies number of frames to be repeated and then skipped. If the frequency value is 1, the clip plays normally. If the frequency value is 2, the first frame plays twice, the second is skipped, the third plays twice, the fourth is skipped, and so on.
Hold On	Specifies whether to freeze a frame or field. The field option is useful when you have fast moving objects in a clip. By freezing a single field, you can alleviate undesirable stuttering effects.
Frame	Freezes full frame. When selected, Avid DS Nitris does not need to process the frame. This setting overrides the processing setting in the sequence preferences dialog box.
Field 1	Freezes first field
Field 2	Freezes second field

Quality Property Page (Video Timewarp)

The Quality property page lets you select an interpolation mode and control the speed and quality of the timewarp effect.

Option	Description
Interpolation	Determines how the actual pixels of the timewarped object are calculated. The option impacts quality and processing time.
None	Results in marginal image quality, but processing time is very fast. Added frames are exact duplicates of adjacent frames.
Linear	Results in better image quality than None option, but processing is slower. This option is very useful for quick tests.
FluidMotion	Results in best image quality, but processing requires more time. Creates intermediate images by morphing the motion across the bracketing images. The system examines each pixel in the outgoing image, finds the corresponding pixel in the incoming image, and creates a motion path between the two that it uses to build the intermediate images necessary to fill out the effect to create a smoother motion.
Amount (FluidMotion)	Adjusts the intensity of the FluidMotion effect. Values: 0 to 100. An amount of 0 signifies that the effect is simply not applied and linear interpolation is used. Controls the amount of FluidMotion interpolation applied to the effect.
Method (FluidMotion)	Lets you chose the image quality of the timewarp effect. These three options provide a trade off between processing time and quality. For example, select Derivative while you experiment with parameters. Once you've decided on your settings, select Full Grid to process the final result.
Derivative	Results in average quality with less amount of processing time.

Option	Description
Half Grid	Default setting. Better quality then the Derivative option, but requires more processing time.
Full Grid	Best quality and most processing time.
Border Left Border Right Border Bottom Border Top	These four border options define the width of a border region around an image, within which region motion is constrained to be zero. Adjust the borders to eliminate artifacts on the edge of an image caused by the black borders that are often present around the edges of NTSC and PAL images. These border options are usually set to match the video blanking in the media.

Correction Property Page (Video Timewarp)

The Correction property page lets you create and edit shapes that define the part(s) of the image that you want to adjust after rendering a Timewarp effect using FluidMotion.

Option	Description
Apply	Turns Timewarp effect on or off, letting you compare the appearance with or without the timewarp effect
View	The options in the View area let you enable shape editing and enable viewing of input frames, input fields, and output results.
Edit	Enables the shape editing interface and input viewing mode. If Show Shapes option is selected, lets you edit shapes and view the previous and next frames or fields that contribute to the current output frame or field.
Show Shapes	Determines whether shapes appear in viewer or not.
View Frame	Lets you view the result or input frames for the output frame at the current time. Also sets shape editing to occur on input frame boundaries. Use this option for frame-based material.
View Field 1	Lets you view the result or input fields for the first output field at the current time. Also sets shape editing to occur on input field boundaries. Use this option for field-based material.
View Field 2	Lets you view the result or input fields for the second output field at the current time. Also sets shape editing to occur on input field boundaries. Use this option for field-based material.
Previous Input Frame	If View Frame is selected, this option displays the previous input frame for the currently selected output.
Previous Input Field	If View Field 1 or View Field 2 is selected, this option displays the previous field for the currently selected output.

Option	Description
Next Input Frame	If View Frame is selected, this option displays the next input frame for the currently selected output.
Next Input Field	If View Field 1 or View Field 2 is selected, this option displays next input field for the currently selected output.
Result	Displays the result frame or field for the currently selected output.
Shape Creation	Lets you create different kinds of open or closed shapes. These shapes define areas of correspondence between successive frames of input. This lets you define the motion between frames that can be used as a hint or a correction to the motion computed by the FluidMotion engine.
Freehand	Creates open or closed freeform shapes, and simulates the feeling of drawing with a pencil on paper
Polyline	Creates straight lines, Bézier curves, or combination of the two
Ellipse	Creates oval and circular shapes
Rectangle	Creates rectangular and square shapes
Transformations	A collection of tools that let you pick, move, scale, rotate, and skew your shapes
Select	Lets you pick a shape. Once a shape is selected, you can drag it to place it in the correct location.
Scale	Increases or decreases size of shape
Rotate	Modifies rotational angle of shape
Skew	Slants a shape
Editing Tools	A collection of tools that let you pick, edit, and connect the shapes you created
Edit Shape	Manipulates control points of selected shape
Density	Increases precision of shape during processing by adding correspondence vectors between the two shapes
Shape Behaviour	

Option	Description
Type	Type of shape indicates how the shape correspondence between successive frames affects the FluidMotion calculation.
Hint	Indicates that the FluidMotion should use the shape correspondence as an initial calculation, and is allowed to fine-tune this correspondence if possible.
Correction	Indicates that the FluidMotion should compute the motion between the frames then correct the motion to match the shape correspondence exactly. Use this option when Constraint and Hint methods fail to produce good results.
Constraint	Combination of Hint and Correction. The FluidMotion computation uses the shapes as an initial calculation, computes the motion correspondence, then adjusts any areas where the shape correspondence is no longer correct. Use this option when the Hint method fails to produce good results.
Activeness	Lets the selected shapes be active for each pair of input frames or fields. For example, you can set the activeness of selected shapes between the previous and next input frames or fields. A shape only affects the output image on output frames or fields when the shape is active on the corresponding previous and next input frames or fields. This option lets you use a shape to correct the few frames where the problem occurs without it changing the rest of the timespan where no correction is required.
Enable AutoBarrier	Indicates whether the motion warp defined by the shape should be restricted to within a specified distance from the shape.
AutoBarrier Radius	When Enable AutoBarrier is active, this option defines the region that the shape warp affects. Any pixels between the previous and next shape positions and any within the specified radius of these pixels are affected.
Previous Active	Moves the position indicator to the nearest previous frame that contains an active shape. Frames without shape corrections applied are skipped.

Option	Description
Next Active	Moves the position indicator to the next frame that contains an active shape. Frames without shape corrections applied are skipped.

Options Property Page (Video Timewarp)

The Options property page lets you specify if your source material is frame or field-based. Static graphics images, 30fps film, and 30fps CGI (computer generated images) are some examples of frame-based material. The Source Material options inform the effect if your source material is frame or field-based. Be sure to select the correct option depending on the type of source material you are using.

The Source Material options work in tandem with the processing type options in the Processing Options dialog box. The processing type options let you specify if the animation should be processed in field or frames. Processing in fields provides smoother animation as the animation is interpolated over each field.

For example, if your source material is a static logo on which you apply an animated DVE effect, you should set the Source Material options to Frame, and the Fields Processing option of the Processing Options dialog box. This will ensure the best quality of image because the entire frame will be used by the DVE to perform the interpolation, instead of a single field. Since the processing is set to Fields, the animation itself will be field-based, creating a smoother animation.

Option	Description
Type	
Auto	If you select Auto, Avid DS Nitris will use the global processing setting in the sequence preferences.
Frame Processing	Processing, including animation, is frame-based. Both fields in each frame are processed together using the same property values.
Field Processing	Processing, including animation, is field-based. Odd and even fields are processed separately using different property values based on the animation. This option is better for animated effects, such as dissolves, fades, and motion paths.
Source Material	Lets you specify if the source material is frame-based, or is the same as the Processing Type setting.
Frame	Lets you indicate that the image on which an effect is applied is frame-based. If the image on which an effect is applied is a frame-based image, then select this option. *Still images are always frame-based.*
Same As Processing	Lets you specify that the source material is the same as the Processing Type setting. This is the default option. If the image on which an effect is applied is field-based, then select this option, and make sure that the Type setting is set to Field Processing as well.
Precision	Choose the bit depth at which your effects will be processed. Some effects are capable of 16 and 32-bit float precision. The drop-down list shows the supported bit depths for this effect. If you select Auto, Avid DS Nitris will use the global precision setting in the sequence preferences, unless a different setting is propagated by a previous input effect.
Use Same Precision for Inputs	All effects that are input to this effect will use the above Precision setting if their Precision is set to Auto.

Option	Description
Output Frame Size	Forces the effect to output pixels an image of the frame size. If the image is larger, it will be cropped. If smaller, it will be padded with black transparent pixels. For example, if you have a PAL sequence that is 720×576 and you process an image larger than the PAL frame (2000×2000), then only the pixels that fall within the PAL frame will be output from this effect. The rest will be cropped out.
Deinterlacing	
Adaptive Deinterlacing	Interpolates the moving areas of the image only
Motion Thresholds	Specifies how to treat static and moving areas of the image
No Motion	Affects static areas of the image. 0% means deinterlace (this reduces the quality of static images). 100% means no deinterlacing is performed on static areas.
Fast Motion	Affects moving areas of image. 0% means it will be deinterlaced. 100% means no deinterlacing is performed on moving areas. *Higher values remove more interfield artifacts. The effect must be rendered in order to see the changes.*
Default	Resets Motion Threshold parameters to the default values

Timeline

Before you can begin building a rough cut of your sequence, you need to understand the components of the timeline.

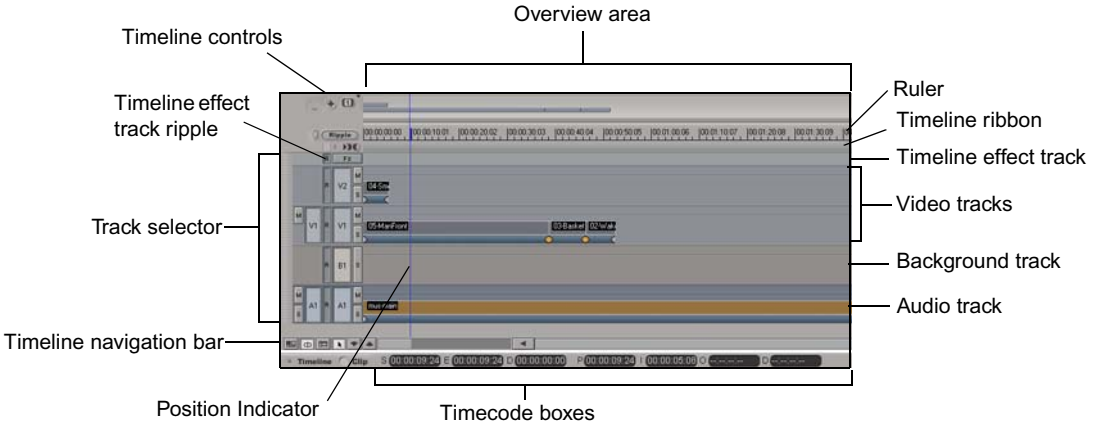
The timeline is where you place and edit clips to build a sequence. It graphically displays the position of video and audio clips, container clips, transitions, and effects over time.

Similar to a storyboard, the timeline lets you view clips and their position in time. You can edit a clip's in and out-points, add transitions, and apply effects.

The timeline can support any number of tracks or clips. New video tracks are added to the top of the timeline, while audio tracks are added to the bottom. New background tracks are added between the video tracks and audio tracks. As you place clips on the tracks, the timeline stretches to accommodate them. You can zoom in and out on the timeline, or scroll the tracks up or down.

The timeline uses a bottom-up hierarchy when playing sequences. This hierarchy lets you use the video tracks to layer effects. Depending on the Track selector settings (such as track selection, solo, and mute), the effects and video clips with full-screen alpha clips placed on top tracks are composited over the clips on the lower tracks. However, only active clips playback.

When active video clips on top tracks overlap active video clips on lower tracks, the clips on the top tracks are viewed during playback. The activeness of the clips on the lower tracks does not matter.

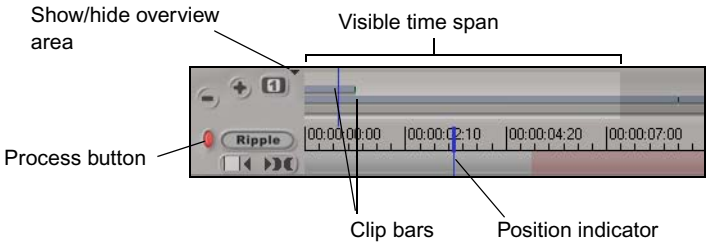


Use this	To
Timeline controls	Perform operations such as zooming, global rippling, and setting locators on the timeline.
Track selector	Perform operations such as selecting, muting, soloing, and rippling tracks.
Overview area	View all the clips and tracks in a sequence.
Ruler	Display the timecode scale for your sequence.
Timeline ribbon	Place edit or reference locators. This area also displays areas of the sequence that need processing. For a description of each of the color states, see “When is Processing Needed?” in the Help.
Timeline effect track	Place effects on top of all other effects on the video and background tracks. The effects modify the output of all images on the tracks below.
Timeline effect track ripple	Activate or deactivate the Ripple mode for the timeline effect track.
Video tracks	Place video clips that are to be composited over clips on background tracks and lower video tracks.
Background track	Place video clips, graphics, and effects for your sequence.
Audio tracks	Place audio clips and effects for your sequence.
Position indicator	Display a frame in the sequence or scrub the timeline.
Timeline navigation bar	Perform operations such as zooming and panning the timeline, stepping into and out of containers, switch between the source and record timelines, select the Source/Record, Color Correction, Trim, or Slip/Slide modes.
Timecode boxes	Displays timecodes for a selected object and lets you type new values for the start, end, or duration of a selected object.

Overview Area of the Timeline

The overview area provides a view of all the clips and tracks on the timeline that is currently displayed. As you add video and audio tracks to the timeline, the overview area expands vertically to display these new tracks. The clip bars in the overview area represent the clips on the audio, video, or background tracks, and their relative positions in time.

When you are in a container clip, the overview area only displays the clips within that container clip.



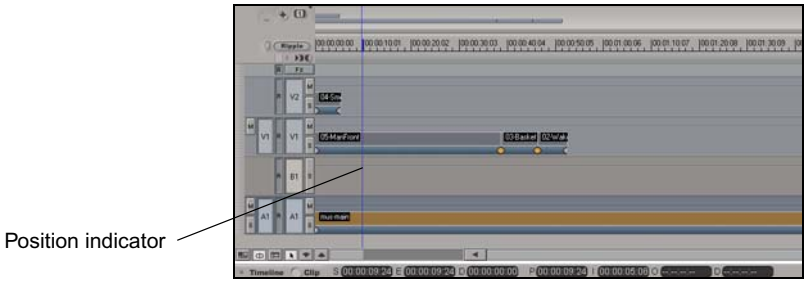
Use this	To
Show/hide overview area	Show or hide the overview area.
Visible time span	Display a section of the sequence on the timeline—see "Changing the Visible Time Span" in the Help.
Process button	Process all or a part of the sequence.
Position indicator	Go to a specific timecode or scrub the clips on the timeline.
Clip bars	Represent clips on the current timeline.

Position Indicator

The position indicator in the timeline marks your place in the sequence. The Record viewer displays the frame of the sequence where the position indicator is located. You can click anywhere in the timeline to relocate the position indicator, or you can drag the position indicator through footage at varying speeds. When you move the position indicator in the timeline, the smaller position indicator within the Record viewer's position bar also moves.

The position indicator determines how some of your commands are interpreted. For example, when you perform an edit, the system takes the location of the position indicator as the in-point in the absence of established marks.

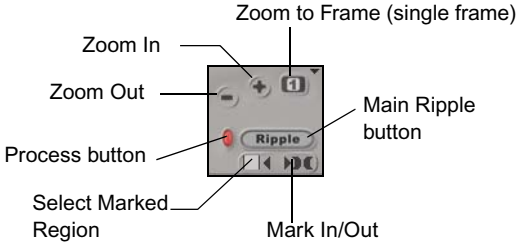
When you expand the timeline the position indicator splits to indicate a single frame, a solid blue line appears at the left of the frame and a dotted blue line appears at the right of the frame.



Timeline Controls

The timeline controls let you perform global operations on the timeline. You can use them to zoom, ripple, or process clips on the timeline.

Other controls let you quickly set locators, mark in-points and out-points, or select a region on the timeline.



These are the controls available in the timeline controls:

Use this	To
Zoom to Frame (single frame)	Zoom in on the timeline to display clips at single frames. Click this button again to zoom out to the timeline's previous display.
Zoom In	Increase magnification of the timeline.
Zoom Out	Decrease magnification of the timeline.
Ripple	Activate or deactivate the Ripple mode on the entire timeline.
Select marked region	Select a region previously marked with in and out-points.
Mark In/Out	Mark in and out-points to a selected clip or region on the timeline.
Process button	Open the Processing Options dialog box and select the appropriate options—see "Processing Options Dialog Box" in the Help.

Ruler Menu

The Ruler pop-up menu lets you set the time scale for your sequence. When working with video, you can change the time scale to display in frames, timecode drop frames, timecode non-drop frames, or audio samples. These options differ between PAL and NTSC formats.

To access the Ruler menu:

- On the timeline, right-click the ruler.

Command	Description
Show Time in Top Time	If you are currently within a container clip, displays the timescale of the top timeline
Show Time in Parent Time	If you are currently within a container clip, displays the timescale of the parent timeline
Show Time in Sequence Time	If you are currently in the top timeline, displays the timescale starting from 00:00:00:00

Command	Description
Show Time in Container Time	If you are currently within a container clip, displays a timescale for this timeline starting from 00:00:00:00
Display as Frames	Sets the timescale to display in frames
Use Default Format *xxxx*: (drop frame)	Uses the frame rate of the video format *xxxx* (NTSC/PAL/other) that you specified in the sequence preferences
Use *xxxx* (non-drop frame)	Uses the non-drop frame format of your current video format *xxxx* (NTSC/other)
Use Audio Samples	Displays the timescale in audio samples

These are the different display modes available:

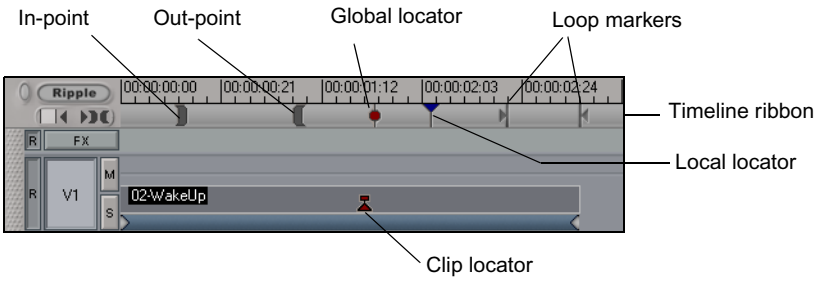
Ruler time scale	Timecode display format
SMPTE NTSC drop frame	23:59:59:29
SMPTE NTSC non-drop frame	23:59:59;29
25 fps (PAL only)	23:59:59:23
Audio samples	23:59:59.47999
Frames	1234567

Timeline Ribbon

The timeline ribbon displays locators, in-points, out-points, loop markers, and indicates the portions of your timeline that may require processing.

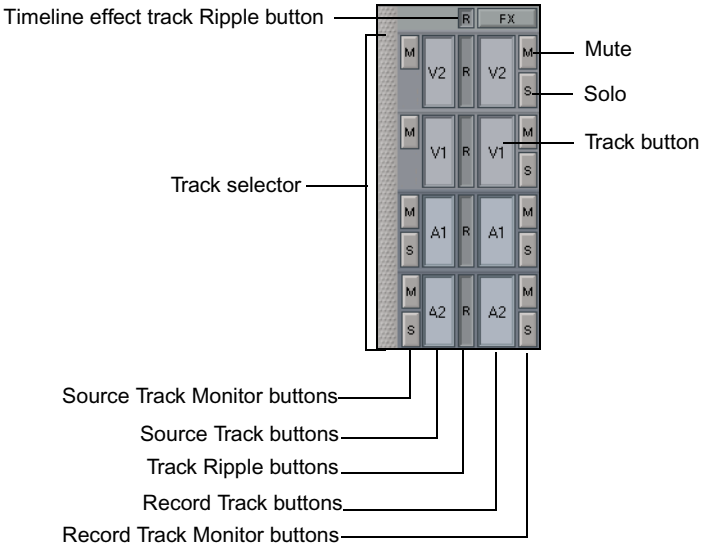
Locators let you set reference points on the timeline, so that you can easily move to areas of interest. The locators can also be used to help synchronize clips.

Tip: *All locators on the timeline ribbon can also be accessed from the Locators view in the Avid Explorer.*



For more information about using locators, see "Using Locators" in the Help.

Track Selector



Use this	To
Timeline effect track Ripple button	Activate or deactivate the Ripple mode for the timeline effect track.
Track selector	Select or deselect tracks, mute, solo, or ripple clips on a selected track. You can also scroll and adjust the heights of tracks.

Use this	To
Track button	Select and deselect the track.
Mute	Turn off the sound of clips on an audio track while playing the sequence. Turn off monitoring the playback of clips on the video track while playing the sequence. When mute is enabled the Mute button changes to red indicating the track is not monitored. Background tracks do not have Mute buttons.
Solo	Play only the selected track(s). On audio tracks, you can solo more than one track at a time. When solo is enabled the Solo button changes to green.
Track ripple	Activate or deactivate the ripple mode for a track.

If you require more working space on the timeline, you can hide the Track selector.

Track Menu

The Track pop-up menu lets you add an effect or a cache bar to a track, paste clips, delete tracks, and display the Track property editor.

To access the Track menu do one of the following:

- Right-click a track button.
- On the timeline, right-click the upper area of a track.

Command	Description
Paste	Inserts any clips that have been copied to the Clipboard
Delete Track	Removes the selected track from the timeline
Add Track Effect	Displays the Load Preset dialog box
Add Cache	Adds a cache bar to the track

Command	Description
Add Cache and Process	Adds a cache bar to the track, adds the cache bar to the Cache List view, and displays the Processing Options dialog box—see "Processing Options Dialog Box" on page 2016.
Track Properties	Displays the Track property editor
Live Track	Specifies whether or not the selected track is live. When deselected, the track is locked, and nothing can be placed on it.

Track Property Editor

The Track property editor lets you view and modify the properties of a track.

General Property Page (Track)

The General property page lets you view and modify some of the properties of a track.

Option	Description
Name	Changes name of selected track
Type	Lets you view type of track: video or audio
Level of Detail	Sets level of display detail for the selected track. **Video**: Displays thumbnails. There are three levels of detail at which frames can be displayed: High, Medium, and Low. **Audio**: Displays the waveform.
High	**Video:** Shows thumbnails at regular intervals of the ruler scale. As you zoom in closer to the timeline, you see more thumbnails per second. **Audio:** Displays waveform at high resolution
Medium	**Video**: Shows beginning and end thumbnails of the clip **Audio**: Option not available for audio clips
Low	**Video:** Shows no clip thumbnails **Audio:** Shows no waveform

Option	Description
Effect Size	Controls the size of the effects bar on the selected track
Format	(Audio only) Lets you set the type of audio.
Autoname	(Composite containers only) When selected, tracks adopt the name of the first clip placed on them. When deselected, lets you change the name of the track manually.

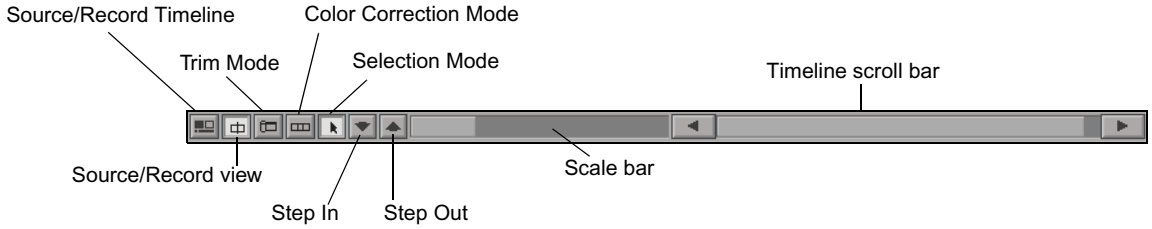
Media Property Page (Track)

The Media property page lets you view information about the media on a track.

Option	Description
Number of Clips	Number of clips on the track
Start	Timecode of in-point of the first clip on the track
End	Timecode of out-point of the last clip on the track

Timeline Navigation Bar

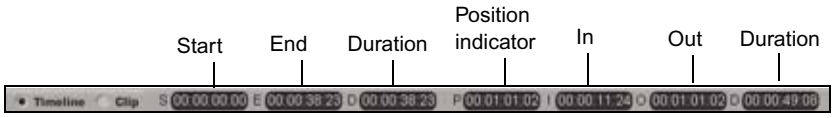
The timeline navigation bar, located at the bottom of the timeline and to the left of the status bar, lets you pan the timeline, zoom in and out on the timeline, step into and out of container clips, switch between the Source and Record timelines, select the Source/Record, Color Correction, Trim, or Slip/Slide modes.



Use this	To
Source/Record Timeline	Switch between the Source and Record timeline. When using the Tape Tool, switches between the Record timeline and the Source timeline that's displayed in the Tape Tool—see Tape Tool. Right-click to access the Auto command for automatically switching between the Source and Record timelines.
Source/Record view	Switch from Trim or Slip/Slide mode to Source/Record mode
Trim Mode	Open the Trim or Slip/Slide mode, depending on what you selected on the timeline—see "Entering and Exiting Trim Mode" and "Entering Slip/Slide Mode" in the Help.
Trim Mode menu	Automatically switch to the Trim or Slip/Slide modes. • **Switch for Edits**: Displays the Trim mode when you select an edit point and the Autoswitch command is selected. • **Switch for Clips:** Displays the Slip/Slide mode when you select a clip and the Autoswitch command is selected. • **Autoswitch:** With the Switch for Edits command selected, switches to Trim mode when you select an edit point. If the Switch for Clips command is selected, switches to Slip/Slide mode when you select a clip.
Color Correction Mode	Open Color Correction mode—see "Color Correction in Avid DS Nitris" in the Help.
Selection Mode	(Selected) You can select objects on the timeline using the mouse. The position indicator does not move when you select objects on the timeline. (Deselected) You can only select objects by using the buttons in the layout and keyboard shortcuts, and by lassoing (clips/edit points). The position indicator moves to where you click the timeline. By default, Selection mode is off.
Step In	Open the selected container clip at the position indicator
Step Out	Close the current container clip and return to the timeline of the parent clip
Scale bar	Zoom in and out around the position indicator on the timeline
Timeline scroll bar	Pan back and forth along the timeline

Timecode Boxes (Timeline Status Bar)

The timecode boxes on the status bar display timecodes for a selected object on the timeline. You can also use the timecode boxes to type new values for the start, end, or duration of a selected object.



Use this	To
Timeline	Display a selected object's sequence timecodes. You can view or modify an object's start, end, or duration on the timeline.
Clip	Display a selected clip's source timecodes. You can view the source timecode at the beginning or end of a clip. You can also type the new source timecode for the in or out-point of a clip.
Start	View or modify the start time of a clip, activeness bar, effect bar, region, transition, or edit point.
End	View or modify the end point of a clip, activeness bar, effect bar, region, transition, or edit point.
Duration	View or modify the duration of a clip, activeness bar, effect bar, region, transition, or edit point.
Position indicator	View or modify the location of the position indicator.
In	View the timecode at the position of the in-point. You can also move the in-point to this timecode.
Out	View the timecode at the position of the out-point. You can also move the out-point to this timecode.
Duration	View or modify the duration between in and out-points.

Effect Menu

The Effect pop-up menu lets you delete an effect, rearrange effects, and display the property editor of an effect.

You can map the commands for rearrange effects to a toolbar, see "Using the Toolbars" in the Help.

To access the Effect menu:

- On the timeline, right-click an effect bar.

Command	Description
Delete Effect	Deletes the selected effect
Effects to Tree	Converts the selected effect(s) to an Effects Tree effect
Bring to Top	Moves the selected effect to the top of the stack
Raise	Moves the selected effect up one position in the stack
Lower	Moves the selected effect down one position in the stack
Push to Bottom	Moves the selected effect to the bottom of the stack
Lock in Time	Locks the effect at the current timecode
Process	Lets you specify the objects you want to process. Processing computes any effect, transition, layer, composite, or container clip in your sequence, so that it can be viewed in real time during playback. The results of the processing is stored in a new media file (cache) so that your source media remains unaltered.
Purge Selected	Purges only the cache media associated with the selected cache node
Purge Below	Purges any unnecessary cache media that lies below the cache bar, while keeping the cache bar real-time playable. This option is useful if you processed your effects using the Complete option and no longer need the caches at each level any more.
Purge	Purges the cache media associated with the cache bar as well as any cache media that lies below it
Effect Properties	Opens the selected effect's property editor
Bypass	Bypasses the selected effect
Open Viewer	Displays the output of the selected effect in a floating viewer

Timeline Effect Menu

The Timeline Effect pop-up menu lets you add an effect or a cache bar to a timeline.

To access the Timeline Effect menu:

- On the timeline, right-click the timeline effect track.

Command	Description
Add Timeline Effect	Displays the Load Preset dialog box
Add Cache	Adds a cache bar to the timeline
Add Cache and Process	Adds a cache bar to the timeline, adds the cache bar to the Cache List view, and displays the Processing Options dialog box—see "Processing Options Dialog Box" on page 2016.

Timeline Menu

The Timeline pop-up menu lets you insert tracks, add and delete locators, trim the timeline and set display options. You can also display the timeline's property editor.

To access the Timeline menu:

- Right-click the overview area of the timeline.

Command	Description
Create Video Track	Adds a video track to the timeline
Create Background Track	Adds a background track to the timeline. *This command is not available in the video, audio, or composite container clip.*
Create Audio Track	Adds an audio track to the timeline. *This command is not available in non-audio container clips (video, composite).*
Mono	Add a track with a single channel of audio

Command	Description
Stereo	Add a track with two audio channels: Left and Right
4 Streams	Add a track with four audio channels: Outputs 1 to 4
LCRS	Add a track with four audio channels: Left, Center, Right, Surround
Quadraphonic	Add a track with four audio channels: Left, Right, Left rear, Right rear
5.1	Add a track with six audio channels: Left, Right, Center, Low Frequency Emitter, Left surround, Right surround
6.1	Add a track with seven audio channels: Left, Right, Center, Low Frequency Emitter, Surround Center, Side Left, Side Right
7.1	Add a track with eight audio channels: Left, Right, Center, Low Frequency Emitter, Left surround, Right surround, Left center, Right center
8 Streams	Add a track with eight audio channels: Outputs 1 to 8
Add Locator at Playback Position	Adds a colored locator at the playback position. Local locators are visible only on the current timeline.
Add Global Locator at Playback Position	Adds a colored global locator at the playback position. Global locators are visible on the current timeline and within any container clips.
Delete All Locators	Deletes all locators on the timeline
Loop on Active Media	Loops playback for all active media
Trim Timeline to Media	Resets the zoom to frame media on timeline, changing the start time to match the first clip
Display	Controls the display of the timeline controls, track control areas, and unused material on the timeline
Display Control Area	Toggles the display of the timeline controls and track control areas
Display Unused Material	Toggles the display of unused material on the timeline
Composite Properties	Opens the Composite property editor

Command	Description
Matte Properties	Opens the Matte property editor
Timeline Properties	Opens the Timeline property editor
Open Viewer	Displays the output of the timeline at the position indicator in a floating viewer—see “Opening a Floating Viewer” on page 925.
Output	Opens the Output Tool—see “Output Tool” in the Help.

Timeline Property Editor

The Timeline property page lists the types of tracks and the number of tracks and clips that are currently on the timeline.

Option	Description
Type of Track	
Background	Specifies number of background tracks and number of clips on those tracks
Audio	Specifies number of audio tracks and number of clips on those tracks
Video	Specifies number of video tracks and number of clips on those tracks
Enable/Disable Locator	Lets you turn on/off the display of locators by color
Timeline Effect Size	Controls the size of the timeline effect bars on the timeline effect track.

Timeline to MC

This function allows you to quickly generate an AAF and MXF file of a timeline selection that can be later imported directly into Avid Media Composer.

To access the Timeline to MC dialog box:

1. To export a sequence, you need to make sure that the entire timeline (from top to bottom) is selected. This way corresponding audio tracks, as well as timeline and track effects, are also included.

   Make a timespan selection on the timeline effect track. (This is the topmost track on the timeline, named FX.)

2. From the NLE Tools toolbar, select **Generate** > **Timeline to MC**.

You must have your MXF storage correctly configured to access this option—see "Configuring Storages for MXF Files".

Option	Description
Track Types	Lets you specify the material to be included in the new clip.
Include Video	Includes material from video tracks in the new clip.
Include Backgrounds	Includes material from background tracks in the new clip.
Include Audio	Includes material from audio tracks in the new clip.
Timeline Options	These options do not apply to the Timeline to MC function.
Replace Selection	Not available.
Create one Clip	Not available.
Options	

Option	Description
Type	Lets you select the detail level of processing. Clips can be processed by frames or fields, depending on the type of effect you want to process. Use frame-based processing for effects that are applied to individual pixels. Use field-based processing for motion paths (animated movements) because it produces smoother motion.
Frame Processing	All processing, including animation, is frame-based. This option processes the entire frame (both fields together) and should be used with frame-based material. This is faster than field-based processing, but gives lower quality results. *You can attain good processing results for effects applied to pixels, such as blur and color correction.*
Field Processing	All processing, including animation, is field-based. This option processes odd and even fields separately. This is slower than frame-based processing, but gives higher-quality results. Use field-based processing for animated effects, such as dissolves, fades, and motion paths.
Precision	Choose the bit depth at which your effects will be processed. Some effects are capable of up to 32-bit precision. Those that are not capable of the precision level that you set, will be processed at the bit depth at which they were captured.
Dither when creating video caches of lower precision	Adds dithering (at each cache level) before converting processed images to a lower bit depth. e.g. when you set the precision at 16-bit but the media was captured at 10-bit. *When outputting images processed in real-time, the dithering will be done only once at the very last level.*
Storage Settings	Specifies the working video resolution and whether the sequence uses uncompressed or compressed material. You can change these settings at any time to switch between available qualities. **These settings affect only the working resolution and what is shown while you work. They have no effect on the capture resolution.**

Option	Description
Resolution	Sets the working resolution; Full, Half, or Quarter. This controls the default resolution at which your media is processed (for example, for effects, transitions, layers, etc.) and also affects how media is displayed in the viewer. To speed up processing time, use a low resolution setting. *The Nitris DNA workstation only supports Full resolution.*
Color Space	Determines how the color components of the video signal are stored on disk. There are two formats available depending on your video format and resolution: YCbCr 4:2:2 and RGB 4:4:4.
Bit-Depth	Sets the bit depth at which the video media files will be stored on disk. The bit depth choices depend on your hardware, and your resolution and color space settings.
Location	Lets you specify the project file location and media storage.
Directory	Specifies the destination directory of the clip(s) that you are exporting from the timeline.
... (browse)	Allows you to browse for a folder.
Filename	Specifies the name of the clip that you are exporting from the timeline.
AAF Export	Specifies the destination directory for the AAF file. The AAF file contains all the metadata for the selected clip(s) on your timeline. During export of the timeline, the corresponding MXF media is also generated. When the AAF file is imported into Avid Media Composer, the clips can be relinked to the MXF media.
Video Storage	Specifies a destination storage device for the processed video media (cache). You can choose from a list of designated video storage devices. The storage devices are specified via the Media Storage Configuration tool.
Time Available	Displays the time remaining on the storage device for processing and saving video cache files with the specified resolution.

Option	Description
Audio Storage	Specifies a destination storage device for the processed audio media (cache). You can choose from a list of designated audio storage devices. The storage devices are specified via the Media Storage Configuration tool.
Time Available	Displays the time remaining on the storage device for processing and saving audio cache files.

Timeline to Clip Dialog Box

The Timeline to Clip dialog box lets you save the selected portion of the timeline as a new clip. You can save the clip with or without audio, video, or background tracks. You can also use the new clip to replace material on the selected portion of the timeline.

To access the Timeline to Clip dialog box:

1. Select a portion of the timeline.

If you want to include all objects on the timeline, you need to make sure that the entire timeline (from top to bottom) is selected. This way corresponding audio tracks, as well as timeline and track effects, are also included. To do this, make a timespan selection on the timeline effect track. (This is the topmost track on the timeline, named FX.)

2. From the NLE Tools toolbar, select **Generate** > **Timeline to Clip**.

Option	Description
Track Types	Lets you specify the material to be included in the new clip
Include Video	Includes material from video tracks in the new clip
Include Backgrounds	Includes material from background tracks in the new clip
Include Audio	Includes material from audio tracks in the new clip
Timeline Options	Lets you specify whether or not the new clip will be included in the timeline, and if so, how it will be included

Option	Description
Replace Selection	Replaces all of the material on the selected portion of the timeline with a single new clip
Create one Clip	Saves material from multiple clips or tracks as a single new clip
Options	
Type	Lets you select the detail level of processing. Clips can be processed by frames or fields, depending on the type of effect you want to process. Use frame-based processing for effects that are applied to individual pixels. Use field-based processing for motion paths (animated movements) because it produces smoother motion.
Frame Processing	All processing, including animation, is frame-based. This option processes the entire frame (both fields together) and should be used with frame-based material. This is faster than field-based processing, but gives lower quality results. *You can attain good processing results for effects applied to pixels, such as blur and color correction.*
Field Processing	All processing, including animation, is field-based. This option processes odd and even fields separately. This is slower than frame-based processing, but gives higher-quality results. Use field-based processing for animated effects, such as dissolves, fades, and motion paths.
Precision	Choose the bit depth at which your effects will be processed. Some effects are capable of up to 32-bit precision. Those that are not capable of the precision level that you set, will be processed at the bit depth at which they were captured.
Dither when creating video caches of lower precision	Adds dithering (at each cache level) before converting processed images to a lower bit depth. e.g. when you set the precision at 16-bit but the media was captured at 10-bit. *When outputting images processed in real-time, the dithering will be done only once at the very last level (top level?)*

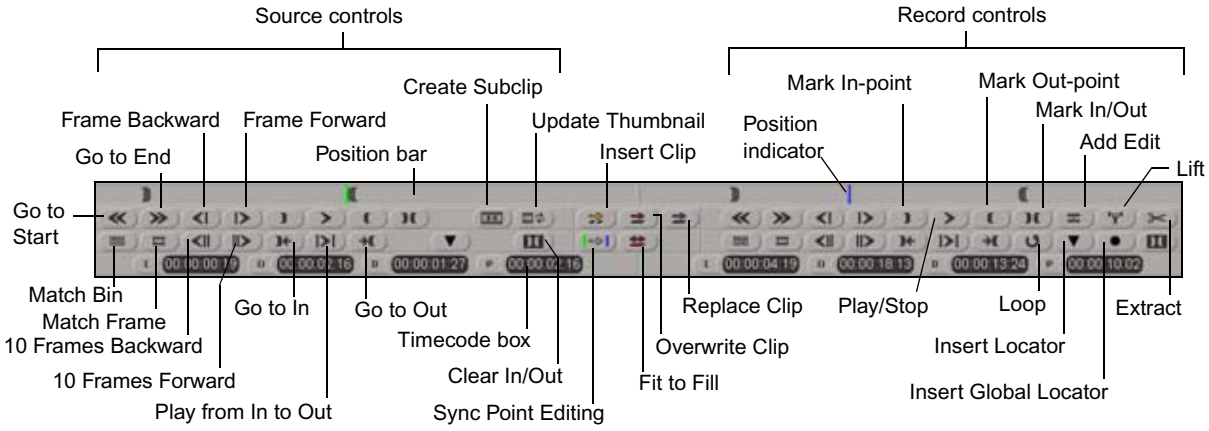
Option	Description
Storage Settings	Specifies the working video resolution and whether the sequence uses uncompressed or compressed material. You can change these settings at any time to switch between available qualities. **These settings affect only the working resolution and what is shown while you work. They have no effect on the capture resolution.**
Resolution	Sets the working resolution; Full, Half, or Quarter. This controls the default resolution at which your media is processed (for example, for effects, transitions, layers, etc.) and also affects how media is displayed in the viewer. To speed up processing time, use a low resolution setting. *The Nitris DNA workstation only supports Full resolution.*
Color Space	Determines how the color components of the video signal are stored on disk. There are two formats available depending on your video format and resolution: YCbCr 4:2:2 and RGB 4:4:4.
Bit-Depth	Sets the bit depth at which the video media files will be stored on disk. The bit depth choices depend on your hardware, and your resolution and color space settings.
Location	Lets you specify the location and available disk space of your media storage
Directory	Specifies the destination directory of the clip that you are exporting from the timeline
... (browse)	Displays the Timeline to Clip Destination dialog box
Filename	Specifies the name of the clip that you are exporting from the timeline
Video Storage	Specifies a destination storage device for the processed video media (cache). You can choose from a list of designated video storage devices. The storage devices are specified when you set up your workgroup environment.
Time Available	Displays the time remaining on the storage device for processing and saving video cache files with the specified resolution

Option	Description
Audio Storage	Specifies a destination storage device for the processed audio media (cache). You can choose from a list of designated audio storage devices. The storage devices are specified when you set up your workgroup environment.
Time Available	Displays the time remaining on the storage device for processing and saving audio cache files

Transport Controls

The transport controls let you mark in/out-points and locators on the source clip, timeline, or source material. You can also:

- Control the playback of a sequence on the timeline or a tape in the VTR
- Remote-control external devices, such as VTRs, so that you can play, capture, and record material



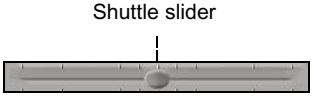
The controls under the Source viewer let you edit the in and out-points of a source clip before placing it on the timeline. While working with the Source viewer and timeline, you can perform tasks, such as overwriting, inserting, and replacing clips on the timeline, and fit-to-fill.

The controls under the Record viewer provide similar capabilities for marking in and out-points on the timeline or an external device.

Use this	To
Source controls	Manipulate in and out-points, insert locators, move the position indicator to various frames, and perform a Match Bin and Match Frame in the Source viewer.
Record controls	Manipulate in and out-points, insert locators, move the position indicator to various frames, and perform an Add Edit, Lift, and Extract in the Record viewer.
Position bar	Display the position indicator and locators, and manipulate in and out-points in both viewers. The Position bar can also display timecode and tick marks.
Position indicator	Show your position in a sequence.
Go to Start	Go to the first frame of the sequence.
Go to End	Go to the last frame of the sequence.
Frame Backward	Move one frame backward.
Frame Forward	Move one frame forward.
Mark In	Set an in-point on the timeline. When capturing or outputting material, this sets the in-point on the external device.
Play/Stop	Play/stop the sequence or tape. During playback, this button turns amber when video and/or audio frames are skipped during playback. The tooltip indicates the number of skipped frames/seconds.
Mark Out	Set an out-point on the timeline. When capturing or outputting material, this sets the out-point on the external device.
Mark In/Out	Set in and out-points on the selected clip.
Clear In and Out	Remove the in and out-points.
Insert Locator	Add a locator at the position indicator. Right-click this button to select a color.
Insert Global Locator	Add a global locator at the position indicator. Right-click this button to select a color.

Use this	To
Update Thumbnail	The clip's thumbnail updates to show the frame on which the position indicator is currently placed—see"Changing the Frame in Thumbnail and Script View" in the Help.
Create Subclip	Create a new source clip in a bin from the clip currently in the Source viewer, using any new in or out-point settings—see "Creating Subclips" in the Help.
Insert Clip	Insert the source clip on the selected track as specified by the in, out, or duration timecodes. All clips after the insertion point are rippled for tracks that have the Ripple mode activated.
Overwrite Clip	Place the source clip on the selected track according to the in, out, or duration timecodes. Activeness is applied to the new clip on the timeline, effectively deleting the existing clip(s). No clips are rippled.
Replace Clip	Replace the selected clip on the timeline with the source clip. If the source clip does not have the same duration as the selected clip, then subsequent clips on the timeline are rippled for tracks that have the Ripple mode activated.
Sync Point Editing	Creates a sync point between the frame at the Source position indicator and the frame at the Record position indicator—see "Placing Clips on the Timeline Using Sync Point Editing" in the Help.
Add Edit	Place an artificial edit point between frames of a clip.
Lift	Remove marked material from the timeline and leave a gap in its place.
Extract	Remove marked material from the timeline and ripple the timeline to close the gap.
Match Bin	Find the bin to which the selected clip on the timeline or viewer belongs and display it in the Avid Explorer. Load the selected clip in the Source viewer and Source timeline.
Match Frame	Find the master clip or subclip that corresponds to the selected clip on the timeline and load it in the Source viewer and Source timeline.

Use this	To
Reverse Match Frame	Locates the frames in a sequence that match the frame selected in the Source viewer.
10 Frames Backward	Move ten frames backward.
10 Frames Forward	Move ten frames forward.
Go to In	Go to the in-point.
Play From In to Out	Play the sequence from the in-point to the out-point.
Go to Out	Go to the out-point.
Fit to Fill	Fit the source clip to the region specified on the timeline. If the clip duration is different, a timewarp is applied to the clip to make it fit within the selected region.
Loop	Turn the loop mode on or off. The Loop mode is automatically enabled when previewing from a property editor and when in the Trim or Slip/Slide modes. You can also loop/play around a selected object (clips, effects, edit points, and regions) on the timeline by pressing the Play button.
Timecode box	Go to a particular timecode on the Source and Record viewer or external device. *Press Tab to move to the next timecode box.*



When you open the Capture Tool or Output view, a shuttle slider is displayed in placed of the position bar above the transport controls. The shuttle slider lets you control a deck during the capture or output process.

Position Bar Menu

The Position Bar pop-up menu lets you display locators, timecode, animation keys, and tick marks in the position bar below the Source and Record viewers.

To access the position bar menu:

- Right-click the position bar.

Command	Description
Show Animation Keys	(Record viewer only) Displays animation keys of the selected clip.
Show Locators	Displays locators in the position bar
Show Ticks	Displays tick marks in the position bar. Tick marks are indication of time represented in the position bar.
Show Timecode	Displays timecode in the position bar
Zoom to Selection	(Record viewer only) Rescales the position bar to the object selected on the timeline.

Timecode Boxes (Transport Controls)

The timecode boxes on the transport controls display timecodes in the Source and Record viewers. By typing values for the in, out, and duration, you can quickly move the position indicator to various points in the sequence. The timecode boxes in the transport controls let you type a timecode and display the specified frame in a viewer.

To go to a specific timecode:

- Click in a timecode box, type a new timecode and press the button on the left of the box or press Enter.

  In the timeline and position bar, the position indicator moves to the timecode you specified.

To change the display of a timecode box:

- Right-click the button on the left side of a timecode box and select an option.

To move to the next timecode box:

- With the cursor in a timecode box, press Tab.

Timecode Menu

The Timecode pop-up menu lets you view and jump to timecode for clips displayed in the Source and Record viewers, as well as access the Customize Toolbars window.

To access the Timecode menu:

- In the toolbar, right-click the button on the left side of a timecode box.

Option	Description
In	Displays the timecode of the in-point
Out	Displays the timecode of the out-point
In/Out Duration	Displays the duration between the in and out-point
Position Indicator	Displays the timecode of the position indicator
Locate	Lets you type a timecode and move the position indicator to that timecode
Loop In	Displays the timecode of the Loop In marker
Loop Out	Displays the timecode of the Loop Out marker
Loop Duration	Displays the duration between the Loop In and Out markers
Start of Selection	Displays the start timecode of a clip, activeness bar, effect bar, region selection, transition, or edit point
End of Selection	Displays the end timecode of a clip, activeness bar, effect bar, region selection, transition, or edit point
Duration of Selection	Displays the duration between the start and end of the selection
Start of Selection (Clip Time)	Displays the start timecode of a source clip, activeness bar, or effect bar
End of Selection (Clip Time)	Displays the end timecode of a source clip, activeness bar, or effect bar
Position Indicator (Clip Time)	Displays the timecode of the position indicator in a source clip

Option	Description
Sequence Duration (Read-Only)	Displays the duration of the sequence
Remaining Duration (Read-Only)	Displays the duration that remains between the position indicator and end of sequence
XLR LTC Timecode	(Avid Nitris DNA only) Displays the LTC (longitudinal timecode) of the signal from the LTC IN connection (XLR). If there is no timecode at the LTC input, then --:--:--:-- is displayed.

Customizing the Transport Controls

You can customize the transport controls by adding your favorite commands to them, as well as removing the ones you use infrequently.

To add or replace a button on the transport controls:

1. Do one of the following in the transport controls:
   - Right-click an empty area and select **Customize Toolbars** to add a button.
   - Right-click an existing button and select **Customize Toolbars** to replace the button.

   The Customize Toolbars window opens.
2. From the Command **Categories** list, select a category.
3. From the Available **Commands** list, select a tool and drag it to a toolbar.

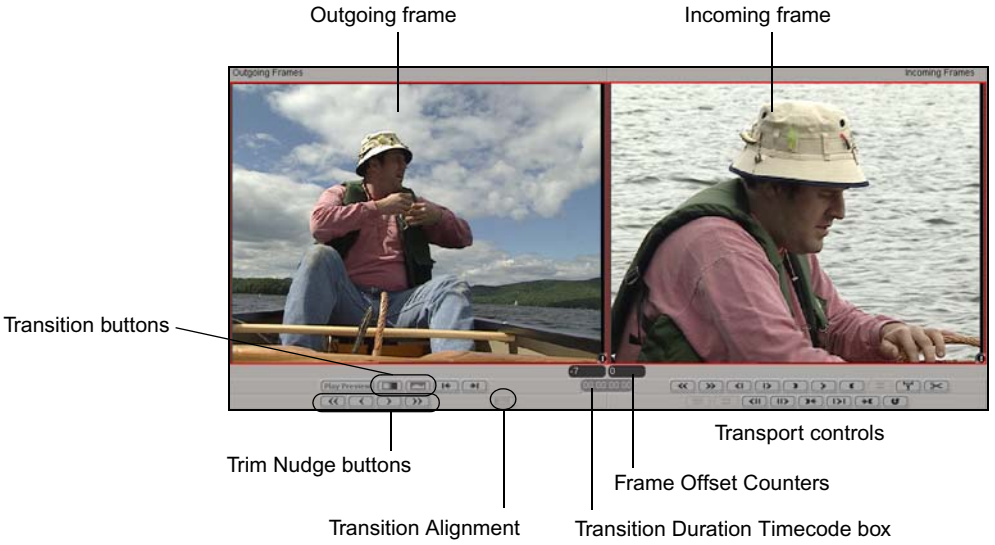
   A button is added to the transport controls.

To remove a button from the transport controls:

- Right-click a button and select **Remove Item From Toolbar**.

Trim Mode Controls

The Trim mode lets you precisely trim the incoming and outgoing frames at the selected edit point of clips on the timeline. You can adjust frames at an edit point by typing new in and out times or by using the trim buttons to move the frames incrementally.



Use this	To
Outgoing Frame view	Select the out-point of a clip for trimming. This view displays the frame at the out-point.
Incoming Frame view	Select the in-point of a clip for trimming. This view displays the frame at the in-point.
Frame Offset counters	View or set the number of frames to be trimmed. It shows the number of frames currently trimmed for the specified clip/edit point. This number can be changed by typing a new value.
Trim Nudge buttons	Trim the selected clip or edit point by one or ten frames.
< or >	Trim the selected clip or edit point one frame forward or backward.
<< or >>	Trim the selected clip or edit point ten frames forward or backward.
Previous Edit Next Edit	Move to the previous or next edit point in the sequence. This updates the Outgoing and Incoming views and timecodes, and resets the offset value.

Use this	To
Play Preview	Play the transition area with the pre-roll and post-roll frames in Loop mode.
Dissolve/Crossfade Wipe	Add a transition effect to the selected edit point.
Transition Alignment	Align the selected transition, either left, center, right of the edit point. See "Trimming Transition Effects" in the Help.
Transition Duration Timecode box	View and change the number of frames in the selected dissolve/crossfade or wipe transition. Transition Duration is not available if no transition effect is selected.

Video Effects

The video effects let you create effects on video clips on the timeline.

Fade Property Editor (Video Effect)

The Fade effect lets you fade in a clip, making it gradually more visible, or fade out a clip, making it gradually disappear. You can also specify the color from which the image fades in and out.

You can set keyframes to specify the rate and duration of the fade. For example, you can apply a fade-out effect to a clip by animating the Fade Amount from 100 at a given frame to 0 at the last frame. The frames between the first and last frames gradually fade to black (or the selected color). To define a complicated fade profile, you must add keyframes to the function curve to attain the desired results.

Timing Property Page (Fade)

The Timing property page lets you control the timing (rate and duration) of the fade. The horizontal (X axis) represents the SMPTE timecode. The vertical (Y axis) indicates the amount of the mix. By modifying the slope of the curve you control the timing and percentage of the mix.

Option	Description
X axis	Represents the SMPTE timecode
Y axis	Represents proportion (in percentage) of clip in mix. Values: 0 (no original clip) to 100 (full original clip).
Curve	Use curve to define how the mix varies in your fade. Move the key points up to increase the proportion of the original clip, and down to decrease it. You can add or remove key points to vary the mix. *To change the curve type from Bézier to constant or linear, right-click the Animation Key button and select it from the menu.*
Position indicator	Moves red position indicator across graph to view result of the fade in different parts of the clip. The position indicator in the animation graph matches that of the timeline.
Amount	Represents proportion of original clip in mix at a given time (value of the Y axis). Move the position indicator to view the value at a specific frame.

Warp Property Editor

The Warp effect lets you transform an image or part of an image from one shape to another over time. You can warp still or moving images.

Shapes Property Page (Warp)

The Shapes property page lets you create, edit, and join shapes that define the part(s) of the image that you want to deform.

Option	Description
Shape Creation	Tools that let you create different kinds of open or closed shapes, which define the source and target areas of the image that you want to warp.
Freehand	Creates open or closed free form shapes, and simulates the feeling of drawing with a pencil on paper
Polyline	Creates straight lines, Bézier curves, or a combination of the two

Option	Description
Ellipse	Creates oval and circular shapes
Rectangle	Creates rectangular and square shapes
Apply	Turns Warp effect on or off
Show Shapes	Shows or hides shapes in viewer
Transformations	Tools for picking, moving, scaling, rotating, and skewing shapes
Select	Lets you pick a shape. Once a shape is selected, you can drag it to place it in the correct location.
Scale	Increases or decreases the size of the shape
Rotate	Modifies the rotational angle of the shape
Skew	Slants a shape
Editing Tools	Tools for picking, editing, and connecting shapes you created
Join	Connect shapes together creating a relationship between them
Copy and Join	Copies an existing shape and connects the two shapes together in one step
Edit Shape	Manipulates control points of selected shape
Correspondence	Modifies points on curves so you can match key features on source shape with those on target shape
Density	Increases precision of shape during processing by adding correspondence vectors between the two shapes
Shape Interpolation Amount	Determines amount by which source shape has transformed or warped into target shape

Render Property Page (Warp)

The Render property page lets you modify the quality of the warp images and the time it takes to process the effect.

Option	Description
Edge Mode	Determines method by which Avid DS Nitris interprets shapes you created. Depending on option you choose, outer edges and area outside closed shapes are handled differently.
Fixed	Fixes borders of the image in place. Can cause some ripping or shearing of the image near the borders.
Sliding	Lets borders of an image slide or move with the rest of the warped image to avoid shearing of the image near the borders
Cookie Cutter	Lets you keep everything that falls within your closed shapes and removes everything else. Useful for creating mattes. *This option cannot be used with open-ended shapes.*
Warp Precision	Governs mathematical precision of warp effect. The option you choose directly affects quality of the processed images and time required for processing.
Linear	Results in low-quality images. This option operates the fastest, uses the least amount of memory, and is very useful for quick tests.
Low	Results in reasonable-quality images with slightly longer processing times than Linear option
Medium	Results in good-quality images with slightly longer processing times than Low option
High	Results in professional-quality images with reasonable processing times
Very High	Results in very smooth transitions between shapes, but processing time is long. Use this option only if the High setting does not produce satisfactory results.
Super High	Results in extremely smooth transitions between shapes, but processing time is extremely long. This option is not recommended unless you require the highest-quality image.

Option	Description
Interpolation	Determines how the actual pixels of the warped object are calculated. This option impacts quality and processing time.
None	Results in marginal image quality, but processing time is very fast
Bilinear	Results in better image quality than the None option, but processing time is slower
Scaling	Results in least amount of degradation when the target shape is scaled down by more than 50% of the source shape. This option takes the longest time to process.
Antialiasing	Determines whether edges of the warped image are smooth or jagged. When this option is selected, edges are smoother, but processing time increases.
Soften Edges	Determines how edges of the warped image blend into the rest of the image. When this option is selected, the transition between the edge of the warped image and rest of the image is smoother.

Viewers

There are several tools available for the viewers.

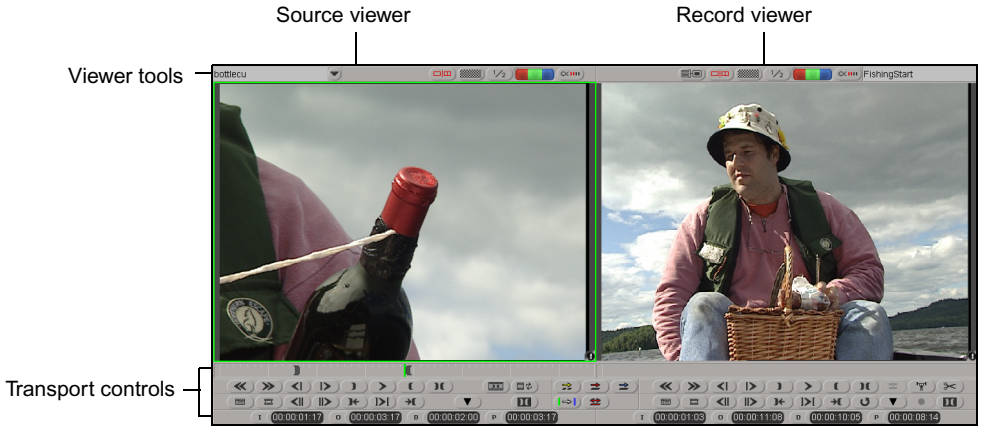
Source and Record Viewers

The Source and Record viewers have their own set of transport controls for marking in and out-points, and editing source clips, timeline clips, or material on an external device.

During a graphics session, the viewer serves as an area to create and arrange graphics for your images.

You can also open separate, floating viewers to view each of your effects as you work on them.

The Record viewer displays the output of your sequence at the location of the position indicator on the timeline. When capturing clips from an external device, the viewer displays the material you are viewing.

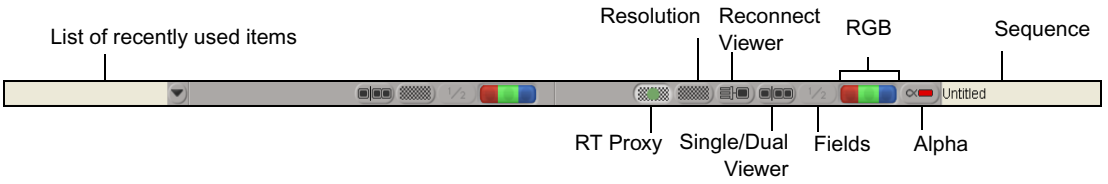


These are the main elements of the viewers:

Use this	To
Viewer tools	Access commands that change the display of the viewer, create subclips, view the name of the source sequence and list of most recently used source sequences.
Source viewer	View the source clip or sequence.
Record viewer	View the clips in your sequence or the material on your external device.
Transport controls	Locate, mark, and edit the in and out-points on the source clip, timeline, or source material. Play the source clip or the material on the timeline or external device.

Viewer Tools

The tools above the Source and Record viewers let you view clips and sequences on the timeline, create subclips, display the RGB or alpha channels, switch between the viewers, change the resolution and fields, and view a list of the most recently used clips and sequences.



Use this	To
Recently used items	View a list of the most recently used video and audio clips and sequences.
RT Proxy	For film resolutions, switches the display to a lower resolution, so you can play back effects in real time. You can convert back to the native resolution when editing and compositing are complete. The RT Proxy button is located above the viewers.
Resolution	Display the image at full, half, or quarter resolution. Standard frame sizes are set to 320×240 for half resolution and 160×120 for quarter resolution. This differs if you're using a special frame size.
Reconnect Viewer	View the output of individual effects, container clips, or the whole timeline. This is useful when you want to display the full results of a composite in the Record viewer, and view one element at a time in a another viewer.
Single/Dual Viewer	Switch the selected viewer between single and dual viewer mode—see Switching Viewers"Switching Viewers" in the Help.
Fields	Display field 1 only, field 2 only, or both fields.
RGB	Displays or removes the image's red, green, or blue channel—see "Viewing Image Components" in the Help.

Use this	To
Alpha	Display the alpha channel, on top of the image, at varying percentages of opacity—see "Viewing Image Components" in the Help.
Sequence	View the name of the current sequence on the Record timeline.

Viewer Menu

The Viewer pop-up menu lets you control all aspects of the viewers.

To access the Viewer menu:

- Right-click a viewer.

Command	Description
Reset Pan & Zoom	Resets the image display in the viewer to the default setting
Zoom	Controls the size of the image in the viewer. You can rescale the image from 25% to 800%. *You are affecting only the view of the image, not its actual size*
Square Pixels	Turns the display of square pixels on or off. Since the ITU-R 601 standard specifies a higher horizontal than vertical resolution (or a 0.9 ratio), the image appears stretched horizontally when displayed on a computer monitor (which has square pixels). When selected, this command displays the image in square pixels as it would appear on a computer monitor. When deselected, this command displays the image in non-square pixels as it would appear on a video monitor. By default, this command is set to square pixels. *An icon that resembles an exclamation mark (!) is displayed in the bottom-right corner of the viewer when the viewer scales the image in a way that may introduce unwanted artifacts in the image. This warns you when the correspondence between the source and display pixels is not 1:1.*

Command	Description
Safe Action/Title	Displays the borders of the safe action/title area. All graphics or text that falls within the safe action/title area will be visible on any broadcasting system.
Display Grid	Turns the display of the grid on or off
Snap to Grid	Snaps graphics objects in the viewer to the intersection of the X and Y grid lines
Display Guidelines	Turns display of guidelines on or off
Clear All Guidelines	Deletes all guidelines from the viewer
Comparison Buffer	Controls the comparison buffer and image grabber tools
Use Compare Buffer	Lets you take a snapshot of all or part of the current frame and compare it with another frame in the sequence. The image is temporarily stored in the comparison buffer while you need to use it. To exit this mode, deselect the Use Compare Buffer option from the menu.
Grab	Saves the image currently displayed in the viewer to the comparison buffer. The buffered image can be cropped and positioned anywhere in the viewer. To manipulate the image: • Drag the white lines around the image to resize it. • Drag the image to reposition it in the viewer. When you drag any portion of the image outside of the viewer, the image is cropped to the limits of the bounding box. • Press Shift and drag to move the image. • Press Ctrl and drag to slide the image inside the bounding box. • Press Alt and double-click the viewer to reset the image crop and position.
Reset Crop	Displays the entire buffered image in the viewer. To reset the image crop and position, press Alt and double-click.
Reset Pan	Resets the position of the buffered image in the viewer. To reset the image position, press Alt and click.

Command	Description
Onion Skin	Blends the current frame with preceding and successive frames at a specified ratio.
Auto-Pan	Automatically pans the viewer when using these interactive tools: graphics/paint tools, Shape tool in the Matte and Keyer effects, DVE tool, and Tracker tool.
Auto-Zoom	Automatically zooms the viewer when using these interactive tools: graphics/paint tools, Shape tool in the Matte and Keyer effects, DVE tool, and Tracker tool.
Red Component	Displays only the image's red channel
Green Component	Displays only the image's green channel
Blue Component	Displays only the image's blue channel
Alpha Component	Turns the image's alpha channel on or off
25%, 50%, 75%,100%	Displays the alpha channel in red, on top of the image, at different levels of intensity
Matte	Displays only the image's alpha component
Viewer Properties	Displays the Viewer property editor
Toolbars	Turns the display of the following on or off: viewer tools, position bar, transport controls, and timecode boxes.

Turning Off Interactive Tools

By turning off the current interactive tool in the viewer, you can safeguard the position of objects in the viewer, so you don't accidently move them.

The Disable Interactive Tool command is available from the Customize Toolbar window. You will need to add this command to a toolbar in order to use it.

To add the Disable Interactive Tools command to a toolbar:

1. Right-click the toolbar on which you want to add the Disable Interactive Tools command.
2. Select **Customize Toolbars** from the menu.

3. In the Available Commands list, select **Disable Interactive Tools (Viewer)** and drag it to the toolbar.

To turn off interactive tools:

- Click the **Disable Interactive Tools** button.

  Interactive tools are off until you turn them back on. A red lock icon appears beside the pointer when you are in the viewer.

Reconnect Viewer Menu

The Reconnect Viewer pop-up menu provides a list of preset connection points for displaying images in the viewer. You can also select an object of your choice to display in the viewer.

If the Reconnect Viewer button is not selected, you can still choose options from the pop-up menu, but they will not have any effect until you select the button.

To access the Reconnect Viewer pop-up menu:

- Right-click the **Reconnect Viewer** button.

  By default the Reconnect Viewer button appears on the top toolbar of a floating viewer.

Option	Description
Top Timeline	Displays the output of topmost level of the timeline
Parent Timeline	Displays the parent timeline output
Current Timeline	Displays the output of the current visible timeline
Current Selection	Lets you select an object in the timeline or from a node in the Effects Tree to display in the viewer. The display changes when you select another object.
Lock Selection	Continues to display the object selected at the time this option is set

Configure Viewer Display Menu

By default, the viewer in the Effects layout displays images from three adjacent clips on the timeline. The Current monitor displays the clip that the position indicator is on in the timeline.

To configure the display in a viewer:

- Click the monitor's Source menu and choose from the drop-down menu.

Option	Description
Current	Displays the current clip. If you have more than one track, the current clip is the selected one. If you have not selected a clip, the viewer will display the clip on the topmost layer.
Next	Displays the clip immediately after the current clip.
Previous	Displays the clip immediately before the current clip.
Second Next	Displays the clip two clips after the current clip.
Second Previous	Displays the clip two clips before the current clip.
Reference	Locks the current frame, where the position indicator is on, in the monitor. When the other monitors update as you navigate, this frame continues to display as a reference. This is useful if you want to use a specific place in your sequence as a reference against which to compare all other shots, for example, a shot that contains optimal skin tones.
Empty	Displays no image (black).

Creating Media Archive Dialog Box

The Creating Media Archive dialog box lets you choose a device to which the media is archived and set an in-point on the tape at which the media will begin. The dialog box also displays the archive tape name, as well as archive statistics, such as archive tape length and archive log location.

Use this	To
Archive tape options	Choose a device and in-point for the archive.
Device	Select the device to which the media is archived.
In point	Set an in-point at which the media begins archiving the media to tape.
Archive Tape Name	Display the name of the tape on which the media is archived. The tape is automatically assigned the same name as the archive.
Archive Statistics	View information about the archive.
Required tape length	Display the minimum tape length in minutes and seconds required to archive the media.
Number of passes	Display the number of passes required to archive the media to tape.
Archive log location	Display the location on the network where the archive log is saved.
Transport Control	The transport controls let you remote-control external devices, such as VTRs, so that you can cue up the tape before archiving the media.
Shuttle Slider	Lets you jog or shuttle forward or backward on the tape
Frame Forward	Lets you move ahead one frame
Frame Backward	Lets you move back one frame
Rewind	Lets you rewind the tape quickly
Play/Stop	Lets you play or stop the tape

Use this	To
Fast Forward	Lets you fast forward through the tape
Servo Lock	Specifies if the deck has reached servo lock state. When Servo Lock is enabled, it turns green, otherwise it is dimmed. If this option does not turn green during capture or output pre-roll, you must increase the pre-roll time.
Remote	Specifies if the external device is in Remote mode. When Remote is enabled, it turns green, otherwise it is dimmed.
Media Inserted	Specifies if a tape is inserted in the external device. When a tape is inserted, it turns green, otherwise it is dimmed.
Record Inhibit	Specifies if the Record Inhibit tab is enabled on the tape. When Record Inhibit is enabled, it turns red, otherwise it is dimmed.
VTR Reference	Specifies if the external device receives proper video reference or external sync. When the external device is receiving proper video reference or sync, it turns green, otherwise it is red.
Continue	Accept the settings and archive the media to tape.
Cancel	Cancel the media archive.
Check Machine	Re-establishes the remote connection and verifies that the external device is communicating properly with your workstation.

New Project Dialog Box

The New Project dialog box lets you create new projects. You can specify the project's name and location, and define the video, audio, and working video settings for the first sequence, and subsequent sequences that are part of the project. For example, when you set a project preference of 44.1 kHz, any subsequent sequences created inside that project inherits the 44.1 kHz setting by default.

You can also specify the timecode at which the timeline will start, as well as the number of tracks that are displayed when you create a new sequence.

When you create a new project, a sequence is automatically created.

To access the New Project dialog box:

- Select **File** > **New** > **Project**.

Options	Description
Project Name	Lets you give a name to the new project
Location	Lets you specify a location for the new project
... (browse)	Lets you select a location for the new project
Video Settings	Defines the video preferences for the project. Once you choose a format, the video settings are automatically set and you cannot adjust them, unless you have chosen a Custom format.
Format	Sets the video format for the new sequence. If the format you select is not hardware supported, it will have a dot in front of the name. **The format cannot be changed after you create the sequence.** *In Custom sequences you will have to specify the frame size, field dominance, frame rate or aspect ratio.* *For HD sequences, you can use 720p, 1080p, 1080i video formats.*
Frame Rate	Displays the number of frames per second for the specified video format.
Frame Size	Displays the frame size for the specified video format. Frame size refers to the dimensions of a digital image in Avid DS Nitris. It is measured in pixels.
Field Dominance	Displays the field dominance setting for the specified video format. Field dominance determines the order in which odd and even fields occur in time.

Options	Description
Color Model	Indicates the color model used to describe the color components of your images. The color model is dependent on the selected video format.
Levels	Displays the levels for the specified format:video or graphics. For more information, see the Input Levels option in "Media Capture Settings" on page 1759.
Aspect Ratio	Displays the aspect ratio of the specified video format. Aspect ratio is the numerical ratio of picture width to height. The standard aspect ratio for standard video and television is 4:3 and is 16:9 for HD *The aspect ratio is only adjustable when the Format is set to Custom.*
Pixel Ratio	Displays the pixel ratio for the specified video format. Pixel ratio refers to the numerical ratio of pixel width to height. The standard pixel ratio for an NTSC 4/3 image is 0.9 and a PAL 4/3 image is 1.07, and for an HD image is 1.0.
Processing	
Precision	Choose the bit depth at which your effects will be processed. Some effects are capable of up to 32-bit precision. Those that are not capable of the precision level that you set, will be processed at the closest bit depth supported for that effect.
Timecode	Lets you specify the starting timecode of the timeline and set the timecode format.
Timeline Start	Specifies the starting timecode of the timeline.
Timecode Format	Certain video formats let you display timecode in drop frame or non-drop frame format. Drop frame timecode eliminates two frames every minute (except for the tenth minute) of SMPTE timecode. This option does not affect the actual frame rate of the sequence; it only modifies the timecode display.
DF (drop frame)	Displays the timecode in drop frame format
NDF (non drop frame)	Displays the timecode in non-drop frame format

Options	Description
Tracks	Lets you specify the number of tracks and type of tracks to be displayed in the timeline when you create a new sequence.
Video	Specifies the default number of video tracks to display when you create a new sequence.
Background	Specifies the default number of background tracks to display when you create a new sequence.
Audio	Specifies the default number of audio tracks to display when you create a new sequence and the default format for audio tracks.
Force Premultiplied Output	(Video tracks only) When this option is selected, the bottommost layer of your composite is composited over black. This option should not be selected if you are using the bottommost layer as your background. *If you select this option, some effects could no longer be real-time playable.*
Downconversion	Specifies the HD and SD output formats through the Avid Nitris DNA.
HD Output	The HD format you want to output in the Avid DS viewer. Native represents the video format of the current sequence. *When working with a film sequence in Real-time Proxy resolution, this format can also be output to the external monitor.*
SD Output	The SD format you want to output in the Avid DS viewer—see "Downconverted Output Formats and Sync Sources" in the Help.
Storage Settings	Specifies the working video resolution and whether the sequence uses uncompressed or compressed material. You can change these settings at any time to switch between available qualities.

Options	Description
Resolution	Sets the working resolution; Full, Half, Quarter, or Real-time Proxy. This controls the default resolution at which your media is processed (for example, for effects, transitions, layers, etc.) and also affects how media is displayed in the viewer and/or external monitor. To speed up processing time, use a low resolution setting. *The Nitris DNA workstation supports Full and Real-time Proxy resolution.* *Half or Quarter resolution is available when working in an HD sequence on non-Avid Nitris DNA workstations only.* For a full explanation of Resolution, Bit-depth and Compression, see About Video Quality.
Full	Processes and displays effects at full resolution.
Real-Time Proxy	Only available on Avid Nitris DNA workstations when working with film-based formats. Processes and displays effects in real-time but at a slightly lower resolution (actually HD resolution).
Half	Only available on *non*-Avid DS Nitris DNA workstations when working in HD format. Processes and displays effects at half resolution.
Quarter	Only available on *non*-Avid DS Nitris DNA workstations when working in HD format. Processes and displays effects at quarter resolution.
Color Space	Determines how the color components of the video signal are stored on disk after processing. There are two formats available depending on your video format and resolution: YCbCr 4:2:2 and RGB 4:4:4. *For RGB, realtime playback is only available in the Avid DS viewer. However, you can downgrade to YCC to view your media and effects in real-time on the external monitor.*

Options	Description
Bit-Depth	Sets the bit depth at which the video media files will be stored on disk after processing. The bit depth choices depend on your hardware, and your resolution and color space settings.
Compression	Sets the compression ratio used to generate cache files at various compression ratios—see "Avid DNxHD Compressions" on page 2021 and "JFIF Compressions" on page 2022. You can also select Uncompressed.
Uncompressed	No compression
DNxHD	Various compression ratios available.
DV	DV compression available during processing and output to tfile. (Not available during capture).
JFIF	Compressions used in Avid editing products
MPEG2IMX	MPEG compression available during processing and output to tfile. (Not available during capture).
If a clip has no media with the above settings:	
Display a "Media not available" message	Displays the message "Media not available" in the viewer when the clips in the current sequence do not match the current settings.
Use the closest media format available	Uses any available media when the clips in the current sequence do not match these settings.
Quarter resolution working mode	(Available on *non*-Avid Nitris DNA workstations only) On workstations with lower processing speeds, you can work with HD media at quarter resolution so that you can play back real-time effects in Quarter resolution without processing them first. This option is not available on Avid Nitris DNA workstations since you can work at Full resolution with HD media.

Options	Description
Enable real-time effects	(Available on *non*-Avid Nitris DNA workstations only) Lets you play back real-time effects when working with quarter resolution HD media. *You will not be able to play back any full and half resolution media and caches unless you process them at quarter resolution.*
Enable playback of mixed resolution media/caches	(Available on *non*-Avid Nitris DNA workstations only) When working in quarter resolution mode, lets you play back full, half, or quarter resolution media and caches at the same time. If this option is selected, however, you cannot play back real-time effects.
Audio Settings	Lets you define the audio preferences for the project.
Sample Rate	Lets you set the desired sample rate for the sequence. By default, it is set to the highest sample rate supported by your hardware. The more bits you have, the more precisely you can represent the sample amplitude. Audio material captured at this rate can be used directly in the new sequence. Material with a different sample rate must undergo a sample rate conversion.
Bit Depth	Sets the number of bits per audio sample. The more bits you have, the more accurately you can represent the amplitude at that point in time.
Mixer Configuration	Determines the number and type of outputs displayed on the mixer
Mono	Displays one output strip
Stereo	Displays two output strips: left and right
Quadraphonic	Displays four output strips: left, right, left rear, and right rear
LCRS	Displays four output strips: left, center, right, and surround
4 Stream	Displays four output strips
5.1	Displays six surround sound output strips: left, right, center, LFE, left surround, and right surround

Options	Description
6.1	Displays seven surround sound output strips: left, right, center, LFE, surround center, side left, and side right
7.1	Displays eight surround sound output strips: left, right, center, LFE, left surround, right surround, left center, and right center
8 Stream	Displays eight output strips
SR Conversion Quality	Determines the quality at which the audio sample rate is converted. When set closer to Fast, the conversion speeds up, but quality is compromised. When set closer to High, the quality increases, but conversion takes longer.
Import audio into separate mono tracks	When capturing an audio file, creates separate files and separate tracks for each audio stream. Select this option if you are sharing MXF media with other Avid editing applications. By default, Avid DS Nitris creates a single .wav or MXF file and track from a multi-stream audio file. This is the most efficient way to work with audio files in Avid DS Nitris. However, because other Avid applications cannot link to a multi-stream file, you need to select this option so that Avid DS Nitris creates multiple single-stream files.
Default DVE Quality	Sets the default DVE quality mode.
Nearest	Applies no filter to the image (this is the fastest mode). Pixels are skipped when scaling down and duplicated when scaling up.
Bilinear	Applies bilinear interpolation when scaling up and some filtering when scaling down. It is useful when you scale an image up, which improves the scaled image's quality. This is the default setting.
Bicubic	Applies bicubic interpolation when scaling up and no filtering when scaling down. Produces a higher quality image than the Bilinear option when you scale an image up.
Multi Tap	Applies a larger filter than the other options to provide good interpolation and anti-aliasing quality.

Options	Description
Max. Depth of Software RT Processing	Sets the depth level of stacked software real-time effects that you want Avid DS to process. The default of -1 indicates that no software real-time effects will be processed.

Open Sequence Dialog Box

The Open Sequence dialog box lets you open a previously saved sequence.

To access the Open Sequence dialog box:

- Select **File** > **Open** > **Sequence**.

Use this	To
Avid Explorer Tools	Navigate through your bins to locate the desired sequence to open.
Bin Tools	Change the way the contents of the bin are displayed. These tools appear for all bin contents.
File Name	Type the name of the desired sequence
File Types	Select Sequence Files (*.segment)

New Sequence Dialog Box

The New Sequence dialog box lets you define the video, audio, and working video settings for your new sequence. You can also specify the timecode at which the timeline will start, as well as the number of tracks that are displayed when you create a new sequence.

To access the New Sequence dialog box:

- Select **File** > **New** > **DS Sequence**.

These settings are based on project settings.

Option	Description
Video Settings	Lets you set the video settings for the new sequence
Format	Sets the format for the new sequence. When you select a video format other than Custom, Avid DS Nitris automatically sets frame rate, frame size, field dominance, aspect ratio, and pixel ratio based on the format you chose—see Understanding Video Settings. If the format you select is not hardware supported, it will have a dot in front of the name. **The format cannot be changed after you create the sequence.** *For HD sequences, you can use 720p, 1080p, 1080i video formats.*
Frame Rate	Displays the number of frames per second for the specified video format. *The frame rate is only adjustable when the Format is set to Custom.*
Frame Size	Displays the frame size for the specified video format. Frame size refers to the dimensions of a digital image in Avid DS Nitris. It is measured in Avid DS Nitris units (DSU). *The frame size is only adjustable when the Format is set to Custom.*
Field Dominance	Displays the field dominance setting for the specified video format. Field dominance determines the order in which odd and even fields occur in time. *The field dominance is only adjustable when the Format is set to Custom.*

Option	Description
Color Model	Indicates the color model used to describe the color components of your images. The color model is dependent on the selected video format.
Default Levels	Displays the levels for the specified format:video or graphics. For more information, see the Input Levels option in Media Capture Settings.
Aspect Ratio	Displays the aspect ratio of the specified video format. Aspect ratio is the numerical ratio of picture width to height. The standard aspect ratio for video and television is 4:3. *The aspect ratio is only adjustable when the Format is set to Custom.*
Pixel Ratio	Displays the pixel ratio for the specified video format. Pixel ratio refers to the numerical ratio of pixel width to height. The standard pixel ratio for an NTSC 4/3 image is 0.9 and a PAL 4/3 image is 1.07.
Processing	
Precision	Choose the bit depth at which your effects will be processed. Some effects are capable of up to 32-bit precision. Those that are not capable of the precision level that you set, will be processed at the closest supported bit depth for that effect.
Timecode	Lets you change the starting timecode of the timeline and set the timecode format
Timeline Start	Specifies the starting timecode of the timeline
Timecode Format	Certain video formats let you display timecode in drop frame or non-drop frame format. Drop frame timecode eliminates two frames every minute (except for the tenth minute) of SMPTE timecode. This option does not affect the actual frame rate of the sequence; it only modifies the timecode display.
DF (drop frame)	Displays the timecode in drop frame format
NDF (non drop frame)	Displays the timecode in non-drop frame format

Option	Description
Tracks	Lets you specify the number of tracks and type of tracks to be displayed on the timeline when you create a new sequence
Video	Specifies the default number of video tracks to display when you create a new sequence
Background	Specifies the default number of background tracks to display when you create a new sequence
Audio	Specifies the default number of audio tracks to display when you create a new sequence and the default format for audio tracks
Force Premultiplied Output	(Video tracks only) When this option is selected, the bottommost layer of your composite is premultiplied. Premultiplication multiplies the RGB channels with the alpha channel. This option should not be selected if you are using the bottommost layer as your background. *If you select this option, all effects will no longer be real-time playable.*
Downconversion	Specifies output for HD playback and SD downconvert simultaneously through the Avid Nitris DNA.
HD Output	The HD format you want to output. Native represents the video format of the current sequence.
SD Output	The SD format you want to output—see "Downconverted Output Formats and Sync Sources" in the Help.
Storage Settings	Lets you specify the working video resolution, color space, and bit depth, and whether the sequence uses uncompressed or compressed material. You can change these settings at any time to switch between available media qualities.

Option	Description
Resolution	Sets the working resolution; Full, Half, Quarter, or Real-time Proxy. This controls the default resolution at which your media is processed (for example, for effects, transitions, layers, etc.) and also affects how media is displayed in the viewer and/or external monitor. To speed up processing time, use a low resolution setting. *The Nitris DNA workstation supports Full and Real-time Proxy resolution.* *Half or Quarter resolution is available when working in an HD sequence on non-Avid Nitris DNA workstations only.* For a full explanation of Resolution, Bit-depth and Compression, see About Video Quality.
Full	Processes and displays effects at full resolution.
Real-Time Proxy	Only available on Avid Nitris DNA workstations when working with film-based formats. Processes and displays effects in real-time but at a slightly lower resolution (actually HD resolution).
Half	Only available on *non*-Avid DS Nitris DNA workstations when working in HD format. Processes and displays effects at half resolution.
Quarter	Only available on *non*-Avid DS Nitris DNA workstations when working in HD format. Processes and displays effects at quarter resolution.
Color Space	Determines how the color components of the video signal are stored on disk after processing. There are two formats available depending on your video format and resolution: YCbCr 4:2:2 and RGB 4:4:4.
Bit-Depth	Sets the bit depth at which the video media files will be stored on disk after processing. The bit depth choices depend on your hardware, and your resolution and color space settings.

Option	Description
Compression	Sets the compression ratio used to generate cache files at various compression ratios—see "Avid DNxHD Compressions" on page 2021 and "JFIF Compressions" on page 2022. You can also select Uncompressed.
Uncompressed	No compression
DNxHD	Various compression ratios available.
DV	DV compression available during processing and output to tfile. (Not available during capture).
JFIF	Compressions used in Avid editing products
MPEG2IMX	MPEG compression available during processing and output to tfile. (Not available during capture).
If a clip has no media with the above settings:	
Display a "Media not available" message	Displays the message "Media not available" in the viewer when the clips in the current sequence do not match the current settings, or when the media is not present. If the media is not present, you must recapture the media using the Capture Settings view.
Use the closest media format available	Uses any available media when the clips in the current sequence do not match these settings. *You can mix different resolutions, but you cannot mix compressed and uncompressed video.*
Quarter resolution working mode	(Available on *non*-Avid Nitris DNA workstations only) On workstations with lower processing speeds, you can work with HD media at quarter resolution so that you can play back real-time effects in Quarter resolution without processing them first. This option is not available on Avid Nitris DNA workstations since you can work at Full resolution with HD media.

Option	Description
Enable real-time effects	(Available on *non*-Avid Nitris DNA workstations only) Lets you play back real-time effects when working with quarter resolution HD media. *You will not be able to play back any full and half resolution media and caches unless you process them at quarter resolution.*
Enable playback of mixed resolution media/caches	(Available on *non*-Avid Nitris DNA workstations only) When working in quarter resolution mode, lets you play back full, half, or quarter resolution media and caches at the same time. If this option is selected, however, you cannot play back real-time effects.
Audio Settings	Lets you define the audio settings for the new sequence.
Sample Rate	Lets you set the desired sample rate for the sequence. By default, it is set to the highest sample rate supported by your hardware. The more bits you have, the more precisely you can represent the sample amplitude. Audio material captured at this rate can be used directly in the new sequence. Material with a different sample rate must undergo a sample rate conversion.
Bit Depth	Sets the number of bits per audio sample. The more bits you have, the more accurately you can represent the amplitude at that point in time.
Mixer Configuration	Determines the number and type of outputs displayed on the mixer.
Mono	Displays one output strip.
Stereo	Displays two output strips: left and right.
Quadraphonic	Displays four output strips: left, right, left rear, and right rear.
LCRS	Displays four output strips: left, center, right, and surround.
4 Stream	Displays four output strips.
5.1	Displays six surround sound output strips: left, right, center, LFE, left surround, and right surround.

Option	Description
6.1	Displays seven surround sound output strips: left, right, center, LFE, surround center, side left, and side right.
7.1	Displays eight surround sound output strips: left, right, center, LFE, left surround, right surround, left center, and right center.
8 Stream	Displays eight output strips.
SR Conversion Quality	Determines the quality at which the audio sample rate is converted. When set closer to Fast, the conversion speeds up, but quality is compromised. When set closer to High, the quality increases, but conversion takes longer.
Import audio into separate mono tracks	When capturing an audio file, creates separate files and separate tracks for each audio stream. Select this option if you are sharing MXF media with other Avid editing applications. By default, Avid DS Nitris creates a single .wav or MXF file and track from a multi-stream audio file. This is the most efficient way to work with audio files in Avid DS Nitris. However, because other Avid applications cannot link to a multi-stream file, you need to select this option so that Avid DS Nitris creates multiple single-stream files.
Default DVE Quality	Sets the default DVE quality mode.
Max. Depth of Software RT Processing	Sets the depth level of stacked software real-time effects that you want Avid DS to process. The default of -1 indicates that no software real-time effects will be processed.

Open Project Dialog Box

The Open Project dialog box lets you open existing projects, create new sequences or projects, delete projects, and manage your project list. This dialog box opens by default when you start Avid DS Nitris, but you can open it any time.

To access the Open Project dialog box:

- Select **File** > **Open** > **Project**.

Option	Description
Select a Project	Displays the paths and names of existing projects
New Project	Opens the New Project dialog box where you can create a new project
Project List	Tools that let you manage your list of projects
Add Project Root	Opens a dialog box that lets you add a folder in which you can create projects. The folder is displayed as a network path. You can also select an existing folder where projects are located. All projects in this folder are added to the project list.
Remove Project Root	Removes the selected project root from the list
Hide Project	Hides the selected project. Show the project again by using the Add Project button to restore the project root.
Refresh	Refreshes the project list. This is useful if your list displays projects in your workgroup, and someone in your workgroup on another system has created or deleted a project.
Change Workgroup	Lets you select a project from another workgroup and add it to your workgroup. The project is removed from the original workgroup, because it cannot belong to more than one workgroup at a time. (This is also required if you change your workgroup name).
Delete Project	Deletes the selected project files and associated media from your disk
Select a Sequence	Displays the sequences of the selected project
New Sequence	Opens the New Sequence dialog box, where you can create a new sequence
Open Sequence	Opens the selected project and sequence
Delete Sequence	Deletes the selected sequence from your disk
Display projects on this workstation only	Displays only the projects on your workstation

Option	Description
Display projects on all workstations in this workgroup *workgroup_name*	Displays projects on all workstations in your workgroup

Processing Options Dialog Box

The Processing Options dialog box lets you specify how Avid DS Nitris should process the current timeline or selected objects on the timeline. You can set the mode, granularity, and resolution at which the effects are to be processed.

To access the Processing Options dialog box, do one of the following:

- On the NLE Tools toolbar in the Editing layout, select **Processing** > **Process**
- In the timeline controls, click the Process button (The Process button is only accessible if there are any effects on the timeline that need processing).

Option	Description
Process	Lets you specify the objects you want to process. Processing computes any effect, transition, layer, composite, or container clip in your sequence, so that it can be viewed in real time during playback. The results of the processing is stored in a new media file (cache) so that your source media remains unaltered.
Current Timeline	Processes all objects on the current timeline. This ensures real-time playback.
Duration of Selection	Processes selected areas on the timeline, including clips, effect bars, tracks, track effects, track regions, timeline effects, and transitions. Processing takes place from the current timeline down to the deepest level necessary for playback. This ensures real-time playback of the selected regions of the timeline.

Option	Description
Selected Object	Processes only the selected objects, including clips, effect bars, tracks (when the track button is selected), layers, and transitions. Useful when working on composites because you can limit processing to a specific clip or container clip on the timeline. *Since this option limits processing to the selected object, real-time playback is not always possible. To view the processed result of a clip or container clip in real time, solo the corresponding track.*
Cache List	Processes only the selected cache node(s). Only the objects below the cache node(s) will be processed.
Include Real-Time Effects	Processes real-time effects that may be too complex for your hardware to process and play back in real time. Processing creates a cache on disk for the effects. If you are not using a Nitris DNA workstation, you should always select this option before the final output of your sequence to guarantee that no frames will be skipped.
Potentially Real-time Effects (Yellow)	Process effects even if they have the potential to be played in real-time.
Guaranteed Real-time Effects (Green)	Process effects even if they are guaranteed to be played in real-time. *Hardware-based real-time effects are only available on Nitris DNA workstations.*
Process Mode	Lets you select the processing mode. In both Minimal and Complete mode, effects are processed down to the deepest level necessary for real-time playback of the current timeline. Reprocessing occurs only on the effect properties that have changed since the last time you processed the clips.

Option	Description
Minimal	Selectively processes any effect, transition, container clip, or layer at the current level. Creates only one cache at the current level, so that disk space is conserved. *When this option is selected, any subsequent processing at other levels may take longer. The system must regenerate caches at this level and for any changed effects, transitions, or layers that this option precludes.*
Complete	Processes any effect, transition, or layer at all levels. This creates and preserves the caches at each level. Use this option after you've done a significant amount of work. Any subsequent changes you make require less processing time because only the changed effects or layers are reprocessed. This option initially takes more time and disk space, but is more efficient when making changes. *When compositing, a cache is created for each layer in the composite. Use this option to optimize subsequent processing time and speed.*
Options	
Type	Lets you select the detail level of processing. Clips can be processed by frames or fields, depending on the type of effect you want to process. Use frame-based processing for effects that are applied to individual pixels. Use field-based processing for motion paths (animated movements) because it produces smoother motion.
Frame Processing	All processing, including animation, is frame-based. This option processes the entire frame (both fields together) and should be used with frame-based material. This is faster than field-based processing, but gives lower quality results. *You can attain good processing results for effects applied to pixels, such as blur and color correction.*

Option	Description
Field Processing	All processing, including animation, is field-based. This option processes odd and even fields separately. This is slower than frame-based processing, but gives higher-quality results. Use field-based processing for animated effects, such as dissolves, fades, and motion paths.
Precision	Choose the bit depth at which your effects will be processed. Some effects are capable of up to 32-bit float precision. Those that are not capable of the precision level that you set, will be processed at the closest available bit depth.
Dither when creating video caches of lower precision	Adds dithering (at each cache level) before converting processed images to a lower bit depth. e.g. when you set the precision at 16-bit but the media was captured at 10-bit. *When outputting images processed in real-time, the dithering will be done only once at the very last level (top level?)*
Storage Settings	The quality at which your processed video caches will be stored.
Resolution	Sets the resolution to be used during processing. This controls the default resolution at which your media is processed (for example, for effects, transitions, layers, etc.) and also affects how media is displayed in the viewer. ***Tip:*** *To speed up processing time, use a low resolution setting.*
Color Space	Determines how the color components of the video signal are stored on disk after processing. There are two formats available depending on your video format and resolution: YCbCr 4:2:2 and RGB 4:4:4.
Bit-Depth	Sets the bit depth at which the video media files will be stored on disk after processing. The bit depth choices depend on your hardware, and your resolution and color space settings.
Location	Lets you specify the location and available disk space of your media storage

Option	Description
Process Remotely	Lets you process your effects, transitions, and/or composites on an RP workstation in your workgroup environment. Note that when in the you are in the Source Timeline mode, do not remote process clips on the timeline. You may be able to send the request but the processing will not be performed. *Avid DS Nitris automatically routes you processing request to the first available RP workstation in your workgroup.*
Process Video To	Specifies a destination storage device for the processed video media (cache). You can choose from a list of designated video storage devices. The storage devices are specified when you set up your workgroup environment.
Time Available	Displays the time remaining on the storage device for processing and saving video cache files with the specified resolution and compression factor.
Process Audio To	Specifies a destination storage device for the processed audio media (cache). You can choose from a list of designated audio storage devices. The storage devices are specified when you set up your workgroup environment.
Time Available (per stream)	Displays the time remaining on the storage device for processing and saving audio cache files with the specified resolution and compression factor
Notification	Options for receiving notification that processing is complete.
Send email to	Tells the system to send an email notification when a remote processing job is complete. Specify the email address to which the notification is sent.
Play sound	Lets you specify a sound when video processing is complete. You can specify any 8-bit or 16-bit .wav file on your system.

Option	Description
Update Viewer While Processing	When selected, displays the frames in the viewer as they are processed *This option has no effect on the processing time.*

Avid DNxHD Compressions

Avid DNxHD™ is a 10- and 8-bit HD encoding technology that delivers mastering-quality HD media with storage bandwidth and capacity requirements similar to those of uncompressed standard-definition (SD) files.

These compression rates are also available when working in a film sequence using Real-Time Proxy resolution.

Unlike uncompressed HD media, which has bandwidth requirements of nearly 1.2 gigabits per second (Gbps), Avid DNxHD operates in a 4:2:2 color space at much lower, more efficient data rates. You can select from the following compressions when capturing HD media:

- For 1080i/60, 1080i/59.94, 1080PsF/30, 1080PsF/29.97, 720p/60, 720p/59.94:
  - DNxHD 220 10-bit (data rate approximately 220 Mbits/sec)
  - DNxHD 220 8-bit (data rate approximately220 Mbits/sec)
  - DNxHD 145 8-bit (data rate approximately145 Mbits/sec)
- For 1080i/50, 1080PsF/25:
  - DNxHD 18510-bit (data rate approximately185 Mbits/sec)
  - DNxHD 185 8-bit (data rate approximately185 Mbits/sec)
  - DNxHD 120 8-bit (data rate approximately120 Mbits/sec
- For 1080PsF/24, 1080PsF/23.97:
  - DNxHD 17510-bit (data rate approximately175 Mbits/sec)
  - DNxHD 175 8-bit (data rate approximately175 Mbits/sec)
  - DNxHD 115 8-bit (data rate approximately115 Mbits/sec)

Like uncompressed HD, these formats let you play multiple streams of full-resolution effects, such as color correction, DVEs, transitions, and titles, in real time. Avid DNxHD encoding creates either .gen files or Material Exchange Format (MXF) files. For more information, see "Sharing MXF Media" in the Help.

JFIF Compressions

Avid DS Nitris uses JFIF (JPEG File Interchange Format) technology to create compressed, standard-definition media. JFIF compressions comply with the ISO-JPEG interchange format and the ITU-R 601 standard. The compressions are similar to those used in other Avid editing products:

Single-field	Two-field	Uncompressed
15:1s	20:1	1:1
4:1s	10:1	
2:1s	3:1	
	2:1	

JFIF encoding creates either .gen files or Material Exchange Format (MXF) files. For more information, see "Sharing MXF Media" in the Help.

Purge Dialog Box

The Purge dialog box lets you specify the types of media you can delete. You can delete unused media, source and/or cache media, as well as maximize storage space on disk.

To access the Purge dialog box, do one of the following:

- Select **Data Management** > **Purge Media**.
- Right-click a clip in a bin and select **Purge Media**.

***Tip**: To remove the largest number of unused media files and gain storage space, select the Unreferenced Media option and the Optimize For Maximum Storage Space Recovery option. Note that this is a time-consuming process.*

Option	Description
Display Associated Media For	Lets you choose the area from which media will be purged
Current Sequence	Purges media files that are referenced by the current sequence
Current Project	Purges media files that are referenced by the current project
Unreferenced Media	Purges media files that are not referenced by any clips. This occurs in cases where the clip has been deleted, but its media file is still on disk.
Items Selected in the Avid Explorer	Purges media files that are referenced by clips or sequences selected in the Avid Explorer
Items Selected in the Clip Tray	Purges media files that are referenced by clips or sequences selected in the clip tray
Display Associated Media Except For	Lets you choose an area from which media will be kept
Current Sequence	Purges media files that are not referenced by the current sequence
Items Selected in the Avid Explorer	Purges media files that are not referenced by clips or sequences selected in the Avid Explorer
Items Selected in the Clip Tray	Purges media files that are not referenced by clips or sequences selected in the clip tray
Consider Following Media Types	Lets you choose which type of video files to purge
Uncompressed Video	Purges video media files that were captured with no compression
Compressed Video	Purges video media files that were captured using compression
Video Caches	Purges video media files that were generated when you processed effects, graphics, or composites
Audio (all sampling rates)	Purges all captured audio media files regardless of the sampling rate

Option	Description
Audio Caches	Purges processed audio media files
Keep Media Used In	Lets you specify whether you want to keep media used elsewhere
Other Master Clips	Preserves media that is used in other master clips
Other Sequences	Preserves media that is used in other sequences
Other Projects	Preserves media that is used in other project sequences
Optimize For	Lets you choose the level of detail for the purge search
Quick Storage Recovery	Performs a high-level surface pass that deletes only the media that is not referenced by any of the selected clips or sequences. *This option is quick and does not split up media files to get rid of unused portions of clips.*
Maximum Storage Recovery	Performs a deep, low-level pass that splits up media files and keeps only the portions of media being used. It also maximizes the available storage space on the disk, but increases the amount of time the system uses to purge media. Use this option only when you have little disk space left.
Also Keep X Frames Heads and Tails with Preserved Media	Lets you create a buffer at the head and tail of each clip. When you use the Except For option from the Display Associated Media list, you are actually preserving certain clips. This option lets you specify the number of frames you want to keep before and after each clip. By default, 15 frames are kept.
Refresh Purge List	Displays the media files to be purged

Option	Description
Purge List	A list of the media files to be purged that contains the following headings: Name, Type, Quality, Creation Date, Duration to Purge, and Size. Individual files can be selected from the list to be purged. For an explanation of the quality information, see “Media Property Page (Media Properties)” on page 1910. The Quality description for Purge includes the precision at which a cache was processed (8 Bits, 16 Bits, 32 Bits Float). Exact Precision indicates that the cache was processed in Exact Match mode (with the “Display a 'media not available' message” option selected in the Sequence Preferences) and that all caches at the current level and below were processed with this same exact precision.
Video Disk Space Available	Displays the amount of space left on your video storage device before and after the items are purged
Audio Disk Space Available	Displays the amount of space left on your audio storage device before and after the items are purged
Purge	Begins purging the selected media

Sample Rate Conversion Options

The Sample Rate Conversion Options dialog box lets you convert the audio sample rate of the current timeline or selected objects on the timeline to the sample rate of the current sequence.

Option	Description
Process	Lets you specify the objects you want to convert. Processing converts any audio clips in your sequence to the current sample rate. The result of the processing is stored in a cache file, so that your source media remains unaltered.
Current Timeline	Converts the entire timeline

Option	Description
Selected Object	Converts only the selected objects. Objects include clips, container clips, and tracks (when the track button is selected). This is useful when you want to process a specific clip or container clip on the timeline. *Since this option limits processing to the selected objects, a playable sequence is not always produced. To hear the processed result of a clip, container clip, or track, solo the corresponding track.*
Process Mode	There are two processing modes in Avid DS Nitris: Minimal and Complete. In both modes, audio clips are processed down to the deepest level necessary for audio playback on the current timeline.
Minimal: Only What Is Necessary to Play	Selectively processes any audio clip, container clip, or track at the current level. This option creates only one cache at the current level, so that disk space is conserved.
Complete: Everything at All Levels	Processes any audio clip, container clip, or track at all levels. This option also creates and preserves the caches at each level.

Save Sequence Dialog Box

The Save Sequence dialog box lets you save your sequence in a desired location.

Use this	To
Bin Tools (File System)	Navigate through and manage the contents of your bins.
Bin Tools (Bottom Bar)	Change the way the contents of the bin are displayed. These tools appear for all bin contents.
File Name	Type a name for your preset.
File Types	Select a file type for your preset.

Save Snapshot Dialog Box

The Save Snapshot dialog box lets you save what is currently displayed in the viewer as a clip in a desired location.

To access the Save Snapshot dialog box:

- From the NLE Tools toolbar, select **Generate** > **Snapshot to Clip**.

Use this	To
Avid Explorer Tools	Navigate through and manage the contents of your bins.
Blend Property Editor	Change the way the contents of the bin are displayed. These tools appear for all bin contents.
File Name	Type a name for your preset.
File Types	Choose a file type for your preset.

Sequence Preferences Dialog Box

The Sequence Preferences dialog box lets you determine how the files in a project are recorded and output to tape for your program. The types of properties you can set include the resolution, compression, frame, and sample rate.

The properties you set in the Sequence Preferences dialog box may differ from the property settings of the originally captured media.

To access the Sequence Preferences dialog box:

- Select **File** > **Sequence Preferences**.

Video Property Page (Sequence Preferences)

The Video property page displays the video preferences for the sequence when it was created, and lets you set the working video resolution, the compression ratio, and the processing mode.

Option	Description
Video Settings	Displays the video format, frame rate, frame size, pixel ratio, field dominance, and pixel format of your sequence
Format	Displays the video format that was specified when the sequence was first created
Frame Rate	Displays the number of frames per second for the specified video format
Frame Size	Displays the frame size for the specified video format. Frame size is the dimensions of a digital image in Avid DS Nitris. It is measured in Avid DS Nitris units (DSU).
Pixel Ratio	Displays the pixel ratio for the specified video format. Pixel ratio refers to the numerical ratio of pixel height to width. The standard pixel ratio for an NTSC 4/3 image is 0.9 and PAL 4/3 is 1.07.
Field Dominance	Displays the field dominance setting for the specified video format. Field dominance determines the order in which odd and even fields occur in time.
Color Model	Indicates the color model used to describe the color components of your images. The color model is dependent on the selected video format.
Levels	Displays the levels for the specified format:video or graphics. For more information, see the Input Levels option in Media Capture Settings.
Processing	
Type	Determines the way Avid DS Nitris processes material. Lets you select either field or frame-based processing. You can also choose how you want Avid DS Nitris to handle unprocessed effects during playback.
Field Processing	All processing, including animation, is field-based. This option processes odd and even fields separately. This is slower than frame-based processing, but gives higher-quality results. Use field-based processing for animated effects, such as dissolves, fades, and motion paths.

Option	Description
Frame Processing	All processing, including animation, is frame-based. This option processes the entire frame (both fields together) and should be used with frame-based material. This is faster than field-based processing, but gives lower quality results. *You can attain good processing results for effects applied to pixels, such as blur and color correction.*
Precision	Choose the bit depth at which your effects will be processed. Some effects are capable of up to 32-bit precision. Those that are not capable of the precision level that you set, will be processed at the closest supported bit depth for that effect.
Dither when converting to lower precision	Adds dithering (at each cache level) before converting processed images to a lower bit depth. e.g. when you set the precision at 16-bit but the media was captured at 10-bit. *When outputting images processed in real-time, the dithering will be done only once at the very last level (top level?)*
Display source material when processing is needed	Displays source material when it encounters unprocessed effects during playback. By default, this option is not selected and Avid DS Nitris displays the message “Needs processing” in the viewer. *This option is not available when working in an HD sequence.*
Conversion Mode	Determines how presets and media are converted from one video format to another
Presets	Determines how presets are converted from one video format to another. These settings can be changed at any time.
Scale to Fit	Scales the preset in both the X and Y axes to fit the sequence settings, such as 16:9 and 4:3. This option does not retain the aspect ratio of the original preset.

Option	Description
Scale, Keep Aspect Ratio	Scales the preset in both the X and Y axes to fit the sequence settings, but retains the ratio between width and height. It takes the larger axis of the preset and scales it to fit in the viewer. Then it centers the preset on the other axis.
Center, Keep Original Size	Centers the preset in the viewer along both the X and Y axes. This option does not modify the original size of the preset.
Fit X-axis, Keep Aspect Ratio	Scales the preset in the X-axis to fit the sequence settings, then scales the preset along the Y-axis to keep the ratio between width and height intact. If the resulting preset is larger or smaller than the sequence settings, it is centered along the Y-axis.
Fit Y-axis, Keep Aspect Ratio	Scales the preset in the Y-axis to fit the sequence settings, then scales the preset along the X-axis to keep the ratio between width and height intact. If the resulting preset is larger or smaller than the sequence settings, it is centered along the X-axis.
Media	Determines how media is converted from one video format to another. These settings can be changed at any time. Once you choose a setting, it is applied to all subsequent master clips that are added to the timeline.
Scale To Fit	Scales the media in both the X and Y axes to fit the sequence settings, such as 16:9 and 4:3. This option does not maintain the aspect ratio of the original media.
Scale, Keep Aspect Ratio	Scales the media in both the X and Y axes to fit the sequence settings, but retains the ratio between width and height. It takes the larger axis of the image and scales it to fit in the viewer. Then it centers the image on the other axis, creating black bands on both sides. An example of this conversion mode would be the Letterbox format which converts film to video.
Center, Keep Original Size	Centers the media in the viewer along both the X and Y axes. This option does not modify the original size of the media.
Keep Original Size & Position	Displays the media in the viewer without modifying the original size or position of the media

Option	Description
Fit X-axis, Keep Aspect Ratio	Scales the media in the X-axis to fit the sequence settings, then scales the image along the Y-axis to keep the ratio between width and height intact. If the resulting image is larger or smaller than the sequence settings, it is centered along the Y-axis.
Fit Y-axis, Keep Aspect Ratio	Scales the media in the Y-axis to fit the sequence settings, then scales the image along the X-axis to keep the ratio between width and height intact. If the resulting image is larger or smaller than the sequence settings, it is centered along the X-axis.
Downconversion	Specifies output for HD playback and SD downconvert simultaneously through the Avid Nitris DNA.
HD Output	The HD format you want to output. Native represents the video format of the current sequence.
SD Output	The SD format you want to output—see "Downconverted Output Formats and Sync Sources" in the Help.
Storage Settings	The quality at which your processed video caches will be stored. **These settings affect only the working resolution and what is shown while you work. They have no effect on the capture resolution.**
Resolution	Sets the working resolution; Full, Half, Quarter, or Real-time Proxy. This controls the default resolution at which your media is processed (for example, for effects, transitions, layers, etc.) and also affects how media is displayed in the viewer and/or external monitor. To speed up processing time, use a low resolution setting. *The Nitris DNA workstation supports Full and Real-time Proxy resolution.* *Half or Quarter resolution is available when working in an HD sequence on non-Avid Nitris DNA workstations only.* For a full explanation of Resolution, Bit-depth and Compression, see About Video Quality.

Option	Description
Full	Processes and displays effects at full resolution.
Real-Time Proxy	Only available on Avid Nitris DNA workstations when working with film-based formats. Processes and displays effects in real-time but at a slightly lower resolution (actually HD resolution).
Half	Only available on *non*-Avid DS Nitris DNA workstations when working in HD format. Processes and displays effects at half resolution.
Quarter	Only available on *non*-Avid DS Nitris DNA workstations when working in HD format. Processes and displays effects at quarter resolution.
Color Space	Determines how the color components of the video signal are stored on disk after processing. There are two formats available depending on your video format and resolution: YCbCr 4:2:2 and RGB 4:4:4.
Bit-Depth	Sets the bit depth at which the video media files will be stored on disk after processing. The bit depth choices depend on your hardware, and your resolution and color space settings.
Quarter resolution working mode	(Available on *non*-Avid Nitris DNA workstations only) On workstations with lower processing speeds, you can work with HD media at quarter resolution so that you can play back real-time effects in Quarter resolution without processing them first. This option is not available on Avid Nitris DNA workstations since you can work at Full resolution with HD media.
Enable real-time effects	(Available on *non*-Avid Nitris DNA workstations only) Lets you play back real-time effects when working with quarter resolution HD media. *You will not be able to play back any full and half resolution media and caches unless you process them at quarter resolution.*

Option	Description
Enable playback of mixed resolution media/caches	(Available on *non*-Avid Nitris DNA workstations only) When working in quarter resolution mode, lets you play back full, half, or quarter resolution media and caches at the same time. If this option is selected, however, you cannot play back real-time effects.
Compression	Sets the compression ratio used to generate cache files at various compression ratios—see "Avid DNxHD Compressions" on page 2021 and "JFIF Compressions" on page 2022. You can also select Uncompressed.
Uncompressed	No compression
DNxHD	Various compression ratios available.
DV	DV compression available during processing and output to tfile. (Not available during capture).
JFIF	Compressions used in Avid editing products
MPEG2IMX	MPEG compression available during processing and output to tfile. (Not available during capture).
If a clip has no media with the above settings:	
Display a "Media not available" message	Displays the message "Media not available" in the viewer when the clips in the current sequence do not match these settings, or when the media is not present. If the media is not present, you must recapture the media using the Capture Settings view.
Use the closest media format available	Uses whatever media is available when the clips in the current sequence do not match the current settings. *You can mix different resolutions, but you cannot mix compressed and uncompressed video.*

Option	Description
Force Premultiplied Output	(Video tracks only) When this option is selected, the bottommost layer of your composite is premultiplied. Premultiplication multiplies the RGB channels with the alpha channel. This option should not be selected if you are using the bottommost layer as your background. *If you select this option, all effects will no longer be real-time playable.*
Default DVE Quality	Sets the default DVE quality mode.
Max. Depth of Software RT Processing	Sets the depth level of stacked software real-time effects that you want Avid DS to process. The default of -1 indicates that no software real-time effects will be processed.

Audio Property Page (Sequence Preferences)

The Audio property page displays information on the installed audio hardware and the audio preferences that were set when the sequence was created.

Option	Description
Audio Hardware	Displays the type of audio hardware installed
Manufacturer	Manufacturer name of the hardware installed
Driver Version	Current version of the audio hardware driver
Audio Preferences	Displays the audio sample rate and bit depth, and lets you set the audio conversion method
Sample Rate	Sample rate of the currently opened sequence. This value is set when the sequence is first created.
Bit Depth	Sets the number of bits per audio sample. The more bits you have, the more accurately you can represent the amplitude at that point in time.
Sample Rate Conversion	Lets you determine if and how audio clips with sample rates different than the current sequence are converted when dropped on the timeline

Option	Description
Conversion On Drop	When an audio clip is placed on the timeline, automatic sample rate conversion is performed if the clip's sample rate differs from the sequence's sample rate.
Confirm Each Time	If sample rate conversion is required, a dialog box is displayed asking you to confirm the process. Deselect this option if you don't want a confirmation dialog box to appear every time you import an audio file with a different sample rate into the current sequence.
Conversion Quality	Determines the quality at which your audio sample rate is converted. If you set the Sample Rate Conversion Quality closer to Fast, the conversion will speed up, but you will be compromising on the quality. As you get closer to High, the quality will increase, but the conversion process will take longer.
Import audio into separate mono tracks	When capturing an audio file, creates separate files and separate tracks for each audio stream. Select this option if you are sharing MXF media with other Avid editing applications. By default, Avid DS Nitris creates a single .wav or MXF file and track from a multi-stream audio file. This is the most efficient way to work with audio files in Avid DS Nitris. However, because other Avid applications cannot link to a multi-stream file, you need to select this option so that Avid DS Nitris creates multiple single-stream files.

Sequence View Menu

The Sequence View pop-up menu lets you cut, copy, delete, and save a clip. You can also create container clips and view the properties of the selected clip.

To access the Sequence View menu:

- In the Sequence View, right-click an empty area.

Use this	To
Cut Clip	Remove the selected clip from the sequence and copies it to the Clipboard
Copy Clip	Copy the selected clip to the Clipboard
Delete Clip	Remove the selected clip
Save Clip As Sequence	Save the current clip as a separate sequence. The saved clip will contain all effects applied to it. If the clip is processed, the cache will also be saved.
Create Background Container	Create and open a background container clip holding the selected clip. The Editing layout is displayed.
Create Composite Container	Create and open a one-layer composite container clip holding the selected clip. The Compositing layout is displayed.
Create Audio Container	(Audio clips only) Create and open an audio container clip holding the selected clip. The Editing layout is displayed.
Properties	Open the Clip property editor.

Throttle Manager Service

The Avid Throttle Manager is always installed on a workstation that is not already running Avid DS Nitris. Typically, it is installed on the same workstation as Avid DS Nitris RP.

To start the Throttle Manager:

- On the workstation where the Throttle Manager has been installed, select **Start** > **Programs** > **Avid Products** > **Services** > **Avid Throttle Manager**.

After the Avid Throttle Manager is started, you can use it to manage your storage areas and media more efficiently.

To use the Throttle Manager:

1. Select **Data Management** > **Configure Storages**.
2. Select a Media Indexing service from the list and click the **Change** button.
3. Click the **Change** button again.
4. When the list of storages in the selected Media Indexing service displays, select the storage area that you want the Throttle Manager to manage, and click the **Change** button.
5. In the storage dialog box, select the **Enabling throttling for this Storage** option.

All media on this storage area will now be managed by the Throttle Manager. Do the same for other storage areas that require this service.

When you play any clips on your timeline where the media is on a storage area that is managed by the Throttle Manager, a light for the Throttle Manager will appear on the status bar (position the pointer over the light to view a tooltip with more information).

Red Throttle Service (undefined)	Service is stopped.
Green Throttle Service (connected)	Service is started and in use by the current clip.
Amber Throttle Service (not required)	Service is started but not in use by the current clip.

Cache Menu

The Cache pop-up menu lets you delete a cache bar, move it up or down, process, purge, and save it. Cache bars change color, depending on their status. They're yellow if any part of the time span needs processing, they're blue when they are sent off for remote processing, and they're green if they have an associated cache and are real time playable.

To access the Cache menu:

- On the timeline, right-click a cache bar.

Option	Description
Delete	Deletes the selected cache bar
Bring to Top	Moves the selected cache bar to the top of the stack
Raise	Moves the selected cache bar up one position in the stack
Lower	Moves the selected cache bar down one position in the stack
Push to Bottom	Moves the selected cache bar to the bottom of the stack
Lock in Time	Locks the cache bar at the current timecode
Process	Displays the Processing Options dialog box, which lets you process everything up to the cache bar—see "Processing Options Dialog Box" on page 2016.
Cache to Clip	Displays the Timeline to Clip options dialog box, which lets you create a clip from the cache. This option creates a new clip in the Avid Explorer, but does not automatically replace the cache effect with the new clip.
Add to Cache List	Adds the cache bar to the Cache List view
Purge Selected	Purges only the cache media associated with the selected cache node
Purge Below	Purges any unnecessary cache media that lies below the cache bar, while keeping the cache bar real-time playable. This option is useful if you processed your effects using the Complete option and no longer need the caches at each level any more.
Purge	Purges the cache media associated with the cache bar as well as any cache media that lies below it

Cache Node Menu

The Cache Node pop-up menu lets you delete the cache, process, purge, and save it. Cache nodes change color, depending on their status. They're yellow if they need processing, they're blue when they are sent off for remote processing, and they're green if they have an associated cache and are real-time playable.

To access the Cache Node menu:

- In the Effects Tree view, right-click a cache node.

Option	Description
Process	Displays the Processing Options dialog box, which lets you process everything up to the cache effect—see "Processing Options Dialog Box" on page 2016.
Cache to Clip	Displays the Timeline to Clip options dialog box, which lets you create a clip from the cache. This option creates a new clip in the Avid Explorer.
Purge Selected	Purges only the cache media associated with the selected cache node
Purge Below	Purges any unnecessary cache media that lies below the cache node, while keeping the cache real-time playable. This option is useful if you processed your effects using the Complete option and no longer need the caches at each level anymore.
Purge	Purges the cache media associated with the cache node as well as any cache media that lies below it
Add to Cache List	Adds cache node to Cache List view
Rename Cache	Renames the cache node. This is useful in differentiating several cache nodes in the Effects Tree
Cache Properties	Opens the cache properties dialog box where you can set the processing options.
Cut	Cuts the selected node and places it on the Clipboard

Option	Description
Copy	Copies the selected node and places it on the Clipboard. From the Clipboard, it can be pasted into the same or another tree.
Delete	Removes the selected node
Select Preceding Nodes	Selects all nodes connected before currently selected node. Useful for viewing all nodes that contribute up to the selected node.
Select Subsequent Nodes	Selects all nodes connected after currently selected node. Useful for viewing path defined by nodes that are modifying the output of the selected node.
Fold Minimal	Places selected nodes in a new Effects Tree. The new Effects Tree node only displays the inputs that are directly connected to the effect feeding the new Effects Tree.
Fold All	Places selected nodes in a new Effects Tree. The new Effects Tree node displays all inputs from each effect.
Attract	Pulls all nodes closer to the currently selected node(s). The amount they are pulled depends on the size of the selected node(s).
Repel	Pushes all nodes away from the currently selected node(s). The amount they are pushed depends on the size of the selected node(s).
Use Input Names	Appends the input port's name with the input's name instead of just Input 1, Input 2, etc. For example, if a Blue Green keyer is connected to Input 1 of a Composite node, then the input port name will be displayed as "Input 1- Blue Green Keyer" when you select this option from the Composite node. All input port names will update to reflect the input's name. *You can also select the Use Input Names in the New Nodes box on the Effects Tree page of the User Preferences dialog box if you want all new effects you add to a tree to use the input node's name.*
View	Lets you view the result of the effects up to the cache node

Option	Description
Open Viewer	Displays the output of the selected node in a floating viewer.

Cache Processing Property Page

The Cache property page lets you set the cache's processing options. Caches are best used when you have effects that have long processing times, a stack of effects on the timeline, or when working with large Effects Trees.

Options	Description
Type	Lets you select the detail level of processing. Processing can be performed by frames or fields depending on the type of results you want to achieve. Frame Processing produces frame-based results while Field Processing produces field-based results.
Auto	The "Processing Options" setting will be used.
Frame Processing	All processing, including animation, is frame-based producing frame-based results. This option processes the entire frame (both fields) all together. It should be used with frame-based material.
Field Processing	All processing, including animation, is field-based. This option processes each field separately. Use field-based processing for animated effects, such as dissolves, fades, and motion paths.
Precision	Select the bit depth at which your effects will be processed. If you select Auto, "Processing Options" will be used.

Related Topics

Creating Caches at Any Level

Using Cache Nodes in the Effects Tree

Data Management Menu

The Data Management menu lets you display the Project Manager, Purge dialog box, or Configure Storages.

To access the Data Management menu:

- Select **Data Management**.

Option	Description
Media Tool	Displays the Media Tool. The Media Tool provides tools for viewing and managing the media files of your current project.
Project Manager	Displays the Project Manager view. The Project Manager displays all the projects on your workstation, and lets you archive, restore, or delete these project files and their media.
Purge Media	Displays the Purge dialog box. The Purge dialog box lets you specify the types of media you can delete.
Configure Storages	Displays the Media Storage Configuration dialog box. The Media Storage Configuration dialog box displays all video and audio storages, and Avid Media Indexing Services, that are currently defined for your workstation.
Optimize File Sources	Optimizes the size of the source model file.

Edit View Menu

The Edit View pop-up menu lets you customize the views in a layout.

To access the Edit View menu:

- In Edit Layout mode, right-click any existing or empty view in the layout.

Option	Description
Split Horizontally	Splits the selected view, horizontally, into two separate parts

Option	Description
Split Vertically	Splits the selected view, vertically, into two separate parts
Split Both Ways	Splits the selected view into four separate parts
Add View Switcher	Adds a view switcher to the selected view
Set View	Adds a toolset to the selected view
Single-Instance Views	Adds a view to the selected view that you can only use once in a layout. This command is not available when accessed from a combo view.
Multi-Instance Views	Adds a view to the selected view that you can use multiple times in a layout
Default Combo Views	Adds a default combo view to the selected view. This command is not available when accessed from a combo view.
User Combo Views	Add a combo view that you created to the selected view. This command is not available when accessed from a combo view.
Default Toolbars	Adds a default toolbar to the selected view
User Toolbars	Adds a User toolbar to the selected view
Property Editor	Adds a property editor to the selected view
Large Property Editor	Adds a large property editor to the selected view

Edit Menu

The Edit menu lets you retrace your steps and perform common project-based tasks.

To access the Edit menu:

- Select **Edit**.

Option	Description
Undo	Cancels the last action that you performed. You can perform multiple undos. *You can set the number of steps you can undo in the User Preferences dialog box (General property page).*

Option	Description
Redo	Reapplies the action you previously cancelled with the Undo command
Repeat	Repeats the last action that was performed
Cut	Removes the current selection and places it on the Clipboard
Copy	Duplicates the current selection and places it on the clipboard
Paste	Replaces the current selection with the contents of the clipboard
Clear	Deletes the current selection
Select All	Selects all elements on the active window

The Cut, Copy, and Paste commands are only available when an object is selected in the timeline or viewer.

File Menu

The File menu lets you create a new project, and open, close, or save an existing project. You can also set properties associated with the project, and exit the application.

To access the File menu:

- Select **File**.

Option	Description
New Sequence	Opens a new sequence for this project based on the working properties that you set for the project.
New	Lets you create a new DS sequence or project folder
DS Sequence	Creates a new sequence and lets you set new audio and video settings.

Option	Description
Project	Creates a new project folder by displaying the New Project dialog box in which you can set a name and location for your project folder and set preferences for your project. By default, the project is named “Untitled”.
Open	Lets you load an existing sequence or project
Sequence	Displays all existing sequences for you to select the sequence you want to load. If you currently have another sequence open, you will be prompted to save it before opening another sequence.
Project	Lets you select the project that you want to load from a list of all existing projects. If you currently have another project open, you will be prompted to save it before opening another project.
Save	Saves your project to the current project folder, using the current project file name. If you have not previously saved your project, a browser will be displayed where you can specify a project name and location. A project is saved with an .sff extension.
Save As	Displays a browser where you can save your project to a different name and location. A project is saved with an .sff extension.
Sequence Preferences	Displays the Sequence Preferences dialog box where you can change your working properties for the current sequence.
User Preferences	Lets you set preferences for the current user profile, such as autosave, autokeying, and undo levels.
Command Mapping	Displays the Command Mapping dialog box, in which you can choose an existing command map template, or create a new one. Command maps show you which commands are mapped to the keys on the keyboard.
Exit	Closes Avid DS Nitris. You are prompted to save any changes in the open sequence.

Swift Menu

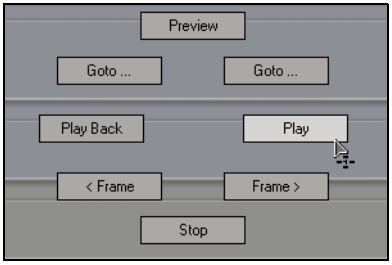
The swift menu is a circular pop-up menu that lets you activate the transport control commands by pressing the H key and holding down the left mouse button over the timeline.

Swift menus don't need to be displayed to work. Once you've learned the commands and where they are located, you can execute commands without waiting for the menu to appear.

To select a command from the swift menu:

1. Hold down the H key and the left mouse button for a few seconds on the timeline.

   The swift menu opens.



2. Hold down the left mouse button and drag the mouse in the appropriate direction.
3. Release the mouse button to choose the command.

There are additional commands under the Go to command. To access them, drag the mouse in the direction of the submenu, then in the direction of the command. Release the mouse button.

Option	Description
Play	Plays the sequence, beginning at the current timecode
Play Back	Plays the sequence in reverse
Stop	Stops playback

Option	Description
Preview	Loops playback around the current selection
Frame >	Moves the position indicator one frame forward
< Frame	Moves the position indicator one frame backward
Go to (left)	Moves the position indicator to the specified position
Head	Moves to the beginning of the sequence
< Locator	Moves to the previous locator
< Edit	Moves to the previous edit point
In	Moves to the in-point
Go to (right)	Moves the position indicator to the specified position
Tail	Moves to the end of the sequence
Locator >	Moves to the next locator
Edit >	Moves to the next edit point
Out	Moves to the out-point

Web Viewer

The Web viewer that lets you view URL locations, HTML files, and other files associated with your default Web browser without leaving Avid DS Nitris.

To open an Avid DS Nitris Web viewer from a bin:

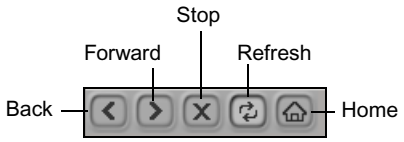
- Double-click a file associated with your default Web browser.

  An Avid DS Nitris Web viewer opens inside the Avid Explorer view. Web viewer tools appear at the top of the Avid Explorer window.

To open an Avid DS Nitris Web viewer independently from a bin:

- Select **View** > **Multi-Instance Views > Web**.

  An Avid DS Nitris Web viewer opens as a floating window. Tools appear at the top of the Avid DS Nitris Web viewer.



Use this	To
Back	Show the previously displayed page.
Forward	Show the next displayed page.
Stop	Stop the process of opening a page.
Refresh	Show an updated version of the same page.
Home	Show the home page of the default browser.

Avid Event Log

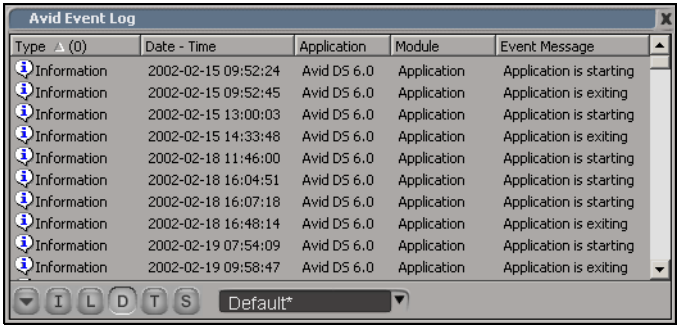
The Avid event-logging service stores events from various sources in a single collection called an *event log*. Notifications of events include informative messages, errors, and warnings.

The event logging service does not replace direct messages that are displayed when an action is necessary. The event log simply lets you view the results of any actions.

A reasonable amount of disk space is reserved for the event log. When the log is full, older events are erased to make room for new ones.

To access the Avid Event Log view:

- Select **View > Multi-Instance Views** > **Avid Event Log**.



Avid Event Log Menu

The Avid Event Log pop-up menu lets you view the properties of an event, delete events, and adjust the settings of the event log.

Option	Description
Properties	Displays information about an event
Clear All Events	Deletes all the events in the Avid Event Log. (This option also appears in the Fast menu.)
Event Log Settings	Opens a dialog box in which you can set preferences, such as automatically update the log when there are new events, minimum intervals between updates, and the maximum log size. (This option also appears in the Fast menu.)

Event Types

There are four types of events that can be logged. All event classifications have well-defined common data and can include event-specific data. The application indicates the event type when it reports an event. The following table describes the event types that are logged.

Event type	Icon	Description
Information		Indicates successful operations. For example, when Avid DS Nitris starts, it will log an information event stating that “Avid DS Nitris has started.”
Warning		Indicates problems that are not immediately significant, but may indicate conditions that could cause future problems. For example, an application can log a warning event if disk space is low.
Error		Indicates significant problems that you should know about. Error events usually indicate a loss of functionality or data. For example, a function that cannot be carried out due to an invalid action or data entry would be an error event.
Success		Success audit events are security events that occur when an audited access attempt is successful. For example, a successful logon attempt is a success audit event.

Avid Event Log Settings Dialog Box

The Avid Event Log Settings dialog box lets you set preferences, such as automatically updating the log when there are new events, minimum intervals between updates, and the maximum log size.

Option	Description
Automatic Update	Lets you turn on automatic updates in the log and set the interval between updates
Enable automatic update when new events are logged	Automatically updates the log when new events are logged
Minimum interval between updates	The minimum number of seconds between updates
Log Size	Lets you set the size of logs

Option	Description
Maximum log size	Species the maximum size of the log in kilobytes

Avid DS RP

Avid DS RP (remote processor) is a dedicated processing application that you can install on any workstation on your network. Avid DS RP runs separately from Avid DS, but communication between the two applications is established using a mail-type system.

The main benefit of Avid DS RP is that you can send processing jobs to the remote processing station and continue to work on your sequence. Avid DS RP notifies you when the job is complete. As the caches are created, they are automatically linked into your current sequence.

To start Avid DS RP:

- Double-click the **Avid DS RP** icon on your desktop.

Option	Description
Status	Displays state of Avid DS RP: **Idle**: Waiting for processing requests. **Busy**: Currently processing a request sent from another workstation. **Error**: An error occurred during processing.
Status window	Displays events that are being performed by Avid DS RP
Administration	Lets you perform some basic administrative tasks, so that Avid DS RP works at peak efficiency
Reset	Reinitializes Avid DS RP. If you're experiencing some problems with Avid DS RP, reinitialize it and resend your request.
Project Management	Displays dialog box that lets you remove projects that were created during remote processing
Pending Requests	Displays number of requests that remain to be processed

Chapter 4
Paint & Titling Reference

This chapter contains reference information about paint and titling.

- Graphics Layout
- Graphics Property Tree
- Graphics Combo View
- Graphics Object View (GOV)
- Graphics Toolbars
- Graphics Properties
- Group
- Magic Wand
- Reshaper
- Color Editor Dialog Box
- Import Image Dialog Box
- Import Subtitles Dialog Box

Graphics Layout

The Graphics layout is where you perform painting and titling tasks. In this layout, you can create graphics objects, such as text and vector-based strokes, and apply colors, textures, and effects to them. Once created, you can edit and animate objects and their properties. You can also touch-up clips using the graphics tools.

The Graphics and Compositing layouts are closely integrated, as the graphics tools can be used independently on each layer of a composite image.

To access the Graphics layout:

1. Drag a clip from the Avid Explorer to the timeline.
2. Place the position indicator over the clip.
3. From the taskbar, click the **Graphics** button.

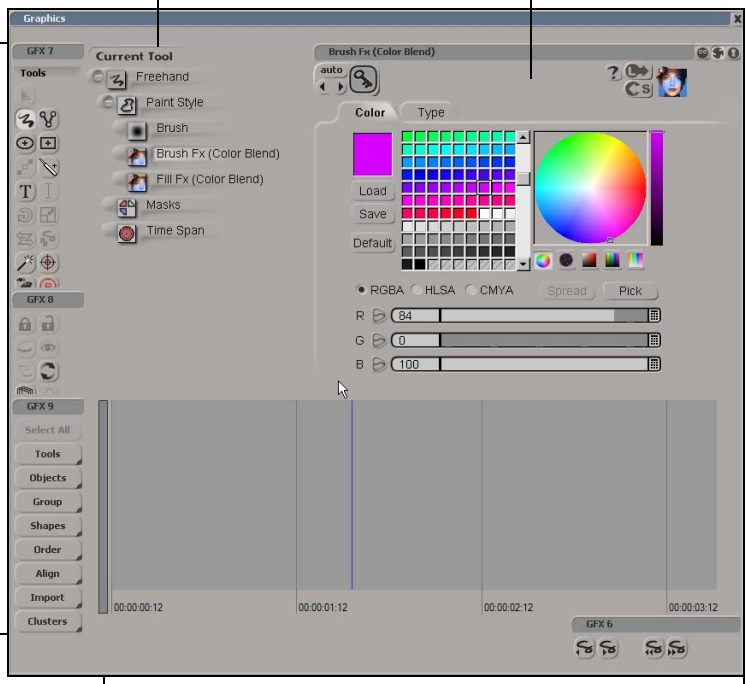
You can also access the floating Graphics Combo View by pressing Ctrl and clicking the Graphics button in the taskbar.

The Graphics Combo View

The Graphics combo view is a floating view that you can access from many locations in Avid DS Nitris to perform painting and titling tasks. This view contains all the same tools as the Graphics layout.

Graphics property tree displays the properties of a selected tool or graphics object.

Property editors let you set and modify various graphics properties, such as brush options, paint style, color, and titling style.



Toolbars contains tools for drawing and manipulating graphics objects.

Graphics Object view (GOV) displays graphics objects and their time spans in the current graphics session. You can also select, trim, move, rename, and delete any of your graphics objects.

Graphics Property Tree

The graphics property tree displays the properties of a selected tool or graphics object (stroke or text body). Using this tree, you can set the default properties of a drawing tool or edit the properties of selected graphics objects.

When you select a drawing tool, “Current Tool” appears above the graphics property tree. Any properties you set now will become your default drawing tool properties.

When you select a graphics object from the viewer, “Selected Object” appears above the graphics property tree. Any properties you set now will apply only to the selected graphics object(s).

Navigating the Graphics Property Tree

When you select a drawing tool or graphics object, the graphics property tree displays its properties. When you select a property button from the tree, it displays the corresponding property editor. The property tree lets you specify properties, such as the size, shape, and transparency of a brush. When you create text, the property tree lets you specify the format and style of a text body.

To expand or collapse the graphics property tree:

- Click the plus (+) sign next to a property button to expand it.

  The subproperties are listed below the expanded properties, and the plus sign changes to a minus sign.

- Click the minus (-) sign next to a property button to collapse it.

  The contents of the collapsed property tree are no longer visible in the tree, and the minus sign changes to a plus sign.

Using the Pop-up Menu

Pop-up menus let you quickly load and use different presets by clicking a property button in the graphics property tree.

To use the pop-up menu:

1. From the property tree, click a property button.
2. From the menu, select a preset.

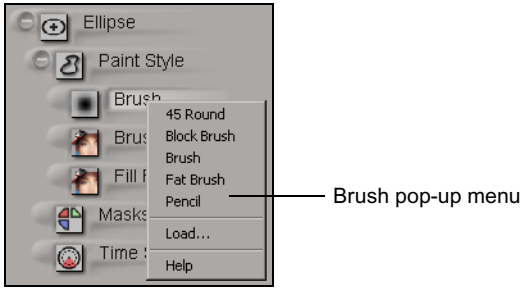
   The preset you selected is applied to a selected object or becomes the new default property.

Paint Menu

The paint pop-up menus let you quickly load and use different presets and effects by right-clicking a property button in the graphics property tree.

To access the paint menus:

1. From the graphics property tree, right-click a property button.



2. From the menu, select a preset or effect.

   The preset you selected is applied to a selected object or becomes the new default property.

Graphics Combo View

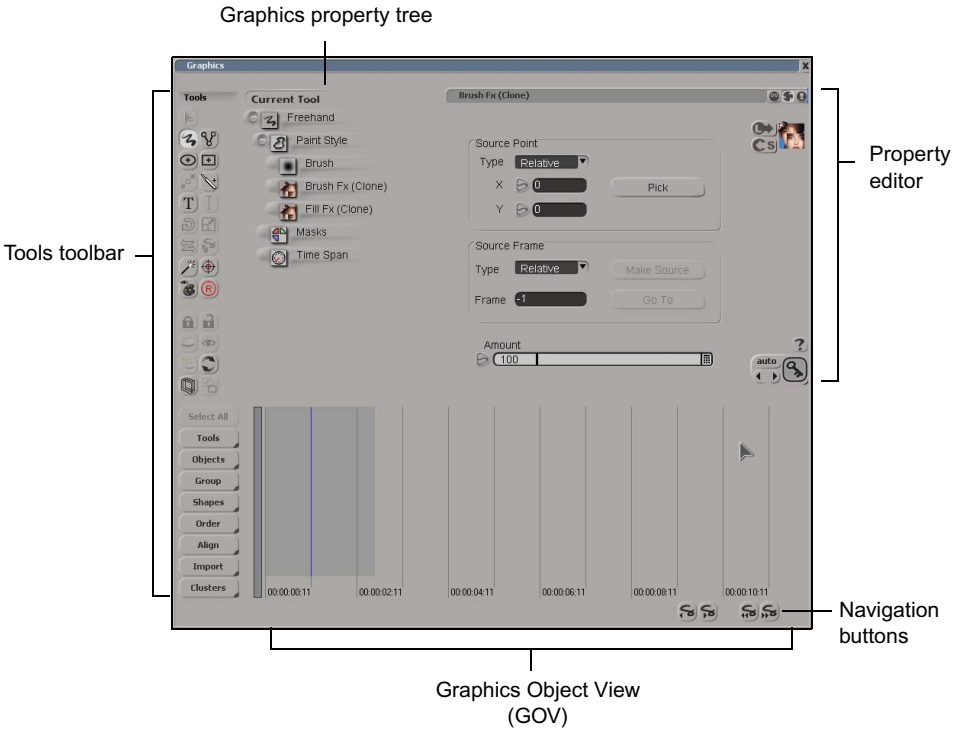
The Graphics combo view is a floating view that you can access from many locations in Avid DS Nitris to perform painting and titling tasks. Like the Graphics layout, you can create graphics objects, such as text and vector-based

strokes, and apply colors, textures, and effects to them. Once created, you can edit and animate objects and their properties. You can also touch-up clips using the graphics tools.

To access the Graphics combo view:

Hold down the Ctrl key and do one of the following:

- In the taskbar, click the **Graphics** button.
- In the Layers view, click the **Gfx** button.
- On the timeline, double-click the **Graphics** effect bar.
- In an Effects Tree, double-click the **Graphics** node.



Graphics Object View (GOV)

The Graphics Object View (GOV) displays graphics objects and their time spans in the current graphics session. This lets you clearly see the timing relationships between all the objects in a graphics session and gives you the ability to manipulate them in the GOV.

A graphics session is the time span over which graphics objects appear. You can create a graphics session by applying the Graphics effect to a clip or track, or by applying graphics on a layer inside a composite container clip. Once created, you can select, delete, move, and trim (in time) graphics objects.

When you create a stroke in the viewer:

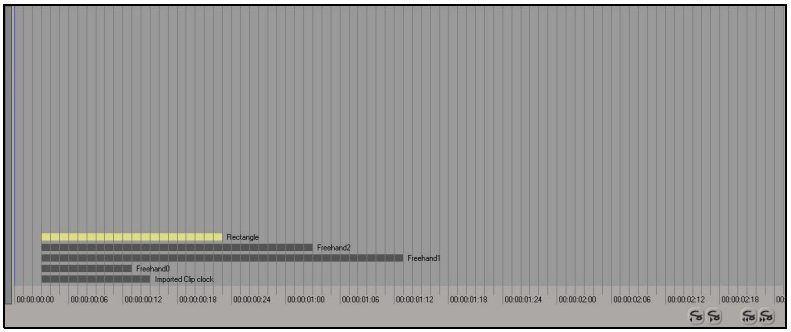
- A yellow graphics bar, representing the stroke, appears at the bottom of the view. The length of the bar indicates the duration or time span of the object. As you create more objects, they are placed on top of each other, starting from the bottom. That means the last object you created is the top one in the GOV. In the viewer, the last created object is placed in front of all other objects.
- Each graphics object is given a default name that corresponds with the drawing tool you used to create it. For example, if you used the Rectangle tool to draw on the viewer, the corresponding graphics bar in the GOV will be named “Rectangle0”. As you create more rectangles, the number beside the name increments. You can also rename any graphics objects you create.

By default, the GOV is part of the Graphics Combo view and Graphics layout. If you close the GOV and want to reopen it, you can access it from the View menu.

To access the Graphics Object View:

- Select **View > Views > Graphics Object View**.

  The Graphics Object View and the current graphics session are displayed.



To go to the next or previous edited frame:

- Click the **<< Edited Frame** or **>> Edited Frame** button.

To go to the start or end of the graphics session:

- Click the **Go to Start** or **Go to End** button.

Changing the Time Scale

The ruler in the GOV displays the time scale for your graphics session or the timeline on which it resides. This lets you know where your graphics objects are located in relation to the current graphics session and the timeline.

To change the time scale:

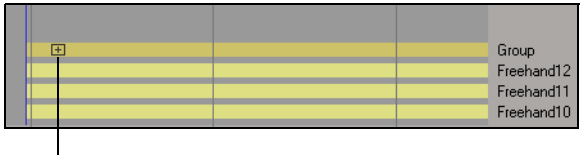
- Right-click the ruler at the bottom of the GOV and select one of the following:
- **Show as Local Time** to display the graphics session time.
- **Show as Parent Time** to display the time of the timeline that contains the current graphics session.

Unlike the ruler on the timeline, this command doesn't show the time of the top timeline.

Viewing Graphics Objects

At times, there may be so many objects in your graphics session that you can't see them all in the GOV. When this happens, you can interactively pan the GOV to focus on specific areas or objects in your graphics session. By zooming the GOV interactively, you can control the amount of detail that's displayed.

Groups of objects are indicated by a plus (+) sign when the group is not expanded and a minus (-) sign when it is. Also, the graphics bar is also highlighted in a darker yellow than ungrouped objects.



***Tip**: To frame objects in the GOV, right-click the ruler at the bottom of the GOV and select **Show Objects on Current Frame**. This lets you see the objects on the current frame without having to pan the GOV.*

To zoom the GOV:

- Hold down the Z or F2 key, and drag left or right on the GOV.

To pan the GOV:

- Hold down the X or F3 key, and drag left or right on the GOV.

To reset zoom or pan:

- Press Z and click the GOV to reset zoom.
- Press X and click the GOV to reset pan.
- Press Z+X and click the GOV to reset zoom and pan.

  The GOV is reset to display the current graphics session.

To expand or collapse groups of objects:

- Click the plus (+) or minus (-) sign next to a graphics bar in the GOV.

When a group is expanded, you can select/hide/lock the objects inside the group.

Manipulating Graphics Objects

In the Graphics Object View (GOV), you can select, trim, move, rename, delete, lock, and hide any of your graphics objects.

Selecting Graphics Objects

If there are many objects in your graphics session, you may find it easier to select objects from the GOV than from the viewer.

You can also select graphics objects by using the keyboard shortcuts.

To select a graphics object:

- In the GOV, click a graphics bar.

  In the viewer, a yellow bounding box surrounds the selected graphics object and you are now in Select mode. The graphics property tree displays the properties of the selected object.

To multi-select graphics objects, do one of the following:

- Hold down the Shift key and click all the graphics bars in the GOV representing the graphics objects you want to select.
- Press Alt and click the graphics bars in the GOV.
- Press Alt and drag to select multiple graphics objects.
- Press Alt and drag to deselect all objects and select only the objects that intersect the rectangle selection.
- Press Alt+Shift and drag to add objects that intersect the rectangle selection to the current selection.
- Press Alt+Ctrl and drag to inverse the selection.

To hide the bounding box when selecting graphics objects:

- Press Ctrl+H or select the Hide Bounding Box command from the Graphics menu to enter a mode where the bounding box is hidden, but the object is still selected.

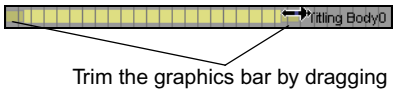
Trimming Graphics Objects

Trimming a graphics object is a simple matter in the GOV—just drag the beginning or end of a graphics bar.

To trim a graphics object:

- In the GOV, position your pointer at the beginning or end of a graphics bar and drag it right or left.

  The graphics object is trimmed in time.



Trim the graphics bar by dragging

***Tip**: To crop function curves when trimming an object that contains animation, press C. To scale function curves when trimming an object, press V. Otherwise, the object's function curves are cropped or scaled according to the setting in the Time Span property editor of the selected object.*

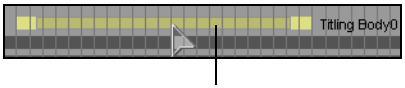
Moving Graphics Objects

You can experiment with the placement of graphics objects within a graphics session by moving them in the GOV.

To move a graphics object:

- In the GOV, drag a graphics bar (by the middle) to a new timecode.

  To move a graphics bar between frames, hold down the 1 (one) key as you drag the graphics bar.



Middle of graphics bar

If you drag the beginning or end of a graphics bar, you will trim the graphics object instead of moving it.

Hiding Graphics Objects

When you're working with overlapping graphics objects that clutter the viewer, you can hide some of the graphics objects on which you don't want to work. This makes objects temporarily invisible and may improve performance when working on large or complex projects.

Once an object is hidden, you cannot select or modify it in any way, except for trimming. Hidden objects remain hidden when sequences are closed and reopened.

When a graphics object is hidden, its bar in the GOV changes to a light blue color and the object remains visible if the wireframe mode is on.

***Tip**: To see a wireframe outline of hidden objects, position the pointer over the graphics bars in the GOV and the shape of the hidden objects will be displayed in wireframe in the viewer.*

You can also hide/show graphics objects by right-clicking its corresponding bar in the GOV and selecting an option from the menu.

To hide graphics objects:

Select the graphics objects that you want to hide and do one of the following:

- Select **Objects > Hide**.
- Right-click the graphics object in the GOV and select **Hide**.

  Hidden objects are represented by a light blue bar in the GOV and are automatically deselected.

To show graphics objects, do one of the following:

- To show all graphics objects on the current frame, select **Objects > Show All - Frame.**
- To show all graphics objects in the current graphics session, select **Objects > Show All - Session.**

  All hidden graphics objects are shown and selected. Any previously selected objects are deselected.

Renaming Graphics Objects

By renaming the graphics objects you create, it will be much easier to locate specific objects in the GOV.

To rename a graphics object:

1. In the GOV, click the name beside a graphics bar.

   The name is highlighted in blue.

2. Type in a new name and press Enter.

Deleting Graphics Objects

When you delete a graphics object from the GOV, it is deleted over its entire duration. For example, if an object is 10 frames long, it is deleted over all 10 frames.

To delete a graphics object:

- From the GOV, select a graphics object, and press Delete.

Graphics Bar Menu

The Graphics Bar menu lets you lock or hide graphics objects. Once you lock or hide an object, you cannot select or modify it in any way. Locked and/or hidden objects remain locked/hidden when a sequence is closed and reopened.

To access the Graphics Bar menu:

- In the Graphics Object View, right-click a graphics bar.

Command	Description
Lock	Locks the graphics objects on which you don't want to work. Once an object is locked, you can't select or modify it in any way. Locked objects are represented by a light gray bar in the Graphics Object View (GOV).
Hide	Hides the graphics objects on which you don't want to work. Once an object is hidden, you can't select or modify it in any way, except for trimming. Hidden objects are represented by a light purple bar in the GOV.

Graphics Object View Menu

The Graphics Object View pop-up menu lets you display the time scale of your graphics session or the timeline on which it resides.

To access the Graphics Object View menu:

- In the Graphics Object View, right-click the ruler.

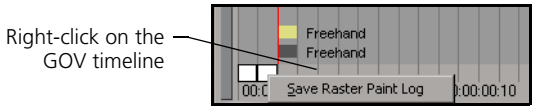
Command	Description
Show as Local Time	Displays the graphics session time
Show as Parent Time	Displays the time of the timeline that contains the current graphics session
Show Objects on Current Frame	Displays all graphics objects existing on the current frame shown in the timecode box

Save Raster Paint Log Menu

The Save Raster Paint Log pop-up menu lets you assign a name to the raster cache file. It provides you with information about the rastered frames, so that you can locate them more easily in the cache. If you do not assign a name, a default name is assigned to the raster cache files based on the sequence name.

To access the Save Raster Paint Log menu:

- In the GOV, right-click the white boxes above the timeline.



***Tip**: To see the file name of a rastered frame, place the pointer over a rastered frame's white box and a tooltip appears indicating the file name.*

Graphics Toolbars

There are three toolbars, General, General 2, and Tools, that appear in the Graphics layout.

General (graphics) Toolbar

Tool	Description
Select	Selects and moves objects
Select All	Selects all objects in the viewer
Deselect All - Frame	Deselects all selected objects in the current frame
Deselect All - Session	Deselects all selected objects in the current graphics session
Scale	Selects, moves, and scales objects
Rotate	Selects, moves, and rotates objects
Skew	Selects, moves, and skews objects
Cut	Cuts a selected object
Copy	Copies a selected object
Paste	Pastes an object
Duplicate	Duplicates an object and its time span
Delete	Deletes a selected object

Tool	Description
Delete All - Frame	Deletes all objects intersecting with the current frame
Delete All - Session	Deletes all objects from the current graphics session
Group	
Group	Groups the selected objects
Ungroup	Ungroups the selected groups
Regroup	Regroups the selected ungrouped objects
Ungroup - Keep Properties	Ungroups the selected groups. Objects retain the transformation set while part of the group.
Group All - Session	Groups all objects in the current graphics session
Cut from Group	Cuts selected object from a group and places it on the Clipboard
Paste to Group	Pastes object that is on the Clipboard to a selected group
Order	
Bring to Front	Brings a selected object to the front of all other objects
Raise	Raises a selected object by one level
Lower	Lowers a selected object by one level
Send to Back	Sends a selected object to the back of all other objects
Align	
Absolute Align Horizontal Center	Aligns the horizontal center of selected graphics objects to the horizontal center of the safe action/title area.
Absolute Align Vertical Center	Aligns the vertical center of selected graphics objects to the vertical center of the safe action/title area.
Absolute Align Top	Aligns the topmost edge of the bounding box of selected graphics objects to the topmost edge of the safe title/action area.
Absolute Align Bottom	Aligns the bottommost edge of the bounding box of selected graphics objects to the bottommost edge of the safe action/title area.

Tool	Description
Absolute Align Left	Aligns the leftmost edge of the bounding box of selected graphics objects to the leftmost edge of the safe action/title area.
Absolute Align Right	Aligns the rightmost edge of the bounding box of selected graphics objects to the rightmost edge of the safe action/title area.
Relative Align Horizontal Center	Aligns all selected graphics objects relative to the horizontal center of the collective bounding box of all the selected objects
Relative Align Vertical Center	Aligns all selected graphics objects relative to the vertical center of the collective bounding boxes of all the selected objects
Relative Align Top	Aligns all selected graphics objects relative to the topmost edge of the bounding box of the topmost-selected graphics object
Relative Align Bottom	Aligns all selected graphics objects relative to the bottommost edge of the bounding box of the bottommost-selected graphics object
Relative Align Left	Aligns all selected graphics objects relative to the leftmost edge of the bounding box of the leftmost-selected graphics object
Relative Align Right	Aligns all selected graphics objects relative to the rightmost edge of the bounding box of the rightmost selected graphics object
Edit Shape	Edits the shape of strokes
Reshaper	Reshapes existing strokes with a freehand approach
Copy/Paste Shape	
Copy Shape	Copies the shape of the selected stroke at the current time to the Clipboard
Paste in Place	Pastes the shape from the Clipboard onto the selected stroke at the current time. The pasted shape is translated over the stroke's shape.

Tool	Description
Paste at Origin	Pastes the shape from the Clipboard onto the selected stroke at the current time. The pasted shape keeps its fixed position.
Text	Creates titles
Edit Text	Edits the contents of text bodies
Tracker	Opens the Paint Tracker property page
Import	
Import Image	Imports an image of any size without having to capture it
Import Clip	Imports a clip of any size without having to capture it
Import EPS	Imports an EPS file (shape and color information only)
Import HTML	Imports an HTML text file
Stroke Preset	Applies a stroke preset
Text Preset	Applies a text preset
Group Preset	Applies a group preset
Graphics Properties	Opens the Graphics property editor
Refresh	Processes objects in the viewer at the current frame

General 2 Toolbar

Tool	Description
Combine Strokes	Combines all selected strokes into one compound stroke
Separate Strokes	Lets you separate a selected compound stroke into individual strokes
Handwriting	Opens the Handwriting property editor and allows you to create an animated, scrolling handwritten effect

Tool	Description
Type On	Opens the Type-On property editor and allows you to create an animated, scrolling typed effect
Text to Strokes	Converts each individual text character into individual strokes
Make Brush	Lets you create a custom brush using a closed stroke
Morph Start	Begins a morph session
Morph Add	Adds a stroke to be morphed into the current morph session
Morph End	Ends the current morph session
Burn Frame	Places the frame in a cache and deletes the original graphics object *Once a frame is burned, you cannot undo it.*
Delete Burned	Deletes the current burned frame

Tools Toolbar

Button	Tool	Description
	Select	Selects and moves objects
	Freehand	Draws in freehand
	Polyline	Draws polylines
	Ellipse	Draws ellipses
	Rectangle	Draws rectangles
	Edit Shape	Edits the shape of strokes
	Reshaper	Reshapes existing strokes with a freehand approach
	Text	Creates titles

Button	Tool	Description
	Edit Text	Edits the contents of text bodies
	Rotate	Selects, moves, and rotates objects
	Scale	Selects, moves, and scales objects
	Skew	Selects, moves, and skews objects
	Duplicate	Duplicates an object and its time span
	Magic Wand	Selects an area based on color values and creates a stroke
	Tracker	Opens the Paint Tracker property page
	Reset to Scratch Removal	Resets the scratch removal (clone) properties to their default values
	Reset All	Resets all paint and titling properties to their default values
	Graphics Properties	Opens the Graphics property editor
	Lock	Locks selected objects
	Unlock All - Frame	Unlocks all locked objects on the current frame
	Hide	Hides selected objects
	Show All - Frame	Shows all hidden objects on the current frame
	Hide Bounding Box	Hide the bounding box of the selected object(s)
	Refresh	Processes objects in the viewer at the current frame
	Wireframe	Views objects in wireframe mode
	Wireframe Preview	Shows a wireframe preview of graphics objects

Bas Relief Brush

The Bas Relief Brush property page lets you create puffy metallic-looking 3D text and brush strokes. The effect appears as if the image has been carved in low relief and lit to show the surface modulations.

Option	Description
Smoothness	Increases or decreases smoothness of image
Detail	Adjusts level of detail in image
Light Direction	Lets you select position from which to illuminate image. Different light positions enhance different areas of the image.
Brush Color Method	Lets you determine color of brush strokes
Underlying Image	Uses the color from the image being painted
Selected Color	Uses the color selected from the color swatch
Color swatch	Displays selected or default color. Click the swatch to select a color or double-click to display the Mini Color Editor.

This effect is designed for use on text. As an ordinary brush effect in paint, the result may be a solid black color in flat areas of the brush.

You can create metallic-looking 3D text. After typing the text, deselect the text, then select the individual characters with the Magic Wand tool, and apply the Bas Relief effect.

Brush

The Brush property page lets you customize the shape, size, angle, and other qualities of a brush stroke.

Option	Description
Ellipse	Creates circular or elliptical brush
Rectangle	Creates square or rectangular brush
Custom	Creates brush with custom shape
Import EPS	Imports .eps file (shape information only)
Interactive Update	Allows you to immediately see any changes to selected strokes in the viewer
Opacity	Controls transparency of brush stroke. Values: 0 (transparent) to 100 (opaque). *If you're using a stylus and tablet, you can select the Opacity option from the Paint Style property page. When you apply pressure to the stylus, it will affect the stroke's opacity.*
X and Y	Sets width (X) and height (Y) of brush. You can set the width to any pixel size between 1 and 800. *If you're using a stylus and tablet, you can select the Size option from the Paint Style property page. When you apply pressure to the stylus, it will affect the stroke's size.*
Lock Aspect Ratio	Links width and height of brush, so that if you change one dimension, the other varies proportionally
Sampling Ratio	Sets sampling ratio that determines distance between each brush stamp. When you draw a stroke, it is made up of a series of stamps in the shape of the brush.
Angle	Controls angle of brush shape. Unless the brush is a circle, changing the angle of the brush changes the appearance of the brush stroke.

Chrome Brush

The Chrome Brush effect lets you create a highly-polished, smooth and shiny brush stroke.

Option	Description
Smoothness	Increases or decreases smoothness of image
Shininess	Controls shininess of highlights. Higher values produce sharper highlights and lower values produce smoother highlights.
Brush Color Method	Lets you determine color of brush strokes
Underlying Image	Uses color from image being painted
Selected Color	Uses color selected from color swatch
Color swatch	Displays selected or default color. Click the color swatch to select a color or double-click to display Mini Color Editor.

This effect is designed for use on text. As an ordinary brush effect in paint, the result may be a solid black in flat areas of the brush.

To vary the effect, increase the brightness and contrast after applying the Chrome Brush effect.

Clip Holder

The Clip Holder property page lets you use a clip of any size or resolution (including its alpha information) in your graphics session, as well as clips that were created in other applications.

After importing a clip, you can treat it as a graphics object, which means you can edit any of its properties, as well as animate and transform it.

The Clip Holder property page lets you select the shape and duration of the imported clip, set the transformation quality, and provide clip information.

Option	Description
Import	Lets you import a clip and specify whether the imported clip will take the frame size of the clip and/or the duration

Option	Description
Import Clip	Imports clip/sequence of any size or resolution
Fit to Clip Size	When importing a clip, automatically changes the shape of the stroke to fit the frame size of the clip
Fit to Clip Duration	When importing a clip, automatically changes the duration of the stroke to fit the duration of the clip
Fit to Clip Size	After a clip is imported, changes the shape of the stroke to fit the frame size of the clip
Fit to Clip Duration	After a clip is imported, changes the duration of the stroke to fit the duration of the clip
Transformation Quality	Controls image quality of a transformed Clip Holder stroke. When you scale, skew, or rotate a Clip Holder stroke, its quality can deteriorate—small jagged lines can appear on the oblique edges or sometimes within the image.
Unfiltered	Applies no filter to clip. This is the fastest mode.
Bilinear	Applies fast, medium quality filter. This is the default setting. ***Tip**: For better transformation quality, use this setting when you animate the translation of a Clip Holder stroke.*
Filtered	Applies strong filter to clip. Useful when transforming hard edges and when the transformed clip (either scaled or rotated) is smaller than the original clip. This is the slowest mode. ***Tip**: For better transformation quality, use this setting when you scale down a Clip Holder stroke.*
Bicubic	Produces sharper image than Bilinear option when the transformed clip is larger than the original clip. ***Tip**: For better transformation quality, use this setting when you scale up a Clip Holder stroke.*
Filtering Level	Determines strength of filter when in Filtered mode. Higher settings result in a stronger filter and longer processing time.

Option	Description
Clip Info	The clip's name, duration in frames, and frame size in pixels
Use Alpha as Mask	Lets you use original alpha channel of imported clip as a mask

Clone

The Clone effect lets you remove scratches from images by cloning parts of the same image or parts of other images.

Option	Description
Source Point	Lets you define the source point (or sample), that is, the location from which the image is duplicated, as you paint.
Type	Defines the type of source point
Relative	Defines a source point located at a specific distance from the pointer. The sample will follow the position of the pointer, but at a specified offset.
Absolute	Defines a source point located at an absolute position in the frame. The sample will always be taken from the same position.
In Place	Defines a source point located underneath the pointer
X	Specifies distance, on X axis, of source point used in Relative Source Point. Specifies position, on X axis, of source point used in Absolute Source Point. This parameter can be animated.
Y	Specifies distance, on Y axis, of source point used in Relative Source Point. Specifies position, on Y axis, of source point used in Absolute Source Point. This parameter can be animated.
Pick	Defines distance or position values using the viewer
Source Frame	Lets you define the source frame from which you will clone

Option	Description
Type	Defines the type of the source frame
Relative	Defines a source frame located at a relative offset from the current frame
Absolute	Defines a source frame located at an absolute frame number (in graphics local time)
In Place	Defines a source frame as being the current frame
Frame	Specifies frame offset used in relative source frame. Specifies frame number used in absolute source frame.
Make Source	Lets you create an absolute source frame in another frame
Go To	Takes you to the absolute source frame
Amount	Specifies amount of the source to be cloned. A high value creates an opaque clone and a low value creates a transparent clone.

Color Blend

The Color Blend effect lets you pick a color from the default palette or the color wheel, use the color picker to select a color from an existing image in the viewer, or use other color palettes that are available in the Palettes folder.

If a color is not displayed on the color palette, you can create it by adjusting the RGB values of another color to obtain the exact color you want. You can also create your own color palettes and save them for use on other projects.

Blending Property Page

The Blending property page lets you define the way color is applied to a graphics object. You can select a stroke or title, and adjust the color type, tint effect, or opacity.

Option	Description
Type	Defines type and level of opacity of color or tint

Option	Description
Color Blend	Applies a color blend to strokes, fills, or titles by modifying the RGB component of the pixel
Blending Modes	Lets you select an operation to perform on the graphics object and the background. *Graphics objects are treated as the foreground image in the Graphics layout.*
Matte-based operations	The following matte-based operations are the only operations in which the alpha channels of the stroke and the background play a role in the computation of the color channels (RGB or YCbCr). These operations perform a premultiplication of the Alpha with the RGB channels if required.
The operations that do not clamp the input or output pixel values to the legal color gamut can be applied to images that have blacker than black or whiter than white values, and produce images that have blacker than black or whiter than white values. Also note that values outside the legal color ranges can be present in16-bit and float images.	
Normal	Performs a normal color blend operation
Over	Places the foreground over the background according to the foreground's alpha
In	Places the foreground image inside the alpha of the background image
Out	Places the foreground image outside the alpha of the background image
Atop	Places the foreground image inside the alpha of the background image and the background image outside the foreground alpha
Xor	Places the foreground image outside the alpha of the background image and the background image outside the alpha of the foreground image
Blending operations	The following blending operations are applied independently to each channel. The color channels are not affected by the alpha. Unless otherwise noted, the input and output of the following operations are not clamped to the valid color ranges.

Option	Description
In 16 bit and float, unlcamped operations can be used to create more complex mathematical expressions.	
Add	Adds the foreground to the background. This may sometimes cause the image to appear overexposed.
Add No Clipping (Screen)	Adds the foreground and the background in such a way that legal pixel values will not cause the image to look overexposed.
Exclusion	Subtracts RGB values of the background image from the foreground. For values between black and white, the result has a more gentle, even contrast than you would get with the difference operation.
Dark Add	Adds the foreground to the background and then reduces all the pixel values. The result may look underexposed.
Negative Sum	This mode is similar to Difference for dark and light pixel values, but produces a lighter image for values in between
Difference	Takes the absolute difference between the foreground and background image
Subtract	Subtracts the background from the foreground
Multiply	Multiplies the foreground with the background. For legal color values, the result is a darker image.
Divide	Divides the foreground by the background. For legal color values, the result is a brighter image, which may look overexposed.
Linear Interpolation	Interpolates between the foreground and the background by taking the average of the two images
Smooth Interpolation	Interpolates between the foreground and the background using a smooth curve. The result slightly favors the darkest and lightest pixels in the image. The result is similar to Linear Interpolation but with more contrast. *The input and output images are clamped.*
Steep Interpolation	This mode is a linear interpolation that has been stretched below black and above white values. Only medium pixel values will stay within the valid color range.

Option	Description
Non-Linear Blending Operations	The following are non-linear functions of the foreground and the background. These operations have the input and output values clamped.
Overlay	Based on the brightness of the background pixels, this operation is a combination of Add No Clipping and a Multiply. The result image is darker than Add No Clipping, but brighter than a multiply. The contrast (highlight/shadows) of the background is preserved and the image takes the color and pattern of the foreground. This is useful when adding film grain to a shot.
Hard Light	The inverse of Overlay, this operation is based on the brightness of the foreground pixel and combines Add No Clipping and Multiply. The result looks like the bright regions of Add No Clipping and the dark regions of Multiply. The blend shows the lightness or darkness of the original color, providing an effect that is similar to shining a harsh light on the image.
Soft Light	A gentle blend lightening or darkening the background according to the foreground. The effect as a whole tends to brighten images, much like a soft light being shone on an image.
Color Dodge	Brightens the background by dividing by the inverse of the foreground. Dark pixels in the foreground will leave the background almost unchanged. Bright pixels in the foreground will significantly brighten background.
Color Burn	Darkens the background by the darkness of the background. Dark pixels in the foreground will darken the background. Bright pixels in the foreground will leave background almost unchanged.
Dodge Inverted Burn	This is a softer version of Color dodge. When foreground and background pixels are bright, a darkened version of Color Dodge is used. When foreground and background are dark, a brightened version of Color Burn is used.

Option	Description
Burn Inverted Dodge	This mode is the reverse of Dodge Inverted Burn and produces a result that is lighter than Color Burn. When foreground and background pixels are bright, a darkened inverse of Color Dodge is used. When foreground and background pixels are dark, a lightened inverse of Color Burn is used.
Dark Dodge	This operation is similar to Color Dodge, but produces a darker, more evenly lit image. The background pixels show through more clearly and are not brightened as significantly by the foreground.
Bright Burn	This operation is similar to Color Burn, but produces a brighter, more evenly lit image. The background pixels show through more clearly and are not darkened as significantly by the foreground.
Comparison operations	The following operations use a comparison between the foreground and background channels. The input and output for these operations are not clamped to legal values.
Lighter	Takes the higher pixel value between the foreground and the background for each the RGBA channels
Darker	Takes the lower pixel value between the foreground and the background for each of the RGBA channels
Non-additive Mix	Takes the pixel from the foreground or background based on which has the higher luminance value
Inverted Non-additive Mix	Takes the pixel from the foreground or background based on which has the lower luminance value
Color routing operations	The following operations route certain color channels form one of the two inputs. This is not a channel switching type of operation. The input and output for these operations are not clamped to legal values. These operations cannot be used on the alpha channel. By default, the alpha operation is set to Over.
Lightness	Combines the luminance values of the foreground image to the saturation and hue of the background.
Color	Combines the saturation and hue values of the foreground image to the luminance of the background.

Option	Description
Luma	Combines the luma channel (Y) of the foreground with the chroma channels (CbCr) of the background
Chroma	Combines the chroma channels (CbCr) of the foreground with the luma channel (Y) of the background.
Tint	Applies tint effect to strokes, fills, or titles by modifying the hue and/or luminance and/or saturation of the pixels
Hue	Affects tint hue
Luminance	Affects tint luminance
Saturation	Affects tint saturation
Opacity	Controls transparency. Values: 0 (completely transparent) to 100 (completely opaque).

Cutout

The Cutout effect lets you attach or detach an image to a cutout. It also contains settings for applying filters to improve the quality of a transformed image, and determine whether the image's alpha channel is used or not.

Option	Description
Transform Image	Attaches cutout to image from which it was created. When you move the cutout, its image follows the cutout. Deselect this option to detach the cutout from its image. When you move the cutout, the underlying image remains in place.
Transformation Quality	Controls image quality of a transformed cutout. When you scale, skew, or rotate a cutout, its quality can deteriorate—small jagged lines can appear on oblique edges of objects or sometimes within the image.
Unfiltered	Applies no filter to image. This is the fastest mode.
Bilinear	Applies fast, medium quality filter. This is the default setting.

Option	Description
Filtered	Applies strong filter to image. Useful when transforming hard edges and when the transformed image (either scaled or rotated) is smaller than the original image. This is the slowest mode.
Level	Determines strength of filter using Filtered mode. Higher settings result in a stronger filter and longer processing time.
Use Alpha	Lets you use alpha channel of image. By default, this option is off.

Dodge and Burn

The Dodge and Burn effect lets you lighten or darken areas of an image by controlling the exposure on specific areas. Exposure is decreased to lighten an area on the image (dodging) or the exposure is increased to darken areas of an image (burning).

Main Property Page

The Main property page lets you select the type of effect to apply, as well as the luminance range to target.

Option	Description
Effect	Lets you select type of effect to be applied
Dodge	Increases luminosity of areas of image
Burn	Decreases luminosity of image. This has the inverse effect of the dodging effect.
Saturate	Increases weight of colors of image
Desaturate	Decreases weight of colors, yielding a black and white image. This has the inverse effect of the Saturate effect.
Target	Specifies colors from original image on which to apply the effect

Option	Description
Shadows	Lets you select shadow luminance range. When selected, you can adjust the color balance of shadow areas.
Midtones	Lets you select midtones luminance range. When selected, you can adjust the color balance of midtone areas.
Highlights	Lets you select highlight luminance range. When selected, you can adjust the color balance of highlight areas.
Amount	Adjusts the intensity of the effect. Values: 0 to 100. An amount of 0 signifies that the effect is simply not applied.

Range Property Page

The Range property page displays function curves that represent the luminance values of shadows, midtones, and highlights. The function curves are represented by the following colors in the function curve graph: gray=shadows, green=midtones, white=highlights. You can adjust the curves to specify how strong the effect will be applied on a pixel depending on its original luminance value. The X axis of the grid represents the original luminance value of the pixel and the Y axis represents how much the effect will be applied on that pixel if its luminosity corresponds to the X value.

To see the function curve more clearly, you can turn each curve on or off on the curve editor. Turning off a curve on the curve page will not affect the result of the effect. However, pressing the reset button will restore default values for all three curves. Note that the curves are disabled when the current effect is a saturation or a desaturation effect.

Option	Description
Shadows	Lets you select shadow luminance range. When selected, you can adjust the color balance of shadow areas. The function curve for shadows is gray.

Option	Description
Midtones	Lets you select midtones luminance range. When selected, you can adjust the color balance of midtone areas. The function curve for midtones is green.
Highlights	Lets you select highlight luminance range. When selected, you can adjust the color balance of highlight areas. The function curve for highlights is white.
Reset	Resets the parameters of the selected option

Edit Shape

The Edit Shape property editor lets you control the shape of an object's geometry.

General Property Page

The General property page lets you control the shape of an object's geometry. It also allows you to manually set and remove keyframes on strokes, and navigate from one keyframe to the next. The property page indicates whether keyframes have been set.

To edit the control points of an object, click the Select button on the General Toolbar. In the viewer, select an object and press Enter to activate the Edit Shape mode.

Option	Description
Path	Determines whether stroke is open or closed, and the number of control points along its length
Open	Opens path of a closed stroke. The last control point of the stroke is disconnected from the first. You can open any stroke drawn with the Freehand (when its Close option is selected), Ellipse, Rectangle, or Polyline tools.

Option	Description
Closed	Closes path of an open stroke. By default, the Freehand and Polyline tools create open strokes. You can reset the Freehand default to a closed stroke by selecting the Close option in the Freehand property page. To close a polyline stroke, press the Ctrl key and click.
Reverse Direction	Reverses path direction of a stroke. The start point of a stroke becomes the end point and vice versa.
Curve Fitting	Lets you redraw curve using fewer control points and specify the number of these control points
Fit Curve	Samples all control points of original curve and redraws it with fewer control points. The redrawn curve's likeness to the original depends on the Tolerance level.
Tolerance	Controls number of control points the redrawn curve maintains from the original curve. A high level removes many points from the curve, which results in less similarity to the original curve. A low level removes few control points, which maintains a closer likeness to the original curve.
Animation	Lets you set and delete keyframes, and navigate between them
First	Moves position indicator to first keyframe
Prev	Moves position indicator to previous keyframe
Set Key	Sets keyframe at current position indicator. When a keyframe is set for the current frame, a "K" is displayed above this option. When animation has been set for the stroke, but a keyframe does not exist on the current frame, an "A" is displayed.
Next	Moves position indicator to next keyframe
Last	Moves position indicator to last keyframe
Del Current	Deletes keyframe at current frame
Del All	Deletes all keyframes for entire length of stroke. You can modify the stroke length in the Time Span property editor.
Del From Start	Deletes all keys from beginning of stroke to current frame, excluding the current frame

Option	Description
Del To End	Deletes all keys from the current frame to the end of the stroke, excluding the current frame
Copy Shape	Copies shape of currently selected stroke to Clipboard
Paste In Place	Pastes shape currently saved to Clipboard on currently selected stroke. The pasted shape will be translated over the stroke's shape.
Paste At Origin	Pastes shape currently saved to the Clipboard on currently selected stroke. The pasted shape will keep its fixed position.

Tracker Property Page

The Tracker property page lets you track a moving object in a sequence, and apply the transformation to the control point of a stroke.

Paint tracking can be used to track graphics objects, such as replacing a color in a moving object, or tracking an imperfection and applying a blur or clone effect.

When using the paint tracker, you must define the region that will undergo tracking using a drawing tool. The paint tracker will track for the duration of the stroke.

Option	Description
Show	Displays the tracks of selected control points
Hide	Hides all trackers
Hide Selected	Hides selected trackers
Delete Selected	Deletes selected trackers
Delete All	Deletes all trackers
< (track backward)	Lets you track backwards from current frame. Useful when accuracy degrades over a number of frames. You can stop the tracker, reselect the tracking point, and then track backwards to correct the inaccurate track time span.

Option	Description
> (track forward)	Starts forward tracking
Fast Tracking	Increases tracking speed. This option may produce lower quality results, but is much faster.
Update View	Turns Update View on or off. When selected, the viewer updates during tracking. Deselect this option for faster processing.
Magnification	Sets magnification factor to help you position the trackers
Color Space	Lets you choose color space in which tracking will be performed: luma, RGB, R, G, or B
Tracker ID	A number is assigned, in sequence, to all the trackers that represent control points on the graphics object being tracked
Confidence	The tracker always looks for the highest level of similarity between the target area and the search area. The default value of 70 may cause the tracker to stop tracking, unless it finds at least 70% similarity between its target area and the search region. If the tracker cannot find a match based on your confidence criteria, the tracking will stop.
Minimum	Specifies minimum percentage of similarity the tracker will look for between the pixel pattern in its target area and the search area before it creates a motion path between frames. You can turn off this option by specifying a value of 0. *A low or nonexistent confidence value may cause the tracker to "lose" its way by tracking a region whose pixel pattern resembles that of the actual object.*
Current	Shows default or confidence level currently used by tracker
Target	Lets you change original target position

Option	Description
Set	If tracker is moved to new position during tracking, a timecode is set to indicate the last position of the tracker. By default the timecode is set to the start frame on which the tracking started.
Always Update	Makes trackers compare the pixel pattern of the current frame to that of the previous frame, rather than the first frame at the tracking start point. Use this option when the target area changes in appearance as the clip is played. This can cause cumulative tracking errors.
Show Gfx	When selected, shows the graphics object
Hide Gfx	When selected, hides the graphics object and shows it in wireframe mode. Useful if graphics object is obtrusive and making the positioning of the trackers difficult.

Edit Text

The Edit Text Tool and Insert Text Tool property pages let you load and save Text Tool presets. By modifying the Text tool properties, you can create customized text tools. Once saved, you can quickly retrieve each customized text tool for future use by clicking the Load Preset button in the property editor.

These property pages do not contain any specific parameters for you to set.

Ellipse

The Ellipse Tool property page lets you load and save Ellipse tool presets. By modifying the Ellipse tool properties (Paint Style, Brush, Fx, Masks, and Time Span), you can create customized drawing tools. Once saved, you can quickly retrieve each customized Ellipse tool for future use by clicking the Load button in the property editor.

This property page does not contain any specific parameters for you to set.

Erase

The Erase effect lets you erase graphics objects (brush strokes, fills, and text bodies). You can use Erase as a brush, fill, or titling style effect.

Option	Description
Amount	Controls amount of stroke or fill that is erased. A value of 100 completely erases the stroke or fill. Lower values erase part of it, so that the portion remaining is partially transparent, allowing you to see the underlying image.

Font

The Font property page lets you specify the font family, type style, and point size of characters within a text body. All of the fonts that are present on your operating system and in the system registry are available for use.

Option	Description
Font	Specifies font type from a list of those available on your system
Style	Specifies font style, such as bold, italic, etc.
Size (Pts)	Specifies font size in points. ***Tip**: You can also enter the font name in the text box.*
Antialiasing	Lets you set antialiasing options
Use	Turns antialiasing option on or off. Most of the time, characters must be antialiased. But you might want to turn off antialiasing on very small characters.
Extra Filtering	Provides subpixel control of extra filtering applied to the antialiasing. This allows a tradeoff between image sharpness and smoothness of the antialiasing.
Supersampling	Lets you choose the precision of the antialiasing; a value of 8x8 provides higher precision than 4x4.

Option	Description
Kern Pairs	Moves a character closer to the previous character in the same word to improve the appearance of text in certain fonts
Font Hinting	The TrueType vector fonts used in Avid DS Nitris are scalable to any point size. Because the screen redraws the text in pixels, certain point sizes can display artifacts, such as blurry edges. When this option is selected, redraw information is provided to prevent these artifacts from appearing in the viewer and output monitor.
Filtering	Applies a 1x2 box deinterlace filter to the text. This helps reduce the flicker perceived when the text is viewed on an interlaced screen. The option is provided as the detail removed by the filter can make text with small fonts unreadable.
Subpixel Positioning	Gives soft edges to static and animated text (rolls). For sharper edges on static text, turn this option off.
Kerning	Controls amount of horizontal space between characters. The kerning value is expressed as a percentage of the current font size. The kerned space appears after each character.
Character Transform (XY)	Lets you transform characters in X and Y. This parameter can be animated.

Freehand

The Freehand property page lets you define the general characteristics of a freehand stroke.

Option	Description
Path	Determines whether stroke is open or closed, and number of control points along its length
Close	Closes path of an open stroke. By default, Freehand is an open stroke. A straight line joins the two end points of the stroke.

Option	Description
Continuous Interpolation	Creates continuous path. Freehand strokes consist of a series of brush stamps. When this option is selected, the area between brush stamps is interpolated and drawn by Avid DS Nitris. To set the quality of the interpolation, specify a value for the Sampling Ratio on the Brush property page.
Fast Feedback	Provides a faster display of the stroke as you are drawing it. The effect itself is not apparent as you are painting, but appears after the stroke has been created.
Curve Fitting	Contains settings for controlling the use and number of control points of the redrawn curve
Fit Curve	Turns Tolerance parameter on or off
Tolerance	Controls number of control points the redrawn curve maintains from the original curve. High values remove many points from the curve, which results in less similarity to the original curve. Low values remove few control points, which maintains a closer likeness to the original curve.
Overlay Brush	Turns brush overlay on or off. Overlay refers to the outline of your brush in the viewer. This display option does not affect the result of the output of effects.

Glass Brush

The Glass Brush effect distorts an image as if it is being viewed through a refracting glass surface.

Option	Description
Smoothness	Increases or decreases smoothness of image
Shininess	Controls shininess of highlights. Higher values produce sharper highlights. Lower values produce smoother highlights.

This effect is designed for use on text. As an ordinary brush effect in paint, the result may be a solid black color in flat areas of the brush.

Graphics Properties

The Graphics Properties property editor provides a quick method for fading graphics objects, creating rolls and crawls, and working in raster mode. There are options for animating the position of objects, setting the premultiplication options, as well as a list of the messages that may appear while you're working in a graphics session. You can also perform tedious tasks, such as rotoscoping, quickly using the raster mode.

General Property Page

The General property page lets you adjust certain graphics properties. You can create fades, rolls and crawls. You can also specify the start and end positions, change your system to a non-real-time configuration, as well as set premultiplication options.

Option	Description
Roll/Crawl	Specifies parameters for rolls and crawls
Motion	Specifies type of motion to apply to selected object
None	Applies no motion to selected object
Roll	Applies vertical motion to selected object (from bottom screen to top)
Crawl	Applies horizontal motion to selected object (from left to right across the screen)
Start Position	Specifies start position for roll or crawl
Onscreen	Starts roll or crawl on screen
Offscreen	Starts roll or crawl off screen
End Position	Specifies end position of roll or crawl
Onscreen	Ends roll or crawl on screen
Offscreen	Ends roll or crawl off screen

Option	Description
Standard Speed	When selected, guarantees optimal quality when building rolls/crawls
Build	Starts creating the roll/crawl
Fade	Controls duration of fade. When you apply a fade to graphics objects, the time span is reset to match the duration of the graphics session. The existing opacity settings for a stroke (brush and fill) and text (edge, face, shadow) are overwritten with the new fade values.
In	Specifies fade-in duration in frames
Out	Specifies fade-out duration in frames
Build	Starts creating the fade animation. To reset the opacity to 100%, enter a duration of 0 in both the In and Out text boxes, and click the Build Fade button.
Apply to Selection	Lets you apply automatic fade, roll, and crawl animation only on selected graphics objects
Non Real-Time	Lets you change your system to a non-real-time configuration

Messages

These messages may appear in the Graphics property editor while you're working in a graphics session. If any of the following conditions are in effect, a graphics session can't be played in real time:

Option	Description
The non-real-time option is selected.	You have switched Avid DS Nitris to a non-real-time configuration for this graphics session. All real-time graphics will require processing before output.
The graphics session has objects with complex effects.	Objects in the graphics session contain effects that can't be played in real time. Only the Airbrush, Color Blend, and Cutout effects can be played in real time.

Option	Description
The graphics session has objects with complex transformations.	Animation that moves at different speeds can't be played in real time. Make sure all objects move in the same direction (either X axis only or Y axis only) at the same speed or not at all.
The graphics session has objects with complex animations.	Objects in the session contain animation, such as an animated brush size, that can't be played in real time. Only translations in the X or Y axis can be played in real time.
The graphics session has objects with complex time spans.	Objects in the session with varying time spans can't be played in real time. Make sure all objects span the length of the graphics session, from start to end.
The graphics session has objects that require an alpha channel or that are not applied on the RGB channels.	Objects that use the alpha channel or that are not applied on the RGB channels can't be played in real time. In the Masks property editor, make sure the Use Alpha Channel option is deselected and the Painted on Channel (Red, Green, and Blue options) are selected.
The graphics session has objects with inverted fill.	Graphics sessions that contain strokes with inverted fill can't be played in real time.
The graphics session has a single frame duration.	Single-frame graphics sessions can't be played in real time.
The graphics session has a real-time configuration.	Avid DS Nitris is using the real-time capabilities of your system in this session.

Raster Mode Property Page

The Raster Mode property page lets you perform tedious tasks, such as rotoscoping quickly and effectively. Since this mode is not vector-based, processing is not required. The time required to load and save graphics objects is also dramatically reduced.

As you paint each frame, the finished or burned, frames are placed in a cache and the original graphics objects are deleted. The recording of graphics objects is deactivated in the Graphics Object View (GOV), they are flattened, and the resulting images are stored on individual frames directly to a cache. You can have the frame you are currently working on automatically "burned" or you can burn the frames later when you're satisfied with the results. You can work in Raster mode for graphics objects that have a duration of one frame.

When burning frames, keep in mind that the clip effects in a sequence will no longer be editable. If you want to apply clip effects to your sequence, it is best to use the Raster mode to burn your frames first

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Option	Description
Start	Lets you begin working in raster mode
Burn on Frame Change	Automatically burns frames as you advance to next frame
Copy Burned Strokes	When advancing frames, automatically creates same strokes as in previous frame
Non Real-Time	Lets you work in non-real-time
Remove Warning When Burning	Deactivates warning message that appears when you change frames
Base Cache File Name	Lets you easily retrieve work performed in Raster mode. A default name based on the sequence name is automatically added to the Base Cache File Name text box when the sequence is saved.

Options Property Page

The Options property page lets you specify precise processing options for the selected effect.

These settings override those in the Sequence Preferences dialog box.

Option	Description
Type	
Auto	If you select Auto, Avid DS Nitris will use the global processing setting in the sequence preferences.
Frame Processing	Processing, including animation, is frame-based. Both fields in each frame are processed together using the same property values.
Source Material	Lets you specify if the source material is frame-based, or is the same as the Type setting.

Option	Description
Frame	Lets you indicate that the image on which an effect is applied is frame-based. If the image on which an effect is applied is a frame-based image, then select this option. *Still images are always frame-based.*
Same As Processing	Lets you specify that the source material is the same as the Type setting. This is the default option. If the image on which an effect is applied is field-based, then select this option, and make sure that the Type setting is set to Field Processing as well.
Precision	Choose the bit depth at which your effects will be processed. Some effects are capable of 16 and 32-bit float precision. The drop-down list shows the supported bit depths for this effect. If you select Auto, Avid DS Nitris will use the global precision setting in the sequence preferences, unless a different setting is propagated by a previous input effect.
Use Same Precision for Inputs	All effects that are input to this effect will use the above Precision setting if their Precision is set to Auto.
Output Frame Size	Forces the effect to output pixels an image of the frame size. If the image is larger, it will be cropped. If smaller, it will be padded with black transparent pixels. For example, if you have a PAL sequence that is 720×576 and you process an image larger than the PAL frame (2000×2000), then only the pixels that fall within the PAL frame will be output from this effect. The rest will be cropped out.
Alpha	Affects premultiplication parameter of images in a graphics session. By default, the premultiplication option is set to Auto. This does not affect the pixels themselves, but simply changes the parameters that indicate how the pixel should be interpreted by effects subsequent to the Graphics effect.
Auto	Automatically changes the premultiplication parameter of images to Not Premultiplied when painting on at least one channel but not all of them. Otherwise, the premultiplication parameter is left at its original setting.

Option	Description
Premultiplied	Changes the premultiplication parameter of images to Premultiplied
Not Premultiplied	Changes the premultiplication parameter of images to Not Premultiplied

Group

The Group property editor displays the number of strokes, titling bodies, and subgroups at the current level and at all levels.

Option	Description
Statistics	Displays information at the current level and all levels
At this level	Displays the number of strokes, titling bodies, and subgroups at the current level
At all levels	Displays the number of strokes, titling bodies, and subgroups at all levels

Magic Wand

The Magic Wand tool lets you choose the color models and tolerance, as well as the fit and size of the tolerance. You can create a stroke that has the same shape as a selected area of an image. The selection is based on RGBA or HLSA values of an image. Once created, the stroke can be edited.

Option	Description
Color Model	Specifies color range or tolerance based on two color models: RGB (red, green, blue) or HLS (hue, luminance, saturation)

Option	Description
Color Tolerance	Sets range of acceptable color values for each channel. This range of values is compared to the color value of the pixels adjacent to the pixel you select to determine whether it falls within the specified range. If it does, the pixel is included in the selection and the pixels surrounding all the included pixels are analyzed, and so on. When you select the Similar option, it checks all the pixels in the image regardless of their location, so several separate areas can be included in the selection.
RGBA/HLSA	Sets range of acceptable color values for the selection for each channel. The greater the color tolerance value, the more color values are included in the selection.
Use	Specifies channels you want to use to control the range of pixel values to be included in the selection. For each channel you want to include, select the Use option beside it.
Fit Tolerance	Controls number of control points the redrawn curve maintains from the original curve. High values remove many points from the curve, which results in less similarity to the original curve. Low values remove few control points, which maintains a closer likeness to the original curve.
Feature Size Tolerance	Controls number of subregions that are selected from the image. A high value selects fewer subregions, resulting in a less intricate shape. A low value selects more subregions, resulting in a more intricate shape.
Invert	Inverts selection, so that all values outside the specified range are included, instead of all values within the range
Similar	Selects all color values within specified range wherever they are located in the image (rather than just those that are adjacent to the selected pixel)
Reset All	Resets all RGBA values
Autocreate	Automatically applies effect to selection right after you've clicked the image with the Magic Wand

Option	Description
Confirm	Displays selection before applying effect. You can adjust selection parameters and/or click a different place in the image. The selection updates to the new values. Click this button or press Esc to accept the selection. *This option is only available when the Autocreate option is deselected.*

Masks

The Masks property editor lets you apply effects to one or more of the RGBA channels instead of the entire image. It also lets you apply the effect to an existing matte.

General Property Page

The General property page lets you apply various types of masks to strokes, fills, and titles. Masks identify which channel of the image to apply the current effect. You can use the paper grain images to modify the appearance of graphics objects. When applying strokes, paper grain masks let you simulate the effect of painting on a textured canvas.

Option	Description
Paint on Channel	Selects channels on which you want to apply paint
Red, Green, and Blue	Applies paint strokes, fill, and titling to red, green, or blue component of image
Alpha	Applies paint strokes, fill, and titling to alpha component of image. To create a matte with the Color Blend effect, select the alpha channel. *When creating a matte, set the alpha component value in the appropriate Color Blend property editor. For complete transparency, set it to 0; for 50% transparency, set it to 50, and so on.*
Mask	Activates mask options

Option	Description
Use Alpha Channel	Uses alpha channel of image you're painting on as a mask. When you paint, masked areas do not accept the stroke.
Invert	Inverts the alpha channel, so that you paint on the masked areas, but not on the rest of the image

Paper Grain Property Page

The Paper Grain property page lets you apply a paper grain texture to a stroke, fill, or text. This simulates the effect of painting on a textured canvas.

Option	Description
Source Image	Lets you choose source for paper grain image
Preview window	Displays selected paper grain texture
Browse	Lets you view and select paper grain images
(...)	Lets you select paper grain images in any supported file format
Use	Uses paper grain displayed in preview window. This option is automatically selected when you load a paper grain image.
Invert	Uses inverted version of selected paper grain displayed in preview window
Absorption	Sets opacity of paper grain texture. A high value makes the textured object fade or appear to be absorbed into the background image. A low value makes the textured objects more distinct.

Paint Style

The Paint Style property page lets you define the general characteristics of the brush and fill of a stroke.

Option	Description
Brush	Lets you set brush options
Use	Turns Brush options on or off. When deselected, no brush stroke appears. You can further define the appearance of the brush stroke using the Brush and Brush Fx property editors.
Antialiased	Turns the Antialiased option on or off. Smooths the jagged lines that can occur when drawing diagonal or curved strokes
Pressure	Makes stroke's width and degree of opacity respond to amount of pressure you apply to the stylus on the graphic tablet
Size	Turns Size option on or off. When selected, the pressure you apply to the stylus affects the size of the stroke.
Opacity	Turns Opacity option on or off. When selected, the pressure you apply to the stylus affects only the opacity of the stroke.
Fill	Lets you set fill options
Use	Turns Fill option on or off. When selected, closed objects, such as ellipses and rectangles, are filled with the specified fill effect. This option automatically closes freehand and polyline strokes, and adds the defined fill.
Antialiasing	Lets you set antialiasing options
Use	Turns antialiasing option on or off. Smooths the jagged lines that can occur when drawing diagonal or curved strokes.
Extra Filtering	Provides subpixel control of extra filtering applied to the antialiasing. This property allows a tradeoff between image sharpness and smoothness of the antialiasing.
Supersampling	Lets you choose the precision of the antialiasing; a value of 8x8 provides higher precision than 4x4.
Below Brush	When this option is selected, the fill is placed behind the edge of the brush stroke. When deselected, the fill is superimposed over the inside edge of the brush stroke.

Option	Description
Invert	When creating a stroke, fills the area outside of a stroke. The difference between the output area frame and the stroke is filled. If the stroke is totally out of the output area frame, the frame is completely filled (necessary for animating the stroke). By default, this option is off.
Opacity	Controls transparency of brush stroke. Values: 0 (completely transparent) to 100 (completely opaque).
Fill Rule	Determines which areas of a shape are filled or become holes.
Even-Odd	Lets you create shapes with holes.
Non-Zero Winding	Lets you create filled shapes.
Feathering	Sets feathering options
Use	Turns Feathering option on or off. When selected, gives the fill a soft boundary where the fill approaches the stroke edge.
Crop	Confines the soft boundary to within the stroke geometry
Soft	Creates feathering using a soft fill algorithm
Radius	Sets radius of the soft boundary
Profile	Sets rate at which the fill dissolves. A high value creates a rapid fall off, where the fill boundary dissolves quickly. A low value creates a linear fall-off effect, where the fill boundary dissolves outward at a constant rate.
Blur	Creates feathering using a blur fill algorithm. You can blur in X and Y independently.
X Radius	Lets you change the radius of horizontal directions. The greater the radius, the softer the blur.
Y Radius	Lets you change the radius of vertical directions. The greater the radius, the softer the blur.
Lock	Links width and height of blur radius. if you change one dimension, the other will vary proportionally.

Polyline

The Polyline property page lets you load and save Polyline tool presets. By modifying the Polyline tool properties (Paint Style, Brush, Fx, Masks, and Time Span), you can create customized drawing tools. Once saved, you can quickly retrieve each customized Polyline tool for future use by clicking the Load Preset button in the property editor.

***Tip**: When creating strokes using the Polyline tool, segments of the polyline can be constrained to a 45 degree angle by holding down the Alt key. This is useful when you want to create straight lines.*

To close a polyline, press Ctrl and click in the viewer.

This property page does not contain any specific parameters for you to set.

Rectangle

The Rectangle property page lets you load and save Rectangle tool presets, and set the corner radius of rectangles. By modifying the Rectangle tool properties (Paint Style, Brush, Fx, Masks, and Time Span), you can create customized drawing tools. Once saved, you can quickly retrieve each customized Rectangle tool for future use by clicking the Load Preset button in the property editor.

Parameter	Description
Rounded Corners	Lets you create a rectangle with rounded corners
Corner Radius	Lets you set the radius for the corner of the rectangle you are about to create

Reshaper

The Reshaper property page lets you reshape existing strokes using a freehand approach. You can modify the geometry of a stroke without being constrained to the shape's control points. The Reshaper tool is useful for rotoscoping and animating shapes.

Reshaper Tool Shortcuts

Tool name	Shortcut
Reshaper Tool	P
Trace	Drag shape edge
Trace Straight Line	Alt-drag
Trace Without Moving Existing Control Points	Shift-drag
Chop Control Points	C-drag
Move Shape	A
Rotate Shape	D
Scale Shape	S
Scale Shape Proportionally	Shift+S
Skew Shape	F
Move Origin	S, D, or F-drag
Center Origin	S, D, or F and right-click shape
Position Stretch Limits	G-drag stretch limits
Stretch Shape	G-drag edge of shape
Change Shape Opacity	O-drag
Exit Reshaper Tool	Esc

Reshaper Property Page

Option	Description
Wireframe	Displays geometry of stroke in wireframe mode

Option	Description
Style	Lets you select wireframe style. Styles: None, Dotted, White, Black, and Negative. Default is Dotted. ***Tip**: To turn wireframe mode off, select None from the Wireframe Style list.*
Width	Selects wireframe width in pixels
Trace	Automatically smooths a traced curve
Smooth Curve	Sets amount of smoothing on a traced curve. Values: 0 to 100; default is 20. For no curve smoothing, set value to 0. For the most curve smoothing, set value to 100.
Trace Cursor	Lets you choose cursor style for trace tool
Keep Curve Aspect When Stretching	Lets you specify if stretched curve segments maintain their aspect ratio. That is, you can specify that tangents maintain their length and angle ratios. When stretching a shape, its control points (that are not visible) are moved proportionally to their distance from the stretch limits.
Scale Speed	Sets speed for scaling a shape interactively in viewer. When scaling a shape interactively in the viewer, it's sometimes useful to speed up or down interactivity.
Skew Speed	Sets speed for skewing a shape interactively in viewer. When skewing a shape interactively in the viewer, it's sometimes useful to speed up or down interactivity.
How To	Provides keyboard shortcuts and tips related to the Reshaper tool

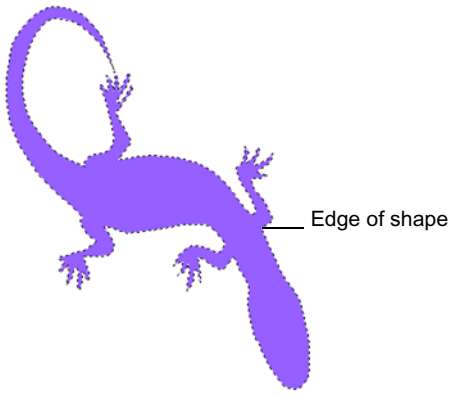
Reshaping a Stroke

There may be times when you want to edit the shape of a stroke using a “freehand” approach. This is especially useful for rotoscoping and animating shapes.

With the Reshaper tool, you can modify the geometry of a stroke without being constrained to the shape’s control points. By tracing the edge of a shape, you can interactively reshape a stroke.

In addition, you can chop, scale, rotate, skew, stretch, and move a shape, as well as adjust its opacity. When reshaping a stroke, keyframes are automatically set.

***Tip**: Since it's difficult to reshape overlapping strokes, you can hide or lock graphics objects that clutter the viewer.*



To trace a shape:

1. Do one of the following:
   - In the General toolbar, click **Reshaper** or press P.
   - From the Graphics menu, select **Tool > Reshaper**.
2. To trace, do any of the following:
   - Drag along the edge of the stroke.
   - To trace a straight line, hold down the Alt key and trace along the edge of the shape.
   - To trace without moving existing control points, hold down the Shift key while you trace.

***Tip**: To trace more quickly, make sure the shape has a minimum of control points. To reduce the number of control points, use the **Fit Curve** option in the Edit Shape property editor.*

3. Press Esc to exit the Reshaper tool.

Chopping Control Points

If a shape contains a segment that you'd like to eliminate, you can chop the unwanted control points.

Before After: A finger is chopped off.

To chop control points:

- Hold down the C key and drag along the edge of the shape that you want to chop.

  The area is chopped from the shape.

Moving a Shape

You can move the entire shape to a new location.

To move a shape:

- Hold down the A key and drag the shape to a new location.

Scaling, Rotating, and Skewing a Shape

When scaling, rotating and skewing a shape, you must first position the point of origin, which is represented by a small red circle in the viewer.

To position the origin:

1. Hold down one of the following keys:
   - S to scale
   - D to rotate
   - F to skew
2. Drag the origin to a new location.
3. To center the origin, right-click the shape.

   The origin is positioned at the center of the stroke's geometry.

To scale a shape:

- Hold down the S key and drag the shape to scale it.

To scale proportionally, press Shift+S.

To rotate a shape:

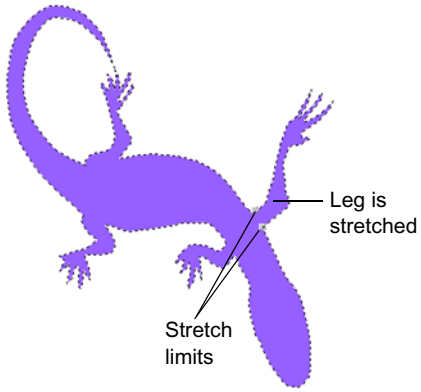
- Hold down the D key and drag the shape to rotate it.

To skew a shape:

- Hold down the F key and drag the shape to skew it.

Stretching a Shape

Stretching lets you extend portions of a shape, while maintaining the rest of it. When stretching a shape, you must first position the stretch limits on the edge of a shape. The stretch limits are represented by two small gray squares in the viewer.



To stretch a shape:

1. Hold down the G key to access the stretch tool.
2. Place each stretch limit at the desired location along the edge of the stroke.
3. Drag the edge of the shape between the stretch limits.

   The segment between the two stretch limits is stretched. The other parts of the shape remain unchanged.

Changing the Opacity of a Stroke

When performing rotoscoping, it's sometimes helpful to see what's in the image underneath the stroke. This makes it easier to reshape the stroke from one frame to the next.

To change the opacity of a stroke:

- Hold down the O key and drag the stroke in the viewer.

When changing the opacity, the stroke fill and brush opacity is changed, if they were used. If the opacity is animated, a temporary value is set. If the opacity is not animated, a value is set but a key is not created.

Reveal

The Reveal effect lets you "paint away" the alpha channel. That is, when you paint on the alpha channel with this tool, white areas change to black (transparent). This effect is useful for adjusting or creating mattes.

Make sure the Alpha option is selected in the Masks property editor.

You do not need to display the alpha channel to work with the Reveal effect. You can paint in RGB mode and see the underlying layer appear as you paint.

Option	Description
Amount	Controls amount of underlying image revealed. A low value partially reveals the underlying layer (by changing the white to gray). A high value changes the white to black, revealing the underlying layer.

Smear

The Smear effect lets you apply a smear to an existing image. You can apply it as a brush stroke, but not as a fill. It works by shifting pixel values in the direction of the brush stroke, and blurring them together at the same time.

You can make dramatically different smear effects by changing the brush parameters. Your results will depend on the way you set up the brush, and how you paint with it.

This effect does not work on text. To see the effect, you must have an underlying image.

Option	Description
Melting	Controls amount by which pixels are shifted in direction of brush stroke
Wetness	Controls amount by which pixels are blurred together.

For better quality, Smear looks best with a lower brush sampling ratio (below 20). You can set this ratio in the Brush property page.

Special Effect

The Special Filter effect lets you define a filter that creates a bubbly effect. The filter calculates either the minimum or the maximum brightness value in a specified area around a pixel and applies this value to the pixel. This operation is applied to every pixel in the image.

Stack Effect

The Stack effect lets you load multiple effects as a brush stroke or fill effect.

Option	Description
Effect Stack	Displays list of currently-selected effects
Add	Lets you add an effect
Remove	Removes highlighted effect
Move Up	Raises highlighted effect up one level in list

Option	Description
Move Down	Lowers highlighted effect down one level in list

Stroke

The Stroke property page lets you create an animated, scrolling, handwritten effect, which gives the appearance of writing on your clip. You can specify the direction, beginning, and end frames of the animation.

Option	Description
Handwriting	Lets you create an animated, scrolling handwritten effect
Forward	Creates an animated, scrolling, handwritten effect, beginning with the first point of the stroke path to the last
Backward	Creates an animated scrolling handwritten effect, beginning with the last point of the stroke path to the first
Center	Creates an animated scrolling handwritten effect, beginning with the center point of the stroke path and moving outwards
Custom settings	Lets you control where the handwritten effect begins and ends its animation
Head	Specifies the head distance (in percentage) from the beginning of the stroke path
Tail	Specifies the tail distance (in percentage) from the beginning of the stroke path
Reset	Resets Head and Tail settings to the default values

Text

The Text property editor lets you define the attributes of text objects.

Option	Description
Font	Lets you select font family name (for example, Times, Helvetica, Courier). Default font is Times New Roman.
Size	Controls the font size, based on the current unit of measure. Default size is 10.
Kerning	Controls the amount of horizontal space between characters; expressed as a percentage of the current font size. The space appears after each character. Default is 0%.
Scroll Position	Rolling, crawling, path text. Controls the position of the rolling or crawling text within a container. For path text, the position of the text along the path. This property does not apply to static text objects. Default is 0%.
Top Margin	Controls the amount of vertical space along the top of the text body, which is also the space above the first line in the text body. Default is 0%.
Bottom Margin	Controls the amount of vertical space along the bottom of the text body. Default is 0%.

Textured Brush

The Textured Brush effect lets you apply a variety of textured effects to brush strokes. This lets you achieve “embossed” brush or “poker chip” texture effects.

Option	Description
Light Position	Lets you select position from which to illuminate image. Different light positions enhance different areas of the image.
Gain	Increases or decreases “height” of texture
Invert Texture	Pushes texture into image instead of popping it out

Option	Description
Brush Color Method	Lets you determine color of brush strokes
Underlying Image	Uses color from image being painted
Grayscale Image	Colors the stroke based on the grayscale values of the image being painted
Sepia Image	Colors the stroke based on a sepia colorization of the image being painted
Mono	Colors the stroke based on the monochromatic values of the image being painted
Tonal	Colors the stroke based on the tonality of the image being painted
Selected Color	Uses the color selected from the color swatch
Center Pixel	Samples image being painted directly beneath the brush to select the color for the entire brush
Color swatch	Displays selected or default color. Click the color swatch to select a color or double-click to display Mini Color Editor.

This effect is designed for use on text. As an ordinary brush effect in paint, the result may be a solid black color in flat areas of the brush.

Time Span (Graphics)

The Time Span property page lets you define the number of frames in which a graphics object appears. You can specify a time span before drawing a stroke (the time span is then applied to all subsequent strokes until changed) or you can select a stroke and modify its time span. You can apply time span properties to strokes and text bodies.

Option	Description
This Frame Only	Specifies that the in timecode corresponds to the current frame and the out timecode correspond to the frame that follows the current frame, for a duration of one frame.

Option	Description
This Frame to End	Specifies that the in timecode corresponds to the current frame and the out timecode corresponds to the frame that follows the last frame where the Graphics effect was applied.
Start to End	Specifies that the in timecode corresponds to 00:00:00:00 (local, Graphics effect time) and the out timecode corresponds to the frame that follows the last frame of the graphics session. *The last frame of a graphics session is identified in one of two ways: 1) when painting on a clip, it is the last frame on which the Graphics effect was applied, or 2) when painting on a layer in a composite, it is the last frame of the longest layer that contains the latest clip in time.*
Start to This Frame	Specifies that the in timecode corresponds to 00:00:00:00 and the out timecode corresponds to the current frame
Custom	Specifies a custom time span
In	Specifies timecode of the first frame in which you want the stroke or title to appear
Out	Specifies timecode of the frame that follows the last frame in which you want the stroke or title to appear
Duration	Specifies total number of frames during which you want the stroke or title to appear (used with the In or Out text box)
Lock	Keeps the stroke's duration, but slides it in time by changing the in or out timecode. *This option is available only when modifying the time span of a selected stroke.*
Crop animation curves when changing object time span	Determines whether the stroke's animation curves are cropped or scaled when the stroke's time span is changed

Titling Body

The Titling Body property page lets you create an animated typewritten effect, which gives the appearance of a typewriter typing each character. You can specify the direction, beginning, and end of the animation, as well as adjust the spacing of the text body.

Option	Description
Type-On	Lets you specify where the animation of the typewritten effect begins and ends
Forward	Creates animated typewritten effect beginning with the first character entered to the last
Backward	Creates animated typewritten effect beginning with the last character entered to the first.
Center	Creates animated typewritten effect beginning with the centermost character entered and then moving outwards
Head	Specifies first frame for which the typewritten animation begins
Tail	Specifies frame on which the typewritten animation ends
Reset	Resets Head and Tail settings
Spacing	Controls amount and type of spacing between characters
Kerning	Moves a character closer to the previous character in the same word to improve the appearance of the text
Leading	Determines amount of vertical space between lines of text. This parameter can be animated.
Leading Mode	Lets you control spacing between baselines
Minimum Leading	Calculates line spacing by adding largest ascender and descender of all characters on a line to the leading. This is the default mode, and is selected when old presets or projects are loaded.
Full Line Leading	Calculates line spacing by adding largest ascender and descender of all fonts for each line to the leading

Option	Description
Fixed Leading	Takes only leading into consideration when calculating line spacing. It can be used to allow two bodies to have exactly the same line spacing.
Fit Text on One Line	Makes all the text, regardless of length, fit in one horizontal text body

Titling Style

The Titling Style property editor lets you control the entire text body. You can specify whether you want the text to have a face (the front of a character), edges (an outline of the character), or a shadow (an offset of the character to give it a three-dimensional look). Each character can have any combination of these properties along with a unique color, opacity, or softness setting.

Option	Description
Face	Lets you control opacity and softness of the front of a character
Use	Turns face of characters on or off
Opacity	Controls transparency of characters' faces. Values: 0 (completely transparent) to 100 (completely opaque).
Blur X	Controls softness of face in the horizontal (X) direction.
Blur Y	Controls softness of face in the vertical (Y) direction.
Lock	Links the blur of the X and Y directions, so they are identical
Edge	Lets you control opacity, softness, and width of the outline of a character
Use	Turns edge of characters on or off
Face Cut	When selected, performs a cookie cut on the edge using the shape of the face. This option allows a partially transparent face to show through the image from the background.

Option	Description
Width	Sets width, in pixels, of edge. This property can be animated.
Opacity	Controls transparency of edges. Values: 0 (completely transparent) to 100 (completely opaque).
Blur X	Controls softness of edge in the horizontal (X) direction.
Blur Y	Controls softness of edge in the vertical (Y) direction.
Lock	Links the blur of the X and Y directions, so they are identical
Shadow	Lets you control opacity, softness, as well as giving you the option of removing the outline of the shadow from the face.
Use	Turns shadow of characters on or off
Face Cut	When selected, performs a cookie cut on the shadow using the shape of the face. This option allows for a partially transparent face to show through the image from the background.
Opacity	Controls transparency of shadows. Values: 0 (completely transparent) to 100 (completely opaque).
Angle	Sets angle, in degrees, of shadow relative to text. A value of 0, places the shadow directly to the right of the character by the number of pixels defined in the Offset option. A value of 315 (or -45) places the shadow to the right and slightly below the character.
Offset	Sets distance (in pixels) between text and shadow.
Blur X	Controls softness of shadow in the horizontal (X) direction.
Blur Y	Controls softness of shadow in the vertical (Y) direction.
Lock	Links the blur of the X and Y directions, so they are identical

Transformations

The Transformations property page lets you apply transformations on graphics objects. You can transform graphics objects along the horizontal (X) and vertical (Y) axes.

You cannot transform graphics objects along the Z axis and you cannot rotate along the Y axis.

The Transformations property editor is only available after you've created a graphics object.

Option	Description
Center	Lets you specify location of object's center along X and Y axes
Center X	Specifies center of the object along X axis in Avid DS Nitris units (DSUs)
Center Y	Specifies center of the object along Y axis in Avid DS Nitris units (DSUs)
Reset	Resets center parameters to the default values
Translation	Lets you specify how far the object is displaced from its initial position along the X and Y axes
Offset X	Specifies object's offset position along X axis
Offset Y	Specifies object's offset position along Y axis
Reset	Resets Translation parameters to the default values
Dimensions	Lets you resize an object by entering a percentage value or specifying a new size in pixels along the X and Y axes. When you enter a Scale value, the Size value is dynamically updated to reflect the new scale size.
Scale X	Scales object in X direction. A value of 100 is its original scaling. Units are percentages, for example a percentage of 200 doubles the scaling and 50 halves it. To scale proportionally, assign identical values to X and Y.
Scale Y	Scales object in Y direction

Option	Description
Size X	Specifies number of pixels along X axis
Size Y	Specifies number of pixels along Y axis
Reset	Resets Scale and Size parameters to the default values
Lock Aspect	Turns Lock Aspect option on or off. When selected, a change to the X direction updates the corresponding Scale and Size values for Y to maintain the aspect ratio. When deselected, you can vary X and Y dimensions independently.
Rotation	Lets you rotate an object from 0° to 360º
Angle	Controls object's angle of rotation in degrees
Reset	Resets Rotation parameters to the default value
Skew	Lets you slant a stroke or text
Factor	Controls degree to which the stroke or text is skewed in 360º
Reset	Resets Skew parameters to the default value
Reset All	Resets all parameters to the default values

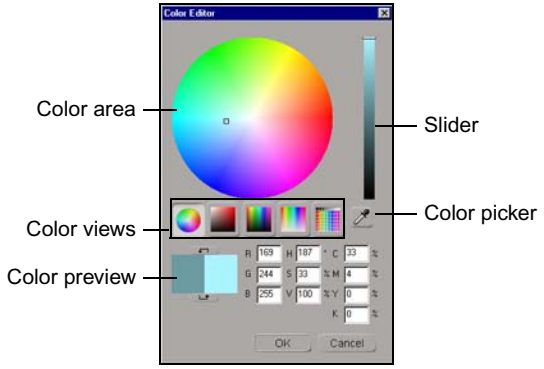
Color Editor Dialog Box

The Color Editor dialog box lets you pick colors from a palette or create new colors. To create new colors, you can pick them from the image in the viewer or from anywhere on the screen, or you can specify the RGB, HSV, or CMYK color model values.

The Color Editor dialog box appears in property editors, where you can select and modify color.

To access the Color Editor dialog box:

- From the property editor, double-click the color swatch.



Option	Description
Color area	Displays a color area based on the color view you selected
Slider	Represents the color view you selected. For example, if you selected the Saturation view, then the slider represents the saturation component.
Color views	Displays different views of color and color components
Color wheel	Displays a color wheel for you to select a color
Hue	Displays a view of the hue component of the HSV color model
Saturation	Displays a view of the saturation component of the HSV color model
Value	Displays a view of the value component of the HSV color model
Color palette	Displays a color palette for you to select a color
Color picker	Lets you select a color from the image in the viewer
Color preview	Displays the previously selected color (left) and the color you are currently selecting (right). The bottom arrow resets the color preview to the previously selected color. The top arrow makes the color you selected (right) the current color.

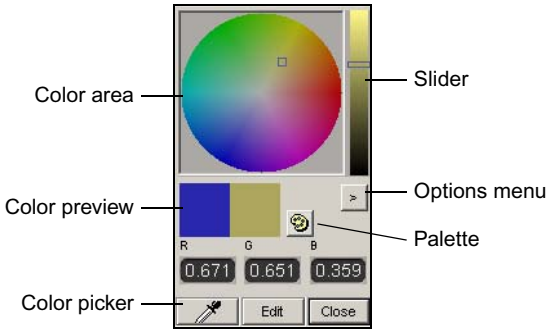
Option	Description
RGB	The RGB (red, green, blue) additive color model. The intensity of each color is represented by a number from 0 to 255. A value of 0 represents no light (black) in a channel and 255 represents maximum light intensity (white) in a channel. For example, (0,0,50) represents a dark blue, while (0,0,255) represents a bright blue. To produce a shade of gray, set all three RGB colors to the same level.
HSV	The HSV (hue, saturation, value) color model. Hue refers to the position of a color measured in degrees on the color wheel (red, yellow, green, cyan, blue, or magenta) and the various shades between them. For example, red is 0, cyan is 180, and magenta is 300. Saturation refers to the purity of color or the amount of gray in the color. Values: 0 (most-saturated color) to 100 (least-saturated color). Value refers to the total amount of light in a color. A value of 0 gives the darkest result (black) and 100 gives the lightest result (white).
CMYK	The CMYK (cyan, magenta, yellow) color model. This model simulates the four-color (CMYK) process used in printing.

Mini Color Editor

The Mini Color editor lets you pick colors from a palette or create new colors. To create new colors, you can pick them from the image in the viewer, from anywhere on the screen, or you can specify the HLS, HSV, or RGB color model values.

To access the Mini Color editor:

- From the property editor, double-click the color swatch.



Option	Description
Color area	Displays a color area based on what you selected from the Options menu
Slider	Represents what you've selected from the Options menu. For example, if you selected HSV Saturation, then the slider represents the saturation.
Color preview	Displays the previously selected color (left) and the color you are currently selecting (right)
Palette	Lets you select a solid color from a pop-up menu
> (Options menu)	Displays different views of the HSV color model
Color Wheel	Displays a color wheel for you to select a color
Vectorscope	Displays an outline color wheel that resembles a vectorscope. This is useful for assessing colors in images without interference from other colored onscreen elements.
HSV Hue	Displays a view of the hue component of the HSV color model
HSV Saturation	Displays a view of the saturation component of the HSV color model
HSV Value	Displays a view of the value component of the HSV color model

Option	Description
HLS	Specifies colors using the HLS (hue, luminance, and saturation) model. Hue refers to the position of a color measured in degrees on the color wheel (red, yellow, green, cyan, blue, or magenta) and the various shades between them. For example, red is 0, cyan is 180, and magenta is 300. Luminance refers to the relative lightness or darkness of a color. A value of 0 gives the darkest result (black) and 100 gives the lightest result (white). Saturation refers to the purity of color or the amount of gray in the color. The values range from 0 (most saturated color) to 100 (least saturated color).
HSV	Specifies colors using the HSV (hue, saturation, value) color model. Hue refers to the position of a color measured in degrees on the color wheel (red, yellow, green, cyan, blue, or magenta) and the various shades between them. For example, red is 0, cyan is 180, and magenta is 300. Saturation refers to the purity of color or the amount of gray in the color. The values range from 0 (most saturated color) to 100 (least saturated color). Value refers to the total amount of light in a color. A value of 0 gives the darkest result (black), and 100 gives the lightest result (white).
RGB	Specifies colors using the RGB (red, green, blue) additive color model. The intensity of each color is represented by a number from 0 to 255. A value of 0 represents no light (black) in a channel, and a value of 255 represents maximum light intensity (white) in a channel. For example, (0,0,50) represents a dark blue, while (0,0,255) represents a bright blue. To produce a shade of gray, set all three RGB colors to the same level.
Normalized	Normalizes the values so that they range from 0 to 1
Color picker	Lets you select a color from the viewer
Edit	Opens the Color Editor dialog box

Import Image Dialog Box

The Import Image dialog box lets you locate the image files that you want to import into your graphics session.

Option	Description
Avid Explorer Tools	Lets you navigate through and manage the contents of your bins.
Blend Property Editor	Changes the way the contents of the bin are displayed. These tools appear for all bin contents.
File Name	Lets you enter a name for your preset.
File Types	Lets you select a file type for your preset.

Import Subtitles Dialog Box

The Import Subtitles dialog box lets you locate the subtitles files that you want to import into your graphics session.

Option	Description
Avid Explorer Tools	Lets you navigate through and manage the contents of your bins.
File Name	Lets you enter a name for your preset.
File Types	Lets you select a file type for your preset.

Header Section Keywords

The following table describes the different keywords used in the header section of a DS Subtitles file.

Keyword	Value	Description
<generate clips>	on or off	Lets you specify if Graphics On Black clips will be generated for subtitles. If <generate clips> is on, a new track is added to the top of the timeline, Graphics On Black clips are generated on that track, the premultiplication setting of the Graphics On Black generated clips is set to on, subtitle text is applied on all RGBA channels, and all Graphics On Black generated clips on the new track are processed. If <generate clips> is off, Graphics timeline effects are created instead. Default is on.
<single effect>	on or off	Lets you specify if a single Graphics effect will contain all subtitles, or if a separate Graphics effect will be created for each subtitle. Default is off.
<force non realtime>	on or off	Lets you specify if the Graphics effects will be forced to be non-realtime. Default is off.
<timecode offset>	A SMPTE timecode, such as 01:00:00:00 or -02:00:00:00	Lets you specify the timecode offset (positive or negative) that will be applied to each subtitle's timecode. Default value is 00:00:00:00.

Keyword	Value	Description
<preset>	The name of a titling body preset	Lets you specify the name of a titling body preset to be used as a template. All subtitles will use most of the properties of that preset. • Properties that won't be used from the preset: Transformation, Masks, and Time Span. • The Titling Body preset must not be animated. • The Face, Edge and Shadow effects must all be Color Blends. • There must be only one tab (the default one) in the titling body preset. • All characters must use the same Titling Font and the same Titling Style. In a DS Subtitles file, the rendering properties that appear before the keyword "<preset>" will be ignored (because they will be overwritten by the preset), and the properties that appear after the keyword "<preset>" will be used (because they will overwrite the ones defined in the preset). *If you want all subtitles to be centered horizontally, set the default alignment to Center before saving your titling body preset.*
<font>	A font name, such as Arial	The font name in the Titling Font property editor. Default font is Arial. *The capitalization of a font name must be respected.*
<font style>	A font style, such as Regular	The font style in the Titling Font property editor. Default style is Regular. *The capitalization of a font style must be respected.*
<font size>	A font size, such as 36	The font size in the Titling Font property editor. Values: 2 to 1024. Default size is 30.
<antialiasing>	on or off	The Antialiasing option in the Titling Font property editor. Default is on.
<antialiasing extra filtering>	Extra filtering value	The Antialiasing Extra Filtering in the Titling Font property editor. Values: 0 to 8. Default is 0.
<antialiasing supersampling>	4x4 or 8x8	The Antialiasing Supersampling option in the Titling Font property editor. Values: 4x4 or 8x8. Default is 4x4.

Keyword	Value	Description
<font kern pairs>	on or off	The Kern Pairs option in the Titling Font property editor. Default is off.
<font hinting>	on or off	The Font Hinting option in the Titling Font property editor. Default is off.
<font filtering>	on or off	The Filtering option in the Titling Font property editor. Default is on.
<font subpixel positioning>	on or off	The Subpixel Positioning option in the Titling Font property editor. Default is on.
<character transform x>	Offset value	The Character Transform X in the Titling Font property editor. Values: -1000 to 1000. Default: is 0.
<character transform y>	Offset value	The Character Transform Y in the Titling Font property editor. Values: -1000 to 1000. Default: is 0.
<use face>	on or off	The Use Face option in the Titling Style property editor. Default is on.
<face color>	RGB values, such as 100 100 100	The color of the Face Color Blend. Each color component must be separated by a space. Values: 0 to 100. Default value is white: 100 100 100
<face opacity>	Opacity value	The Face Opacity in the Titling Style property editor. Values: 0 to 100. Default is 100.
<face softness>	Softness value	The Face Softness (or Blur) in the Titling Style property editor. Values: 0 to 200. Default is 0.
<use edge>	on or off	The Use Edge in the Titling Style property editor. Default is off.
<edge color>	RGB values, such as 100 100 100	The color of the Edge Color Blend. Each color component must be separated by a space. Values: 0 to 100. Default is black: 0 0 0
<edge opacity>	Opacity value	The Edge Opacity in the Titling Style property editor. Values: 0 to 100. Default is 100.
<edge softness>	Softness value	The Edge Softness (or Blur) in the Titling Style property editor. Values: 0 to 200. Default is 0.
<edge width>	Width value	The Edge Width in the Titling Style property editor. Values: 0 to 10. Default is 1.

Keyword	Value	Description
<edge face cut>	on or off	The Edge Face Cut option in the Titling Style property editor. Default is off.
<use shadow>	on or off	The Use Shadow option in the Titling Style property editor. Default is off.
<shadow color>	RGB values, such as 100 100 100	The color of the Shadow Color Blend. Each color component must be separated by a space. Values: 0 to 100. Default is black: 0 0 0
<shadow opacity>	Opacity value	The Shadow Opacity in the Titling Style property editor. Values: 0 to 100. Default is 100.
<shadow softness>	Softness value	The Shadow Softness (or Blur) in the Titling Style property editor. Values: 0 to 200. Default is 0.
<shadow offset>	Offset value	The Shadow Offset in the Titling Style property editor. Values: -500 to 500. Default is 2.
<shadow angle>	Angle value, such as 270	The Shadow Angle in the Titling Style property editor. Values: -360 to 360. Default is 45.
<shadow face cut>	on or off	The Shadow Face Cut option in the Titling Style property editor. Default is off.
<kerning>	Kerning value, such as 1.1	The Kerning in the Titling Body property editor. Values: 0.0 and 50.0. Default is 1.0.
<leading>	Leading value	The Leading in the Titling Body property editor. Values: 0 and 200. Default is 3.
<leading mode>	Leading mode	The Leading Mode in the Titling Body property editor. Modes: minimum, full, or fixed. Default is full.
<alignment>	Alignment value, such as center	Lets you specify the horizontal alignment of the lines of text within each text body. *A text body contains all the lines of a subtitle.* Values: left, right, center, or justify. Default is center.
<safe area>	Area value, such as safe title	Lets you specifiy the area in which subtitles are rendered. The safe area is used as a reference for the alignment of text bodies. Values: safe title, safe action, or full frame. Default is safe title.

Keyword	Value	Description
<text body horizontal alignment>	Alignment value, such as center	Lets you specify the horizontal alignment of each text body within the <safe area>. Values: left, right, or center. Default is center.
<text body vertical alignment>	Alignment value, such as bottom	Lets you specify the vertical alignment of each text body within the <safe area>. Values: bottom, top, or center. Default is bottom.
<text body horizontal offset>	Offset value in DS Unit	Lets you specify an offset to the horizontal position of each text body. The horizontal position of a text body is defined by its width and by the <text body horizontal alignment> within the <safe area>. Values: any positive or negative integer numbers. Default is 0.
<text body vertical offset>	Offset value in DS Unit	Lets you specify an offset to the vertical position of each text body. The vertical position of a text body is defined by its height and by the <text body vertical alignment> within the <safe area>. Values: any positive or negative integer numbers. Default is 0.

Chapter 5
3D DVE and 3D Titling Reference

This chapter contains reference information about 3D DVE and 3D Titling.

- 3D DVE Layout
- 3D DVE Combo View
- 3D DVE Object View (3D OV)
- Effects

3D DVE Layout

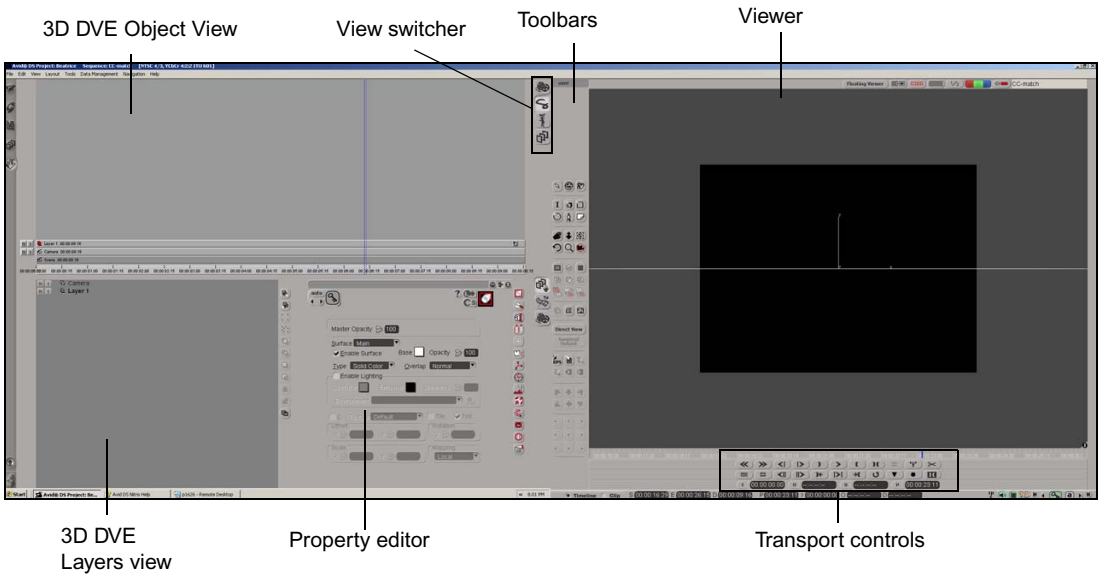
The 3D DVE layout is where you create 3D DVEs and titles. By default, the 3D DVE layout consists of the transport controls, viewer, timeline, Avid Explorer, 3D DVE Layers view, and a series of toolbars and property editors you'll need for working with 3D DVEs and titles.

The buttons in the view switcher let you access the Effects Tree view, animation editor, and 3D DVE Object View.

To access the 3D DVE layout:

- From the taskbar, click the **3D DVE** button.

***Tip**: You can also access the floating 3D DVE Combo View by pressing Ctrl and clicking the 3D DVE button.*



3D DVE Toolbar

The 3D DVE toolbar lets you select and create objects, as well as light and rotate them in three-dimensional space. You can also import text, combine and separate shapes, convert paths to shapes and vice versa, align the edges or centers of multiple objects relative to each other, position objects, determine how objects are displayed in the viewer, and manipulate the camera. This toolbar is in the 3D DVE layout and 3D DVE combo view.

Toolbar	Button	Tool	Description
Tools			
		Edit	Selects, translates, and scales objects
		Rotate	Rotates objects in three-dimensional space
		Light	Creates and adjusts the light sources

Toolbar	Button	Tool	Description
		Text	Creates and edits text objects and text along a path
		Add DVE Node	Creates a DVE object within the current layer and covers the entire scene
		Rectangle	Creates and edits square and rectangular shapes
		Ellipse	Creates and edits circular and elliptical shapes
		Shape	Creates and edits and deforms freeform shapes and path
		Page	Creates a new page
Camera Tools			
		Pan Camera	Pans camera
		Dolly	Dollies camera
		Tumble	Lets you see scene from different angles
		Roll	Rolls camera
		Zoom Camera	Zooms camera
		Reset Current Camera	Resets current camera
Viewer Tools			
		Safe Action/Safe Title	Shows or hides safe action and safe title guides
		View Top	Displays scene from above

Toolbar	Button	Tool	Description
		Grid	Shows or hides grid
		View Left	Displays scene from the left
		View Front	Displays scene from the front. A light-colored orientation grid and axis labels appear in the viewer.
		View Right	Displays scene from the right
		Snap Main Camera to Alternate Camera	Switches the display from main camera to alternate camera
		Toggle Camera	Switches between main and alternate camera
		Snap Alternate Camera to Main Camera	Switches the display from alternate camera to main camera
		Wireframe	Shows objects in wireframe view
		Construction Lines	Shows or hides borders of objects
		Clip to Frame	Shows or hides objects or portions of objects that appear outside the scene
		Direct View	Switches the display between the 3D DVE and container
		Suspend Output	Suspends output to external monitor and floating viewer
Import and Shape Tools			
		Import EPS	Imports an EPS file (shape and color information only)
		Import Text	Import an ASCII text file

Toolbar	Button	Tool	Description
		Path to Shape	Converts a path to a shape
		Shape to Path	Converts a shape to a path
		Combine Shapes	Creates a compound shape from the selected shapes
		Separate Shapes	Separates a compound shape into its individual shapes
Align Tools		Align Left	Aligns the left edges of the selected objects along the left edges of their columns. The aligned objects appear below the reference object.
		Align Horizontal	Aligns the centers of the selected objects along the centers of their columns. The aligned objects appear below the reference object.
		Align Right	Aligns the right edges of the selected objects along the right edges of their columns. The aligned objects appear below the reference object.
		Align Bottom	Aligns the bottom edges of the selected objects along the bottom edges of their columns. The aligned objects appear beside the reference object.
		Align Vertical	Aligns the centers of the selected objects along the centers of their columns. The aligned objects appear beside the reference object.

Toolbar	Button	Tool	Description
		Align Top	Aligns the top edges of the selected objects along the top edges of their columns. The aligned objects appear beside the reference object.
Position Tools			
		Position Top Left	Moves the selected objects to the top-left of the scene, taking into account the safe title guide
		Position Top Center	Moves the selected objects to the top-center of the scene, taking into account the safe title guide
		Position Top Right	Moves the selected objects to the top-right of the scene, taking into account the safe title guide
		Position Middle Left	Moves the selected objects to the middle-left of the scene, taking into account the safe title guide
		Position Middle Center	Moves the selected objects to the middle-center of the scene, taking into account the safe title guide
		Position Middle Right	Moves the selected objects to the middle-right of the scene, taking into account the safe title guide

Toolbar	Button	Tool	Description
		Position Bottom Left	Moves the selected objects to the bottom-left of the scene, taking into account the safe title guide
		Position Bottom Center	Moves the selected objects to the bottom-center of the scene, taking into account the safe title guide
		Position Bottom Right	Moves the selected objects to the bottom-right of the scene, taking into account the safe title guide

3D DVE Layers Toolbar

The 3D DVE Layers toolbar lets you manipulate objects. This toolbar is in the 3D DVE layout and 3D DVE combo view.

Button	Tool	Description
	Select All	Selects all objects in the scene
	Deselect All	Deselects all objects in the scene
	Group	Combines all selected objects into a single object
	Ungroup	Ungroups all selected grouped objects
	Bring to Front	Moves the selected objects above all unselected objects
	Send to Back	Moves the selected objects behind all unselected objects
	Raise	Moves the selected objects forward by one position

Button	Tool	Description
	Lower	Moves the selected objects backward by one position
	Lock	Prevents the selected objects from being manually edited
	Unlock	Allows the selected locked objects to be manually edited
	Unhide All	Shows all hidden objects

3D DVE Property Editors Toolbar

The 3D DVE Property Editors toolbar contains property editors that let you adjust the properties of all objects in the 3D DVE layout. This toolbar is in the 3D DVE layout and 3D DVE combo view.

Button	Tool	Description
	Surfaces	Lets you define the appearance of an object's surfaces and its background
	DVE	Lets you define the behavior and appearance of 3D DVE objects
	Text	Lets you define the attributes of text objects
	Paragraph Editor	Lets you adjust column width, text alignment, paragraph leading, as well as add and remove columns
	Light	Lets you define the type, color, intensity, and location of a light source
	Camera	Lets you set the position of the camera and its interest, roll angle, projection type, and clipping plane distances
	Transform	Lets you define the object transformations, such as the position, scaling, and rotation adjustments

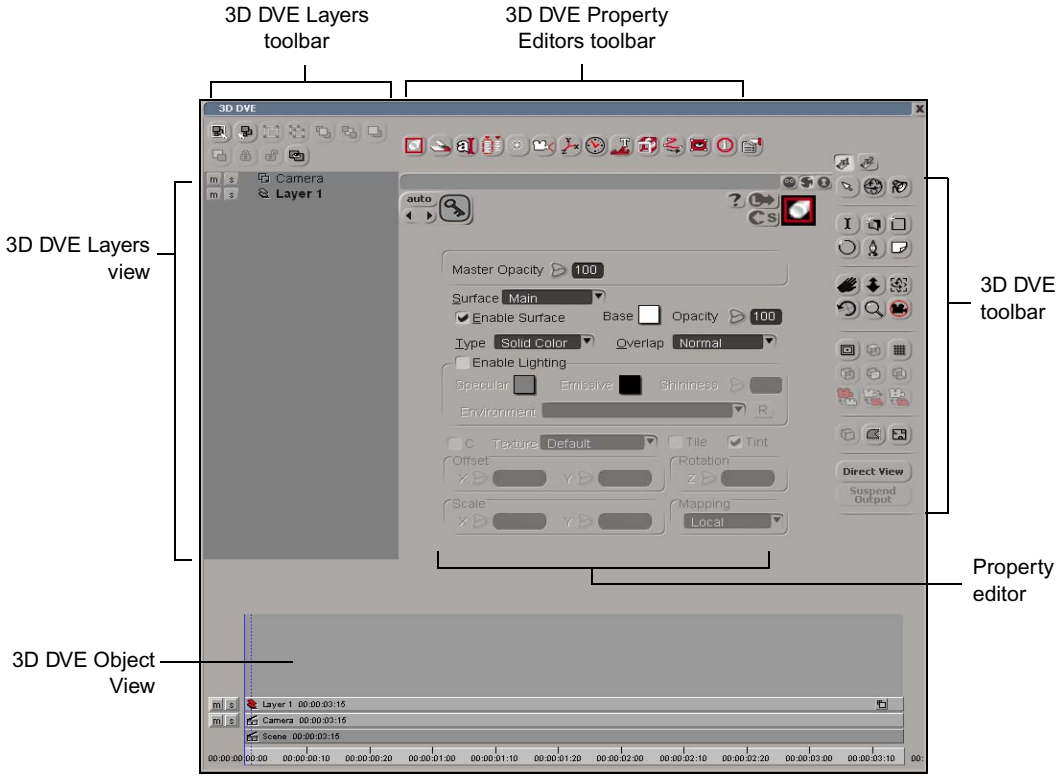
Button	Tool	Description
	Time Span	Lets you define number of frames in which an object exists
	Shadow	Lets you define the appearance and location of an object's shadow
	Effect	Lets you define visual effects that you can apply to objects
	Path	Lets you define the behavior and appearance of text on a path
	Render	Lets you define if and how to draw the object in the scene
	Info	Provides general information about an object
	Options	Lets you set the direct view and output properties

3D DVE Combo View

The 3D DVE combo view is a floating view that lets you create 3D DVEs and titles. You can access this view from several locations in Avid DS Nitris. Like the 3D DVE layout, you can work with surfaces, materials, lights, and shadows, as well as import/export projects.

To access the 3D DVE combo view, hold down the Ctrl key and do one of the following:

- In the taskbar, click the **3D DVE** button.
- On the timeline, double-click a 3D DVE effect bar.
- In an Effects Tree, double-click a 3D DVE node.



3D DVE Object View (3D OV)

The 3D DVE Object View (3D OV) displays DVE objects and their time spans in the current session. This lets you clearly see the timing relationships between all the objects and manipulate them in the 3D OV. You can adjust the start time, end time, and duration of objects, as well as select, hide or show objects.

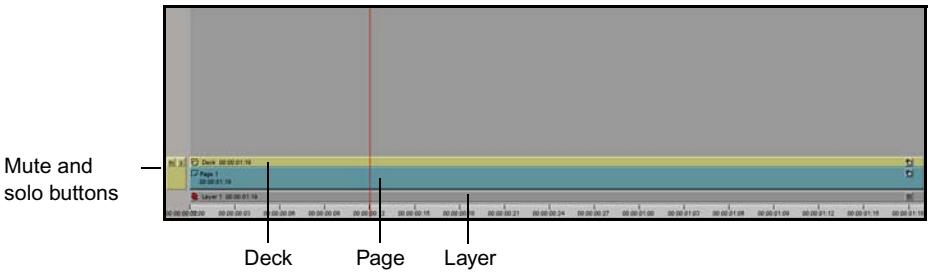
When you create a 3D DVE object in the viewer:

- A bar, representing the object, appears at the bottom of the view. The length of the bar indicates the duration or time span of the object. As you create more objects, they're placed on top of each other, starting from the

bottom. That means, the last object you created is the top one in the 3D OV. In the viewer, the last created object is placed in front of all other objects.

- Each object is given a default name that corresponds to the tool you used to create it. For example, if you used the Light tool, the corresponding bar in the 3D OV will be named "Light1". As you create more objects, the number beside the name increments. You can also rename any 3D DVE objects you create.

***Tip**: If you close the 3D OV and want to reopen it, you can access it from the View > Multi-Instance Views > 3D Object View menu.*



Selecting and Deselecting Objects

If there are many objects in your 3D DVE session, you may find it easier to select objects from the 3D OV than from the viewer.

To select a 3D DVE object:

- In the 3D OV, click the object's bar.

To multi-select 3D DVE objects:

- Hold down the Shift key and click all the bars in the 3D OV representing the objects you want to select.

To deselect all selected objects:

- Click away from an object's bar.

Hiding and Showing Objects

To focus on specific objects in the viewer, you can use the 3D OV to hide or show objects. To reduce the number of objects that you see at any one time in the 3D OV, you can temporarily hide the objects.

To hide an object in the viewer:

- Click the **Mute** button next to the object's corresponding bar. Click the button again to show the object.

To view a specific object in the viewer:

- Click the **Solo** button next to the corresponding bar.

To hide a specific object bar in the 3D OV:

1. Select the bar you want to hide from the 3D OV.
2. Right-click the 3D OV and select **Hide Selected**.

Hidden objects are remain visible in the viewer.

To show all hidden object bars in the 3D OV:

- Right-click the 3D OV and select **Show Hidden**.

Changing an Object's Duration

You can change the duration of an object by changing the start or end points of its corresponding bar in the 3D OV.

1. Select an object in the viewer or 3D OV.

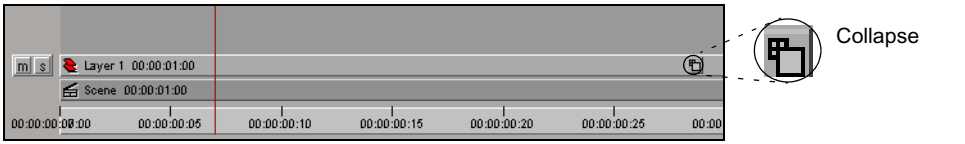
   The selected object appears highlighted in the 3D OV.
2. In the 3D OV, do one of the following:
   - To adjust the start point, drag the left end of the object.
   - To adjust the end point, drag the right end of the object.

   The object's duration changes accordingly.

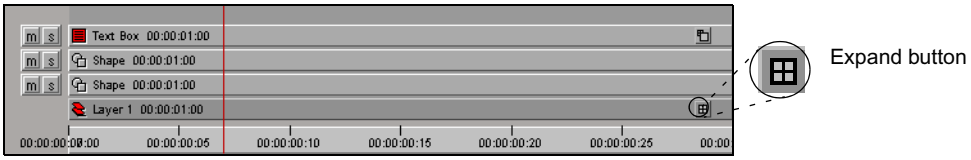
If you drag the middle of the object in the 3D OV, the object's starting and ending points change equally, but the object's duration stays the same.

Collapsing and Expanding Views

Certain types of objects act as a “container” for other objects. For example, a text object contains characters or a page object contains other types of objects, such as decks. You can access an object’s *subobjects* from the 3D OV.



Collapsed view



Expanded view

To access subobjects in the 3D OV:

- Click the **Expand** button in the upper right corner of the object’s corresponding bar.

  The container’s objects appear above it.

To hide subobjects in the 3D OV, do one of the following:

- Click the **Collapse** button.
- Right-click the 3D OV and select **Collapse**.

When you edit an object’s subobjects, all other parent object bars are temporarily hidden. This lets you concentrate on the object’s subobjects, which may be numerous, especially for text objects.

Zooming and Panning in the 3D DVE Object View

At times, there may be so many objects in your 3D DVE session that you can’t see them all in the 3D OV. When this happens, you can pan the 3D OV to focus on specific areas or objects in your session. Similarly, by zooming the 3D OV, you can control the amount of detail that’s displayed.

To zoom the 3D OV:

- Hold down the Z or F2 key, and drag left or right on the GOV.

To pan the 3D OV:

- Hold down the X or F3 key, and drag left or right on the GOV.

To reset zoom or pan in the 3D OV:

- Right-click anywhere in the 3D OV and select **Zoom to Fit**.

3D DVE Layers Menu

The 3D DVE Layers pop-up menu lets you create, rename, rearrange, duplicate, and remove layers.

To access the 3D DVE Layers menu:

- In the 3D DVE layout, right-click an empty area of the 3D DVE Layers view.

Option	Description
New	Lets you create a new two-dimensional or three-dimensional layer
2D Layer	Creates a new two-dimensional layer
3D Layer	Creates a new three-dimensional layer
Cut	Removes the current selection and places it on the Clipboard
Copy	Copies the current selection and places it on the Clipboard
Paste	Replaces the current selection with the contents of the Clipboard
Delete	Removes the current selection
Rename	Renames the selected object
Move	Lets you move the object within its current layer
To Top	Moves the selected object to the top of its layer
Up	Moves the selected object up one position in its layer

Option	Description
Down	Moves the selected object down one position in its layer
To Bottom	Moves the selected object to the bottom of its layer
Layer Type	Lets you set the selected layer's type
2D	Changes the selected layer to a two-dimensional layer
3D	Changes the selected layer to a three-dimensional layer

3D DVE Object View Menu

The 3D DVE Object View pop-up menu lets you show and hide objects and their corresponding bars in the 3D OV and in the viewer.

To access the 3D DVE Object View menu:

- In the 3D DVE layout, right-click an empty area of a 3D DVE Object View.

Option	Description
Hide Selected	Temporarily hides all selected objects from view. The objects are still visible in the viewer.
Show Hidden	Shows all hidden objects
Collapse	Shows the tracks in the current container's container
View Lights	Displays all the lights for the object
Zoom to Fit	Reset the pan and zoom

3D DVE Page Menu

The 3D DVE Page pop-up menu lets you manipulate pages within a deck, as well as add and remove pages.

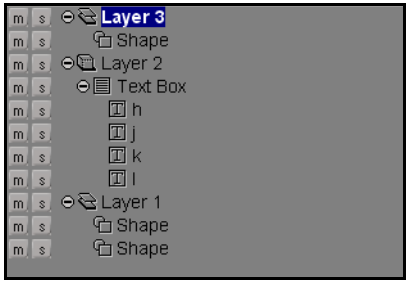
To access the 3D DVE Page menu:

- In the 3D OV, right-click a page bar.

Option	Description
Add Page After	Adds a new page immediately after the current page
Add Page Before	Adds a new page immediately before the current page
Extract Page	Removes current page, closing the gap left by it
Lift Page	Removes current page without closing the gap left by it
Close Gap	Removes current gap
Balance Durations	Changes all pages in the current deck to the same duration
Renumber Pages	Renumbers all the pages in sequence
Clip to Page	Shows or hides the portions of the page's contents appearing outside the dimensions of the page

3D DVE Layers

The 3D DVE Layers view lets you create 2D and 3D layers and control how objects interact. The main part of the view contains a hierarchical list of the layers defined in the current project. The objects in the upper layers appear above objects in the lower layers. Each layer is processed independently.



3D DVE Layers view

You can use layers, which contain objects in a scene, to separate simple title effects from complex three-dimensional animation effects. The following types of layers are available:

- **2D layer**: This type of layer allows objects to move around in three-dimensional space, but does not allow objects to intersect each other. The order of the objects in the 3D DVE Layers view determines which objects are drawn above other objects.

  You can extrude, rotate, and group objects in a 2D layer. However, an extruded or grouped object will not “cut into” objects above or below it.

  2D layers are useful for text and graphics that do not need to intersect each other.

- **3D layer:** This type of layer allows objects to move around in three-dimensional space and intersect each other. The position of objects along the Z axis determines which objects are drawn above other objects. However, the stacking order of objects in the 3D DVE layers view has an effect on overlap (Boolean) effects and shadows.

  New objects that you create in a 2D or 3D layer appear at a Z axis position of 0. You must move the object along the Z axis.

  If you want several objects to retain their relative positions (one object being above another object) as you rotate the objects in tandem, place the objects in a 3D layer. Otherwise, the objects will maintain their priority regardless of orientation and not appear realistic.

The scene, the topmost object, contains lights and any number of layers, each of which contains other types of objects (text boxes, shapes, decks). You cannot create a layer inside another layer. Also, layers are the same size as the scene and exist for the duration of the project.

Creating and Deleting 3D DVE Layers

Adding a layer to a project lets you isolate the interaction of certain objects or create a specific effect that you cannot achieve in an existing layer.

You can remove layers that you no longer need. Layers, like text boxes and pages, are objects that can be empty. If you remove all objects in a layer, the layer is not automatically removed.

To create a layer:

- Right-click the layer above which the new layer will be added, and select **New > 2D Layer** or **3D Layer**.

  The new layer becomes the active layer.

To delete a layer:

- Right-click a layer and select **Delete**.

  The objects in the selected layer are removed.

Reordering 3D DVE Layers

By arranging the order of layers, you can control how layers of objects are composited. Each layer of objects is processed from bottom to top in the 3D DVE Layers view.

To reorder a layer:

- Right-click a layer and select **Move** and one of the following:
  - **To Top** to move the layer to the top of all the layers
  - **Up** to move the layer up one level
  - **Down** to move the layer down one level
  - **To Bottom** to move the layer to the bottom of all the layers

You cannot move a layer within another layer.

Showing and Hiding 3D DVE Layers

Like other objects, you can show and hide layers to concentrate on or process specific parts of the scene.

To show or hide a single layer:

- Click the **Mute** button for the layer.

Objects in hidden layers are not processed.

To show a single layer at a time:

- Click the **Solo** button for the layer. You can select multiple layers to solo.

If you mute and solo a layer, the layer is soloed.

To show all layers:

- Click the **Unhide All** button in the 3D DVE Layers toolbar.

Changing a 3D DVE Layer's Type

A layer can be two-dimensional or three-dimensional. You can change the layer's type at any time.

When you change a layer's type, objects may be positioned differently.

To change a layer's type:

- Right-click a layer and select **Layer Type > 2D or 3D**.

2D layer

3D layer

Renaming 3D DVE Layers

By default, each layer has a generic name. You can rename each layer to help identify the objects within it. For example, you can use the name "Logo Animation" for a 3D layer that has an animated corporate logo.

To rename a layer:

1. Right-click the name of a layer and select **Rename**.
2. Enter a new name and press Enter.

Manipulating Objects in 3D DVE Layers

You can manipulate objects in layers in much the same way as you manipulate other types of objects.

Selecting 3D DVE Layers

Although you can create multiple layers in a scene, only one layer is active (current) at a time. Objects that you create or paste appear in the current layer. You must be aware of the current layer when you work in a project, so that you do not create objects in the wrong layer.

To select a layer, do one of the following:

- Click a layer name in the 3D DVE Layers view.
- Click an object in the layer or the viewer.

Selecting Objects in a 3D DVE Layer

You must select objects before you can perform operations on them. Objects that you select in the viewer are also selected in the 3D DVE Layers view. When you deselect all objects in a layer, the objects' layer remains the current layer.

You cannot select objects in different layers at the same time.

To select a single object:

- Click an object.

To select a range of objects:

- Click the first object in the range, press Shift and click the last object in the range.

To switch the selection of an object:

- Press Ctrl and click the object.

Copying and Moving Objects between 3D DVE Layers

Each object exists within its own layers. Moving an object to the front or back of other objects, using the Bring to Front or Send to Back commands, does not move an object outside of its layer.

To copy an object to another layer:

1. Select an object.
2. Do one of the following:

- From the Edit menu, select **Copy** or **Cut.**
- Right-click an object and select **Copy** or **Cut**.

3. Select the layer to which you want to copy the selected object.
4. Do one of the following:
   - From the Edit menu, select **Paste.**
   - Right-click an object and select **Paste**.

   The pasted object becomes the topmost object.

Reordering 3D DVE Objects

If you want an object to appear in front of or behind another object, such as moving a gradient oval behind some text or want to draw an object before/after another object, you can reorder them.

Although objects in a 3D layer are positioned based on their positions along the Z axis, the stacking order of an object still affects perspective and Boolean effects.

Also, you cannot reorder characters in a text object.

To reorder objects:

1. Select an object from the 3D DVE Layers view.
2. Right-click an empty area of the 3D DVE Layers view and select **Move** and one of the following:
   - **To Top** to move the selected object in the front of all other objects.
   - **Up** to move the selected object up by one level.
   - **Down** to move the selected object down by one level.
   - **To Bottom** to move the selected object to the back of all other objects.

Viewing a 3D DVE Layer from Different Sides

When placing objects on a layer, the relative location of objects along the Z axis is hard to determine in the viewer. By viewing the layer from different sides, you can easily move objects in depth.

To view a layer from different sides:

1. Select an object or layer.

   The current layer's name appears bold.

2. Select a layer side view from the 3D DVE toolbar.

Button	Layer side view
	Front
	Right
	Left
	Top

3D DVE Page (Viewer) Menu

The 3D DVE Page (Viewer) pop-up menu lets you add and remove pages within a deck, as well as extract pages, and balance the duration of pages.

To access the 3D DVE Page menu:

- In the 3D DVE layout, right-click an empty area of a 3D DVE page in the viewer.

Option	Description
Add Page After	Adds a new page immediately after the current page
Add Page Before	Adds a new page immediately before the current page
Extract Page	Removes the current page, closing the gap left by it
Balance Durations	Changes all pages in the current deck to the same duration
Clip to Page	Shows or hides the portions of the page's contents appearing outside the dimensions of the page

Light Menu

The Light pop-up menu lets you add or delete lights, turn lights on or off, and set a light source type.

To access the Light menu

- In the 3D DVE layout, right-click the viewer, while using the Light tool, to display the pop-up menu.

Option	Description
Add Light	Adds a new light source to the scene at the current pointer location
Delete Lights	Deletes the selected light sources from the scene
Enable Lights	Turns on the selected light sources
Disable Lights	Turns off the selected light sources
Light Type	Lets you set a light source type
Infinite	Makes the selected light source an infinite light. An infinite light source appears very far away, so that the light rays are essentially parallel to each other. The sun is an example of an infinite light source.
Local	Makes the selected light source a local light. A local light extends from a single point evenly in all directions.
Spot	Makes the selected light source a spot light. A spot light extends from a single point in a cone shape, casting light on a specific oval or circular area of a scene.

Rotate Menu

The Rotate pop-up menu lets you reset the rotation and anchor point of objects.

To access the Rotate menu:

1. In the 3D DVE layout, click the **Rotate** button in 3D DVE toolbar.
2. Right-click the selected object.

Option	Description
Reset Rotation	Resets the rotation angles to the defaults
Reset Anchor Point	Resets the selected objects' anchor points to their default locations

Shape Menu

The Shape pop-up menu lets you manipulate control points and combine shapes.

To access the Shape menu:

- In the 3D DVE layout, right-click above a control point or segment of a shape.

Option	Description
Insert Point	Adds a control point to the shape under the pointer
Delete Points	Removes the active control points
Break Point	Opens a closed shape or splits an open shape in two at the control point under the pointer
Make Cusp Points	Makes a corner in the shape's contour at the control point under the pointer
Make Smooth Points	Makes a shape's contour smooth at the control point under the pointer
Select All Points	Selects all control points on the shape under the pointer
Deselect All Points	Deselects all control points on the shape under the pointer
Delete Segment	Removes the segment of the shape under the pointer
Copy As Shape	Copies the curve (that is part of a compound shape) under the pointer as a separate shape
Reverse Direction	Changes the direction of the curve
Fill Curve	Controls whether the curve under the pointer is filled or not

Option	Description
Combine Mode	Lets you combine the shape under the pointer with the rest of the compound shape
Subtract	Inverts the shape's area from the compound shape, creating cutouts and holes in the compound shape
Add	Merges the areas of the shape and its compound shape, increasing the total area

Text Menu

The Text pop-up menu lets you set the motion and alignment of text.

To access the Text menu:

- In the 3D DVE layout, right-click a text body.

Option	Description
Motion	Lets you select a type of motion for text objects
Static	Makes the current text body a static (no scrolling) object
Roll	Makes the current text body a roll (vertically scrolling) text object
Crawl	Makes the current text body a crawl (horizontally scrolling) text object
Align	Lets you set the alignment for the text objects
Left	Aligns the text along the left edge of the current column
Center	Aligns the text horizontally within current column
Right	Aligns the text along the right edge of the current column
Justify	Aligns the text along both edges of the current column, adding equal space between words
Equally Space	Aligns the text along the both edges of the current column, adding equal space between characters

Option	Description
Clip to Text Box	Shows or hides the portions of characters that appear outside the dimensions of the text body. This command is not available for text on a path.
Property Mode	Lets you set the text alignment for text objects
Time	Makes each character on the path use its own property values
Position	Makes each character on the path use the path's property values at the character's position along the path. *When using the Position mode in text along a path, you must be in Autokey mode.*
Direction	Lets you set a text direction for text objects
Left-to-Right	New characters are added to the right of the previous character
Right-to-Left	New characters are added to the left of the previous character. Use this option for languages, such as Hebrew, that are written in a right-to-left direction.

Effects

Effect

The Effect property editor lets you define visual effects that you can apply to objects.

Option	Description
Profile	Lets you select effect that modifies the appearance of the object's edge surface. Profiles come in three sizes: large, medium, or small.
Extrude Depth	Controls thickness of extruded object. Default is 0 percent.

Option	Description
Render as Wireframe	Determines whether to draw the object as an outline instead of a solid. The appearance of the wireframe outline is the same as the object's main material. The default is off. This option can improve the rendering time of your scene.

Info

The Info property editor provides general information about an object.

Option	Description
Name	Lets you view name of object (except for pages). By default, a generic name is assigned to the object. Use this name to identify similar types of objects in the viewer. Default is the object type.
Comment	Lets you add comment to an object to remind yourself of the purpose or any other type of information about the object
Container	Controls object container's width, height, and depth, based on the current unit of measure. This operation applies to text objects only.

Light

The Light property editor lets you define the type, color, intensity, and location of a light source.

Option	Description
Enable Light	Turns light source on or off. When selected, the default light sources are drawn using solid lines. When deselected, sources are drawn using dashed lines.

Option	Description
Light Color	Sets color of light emitted from light source. Default color is white.
Color swatch	Displays the current color. Click the color swatch and select a color, or double-click to display the Mini Color Editor.
Type	Lets you set type of light source: Infinite, Local, or Spot. Default is Local.
Infinite	Makes selected light source an infinite light. An infinite light source appears very far away, so that the light rays are essentially parallel to each other. The sun is an example of an infinite light source.
Local	Makes selected light source a local light. A local light extends from a single point evenly in all directions.
Spot	Makes selected light source a spot light. A spot light extends from a single point in a cone shape, casting light on a specific oval or circular area of a scene.
Intensity	Controls brightness of light source, from 0 (no intensity) to 100 (normal intensity) and higher. Intensity can also be less than 0 to produce a “black light” effect on surfaces whose emissive color is not black. Default is 100.
Spot Target	This option applies to spot lights only. Sets location in the scene that the spot light points to. Default is 0 for X, Y, and Z.
Spot Size	This option applies to spot lights only. Controls area defined by cone of light. Spot size is expressed as an angle, where 0º is a zero-width cone or no light and 90º is a very wide cone. Default is 20º.
Spot Falloff	This option applies to spot lights only. Controls how sharply light intensity drops off from spot target. Controls softness of the light at its perimeter, which can affect the apparent intensity of the light. Values: 0 (least soft, high-apparent intensity) to 100 (softest, lowest apparent intensity). Default is 50.

Paragraph

The Paragraph property editor lets you adjust a column's width, the alignment of text within a column, the leading of a paragraph, and the space after a paragraph. You can also add and remove columns.

Option	Description
Left	Refers to width of left edge of a column
Right	Refers to width of right edge of a column
Alignment	Refers to alignment of text within a column
Update All Selected Paragraphs	Applies changes to selected paragraphs only
Add	Inserts a column
Remove	Deletes a column
Balance	Sets same width for all columns on a line
Leading	Changes vertical space between lines of a word-wrapped paragraph. Adjusting the leading affects the space after each selected line, except the last selected line in a paragraph.
Space After	Changes vertical space between last line of one paragraph and the first line of the next paragraph. When you adjust paragraph spacing, you are adjusting the space after each selected paragraph.

Render

The Render property editor lets you determine if and how objects are drawn in the scene.

Option	Description
Show Object	Controls whether object is visible. Default is on.
Generate Matte	Controls whether object participates in the creation of the matte for the current frame. Default is on.

Option	Description
Cull Back Faces	Controls whether to draw the back side (surface) of an object. If the back side is not drawn, the object is transparent when the back faces are visible. The default is off. This option can improve the rendering time of your scene.

Shadow

The Shadow property editor lets you define the appearance and location of an object's shadow.

Option	Description
Show Shadow	Turns object's shadow on or off. By default, this option is off.
Shadow Color	Displays shadow's color or tint (if using a texture). Default color is black.
Color swatch	Displays current color. Click the color swatch and select a color, or double-click to display the Mini Color Editor.
Type	Lets you select type of shadow to use
Drop	The shadow is located on the shadow plane, which is parallel to and always behind the object. Drop shadows are not affected by light sources in the scene. This is the default shadow type.
Local	The shadow is located on the shadow plane, which is either hinged to a side of the object's bounding box or parallel to the object.
Projected	The shadow is cast from one of the light sources in the scene onto the shadow plane. By default, the shadow plane is hinged to the bottom of the scene.
Projected From	For projected shadows, the light source that produces the projected shadow. Default is 1.
X Offset	(For drop shadows only) Controls the horizontal position of the shadow, relative to the object. Default is 1.

Option	Description
Y Offset	(For drop shadows only) Controls the vertical position of the shadow, relative to the object. Default is –1.
Opacity	Controls the amount of blending the shadow has with objects behind it. Default is 50%.
Softness	Controls softness of shadow's edges. Default is 0%.
Hinge	Location and orientation of shadow plane. Default side is Bottom, Angle is 45, Offset is 0, and Skew is 0. *These parameters cannot be used for the drop shadow.*
Side	Specifies side to which a shadow plane is attached
Angle	Specifies angle of the shadow plane hinge
Offset	Specifies offset for the shadow plane hinge. For local shadows, the offset controls the distance of the shadow plane away from the hinge point. For projected shadows, the offset controls the movement of the shadow plane along global axes.
Skew	Specifies skew along local X axis. This parameter applies to local shadows only.
Texture	Lets you select an image or animation file from the texture gallery or a DS input instead of a solid color

Surfaces

The Surfaces property editor lets you define the appearance of an object's surfaces and its background.

Option	Description
Master Opacity	Lets you controls the visibility of an object; used to fade an object in or out. Default is 100%.
Surface	Lets you select area of object to modify
Main	The front and back sides of the object. This is the default surface.

Option	Description
Profile	The outline of character or shapes
Extrude	The area created by the extruded sides of an object
Background	The area behind all objects in text body objects and the reverse side of 3D DVE objects
Enable Surface	Controls whether the surface uses material properties different from the other surfaces of the object
Base	Lets you select base color of surface's material. Default is white.
Color swatch	Click the color swatch and select a color, or double-click to display the Mini Color Editor.
Opacity	Controls transparency of surface's material. Default is 100%.
Type	Lets you select type of material on the surface
Solid Color	Selects a solid color as the material on the surface. This is the default type of material.
Texture	Selects a bitmap image or animation as the material on the surface
Overlap	Lets you select the effect to apply to the area of the surface that overlaps other object surfaces. The default is Normal.
Normal	The surface is not affected by other surfaces under it. This is the default setting.
Invert	The color of each pixel under the surface is reversed or inverted. Specifically, the hue of each color is rotated by 180°, and the saturation and brightness switch values; white becomes black, black becomes white, and red becomes cyan. Changes to the surface's opacity and type do not affect the result. You can achieve the best results by using this effect on a solid surface.

Option	Description
And	The color of each pixel under the surface appears tinted. Specifically, a bitwise (bit for bit) And operation is performed between the binary representations of each pixel in the surface and the other surfaces under it. In an And operation, both bits must be 1 for the result to be 1. Otherwise, the result is 0. Changes to the surface's type affect the result. A solid white surface does not produce any change to the underlying surfaces. You can achieve good results using opaque solid colors, but not as good combining gradients or textures with other gradients or textures or using semitransparent solid colors.
Exclusive Or	The color of each pixel under the surface is reversed or inverted in a way similar to the Invert overlap effect, except that the surface's appearance affects the result. Specifically, a bitwise (bit for bit) Exclusive Or or Xor operation is performed between the binary representations of each pixel in the surface and the other surfaces under it. In an Xor operation, the resulting bit is 1 if only one of the bits is 1. Otherwise, the result is 0. Changes to the surface's type affect the result. You can achieve good results using opaque solid colors. Results are not as good when you combining gradients or textures with other gradients or textures.
Not Or	The color of each pixel under the surface is reversed or inverted in some combinations and tinted in others. Specifically, a bitwise (bit for bit) Or operation is performed between the binary representations of each pixel in the surface and the other surfaces under it. Then the resulting bit is inverted (Not operation). In a Not Or operation, the resulting bit is 1 if both bits are the same. Otherwise, the result is 0. Changes to the surface's type affect the result. A solid white surface produces black. A solid black surface produces an effect similar to the Invert overlap effect. You can achieve good results using opaque solid colors. Results are not as good when you combine gradients or textures with other gradients or textures.

Option	Description
Enable Lighting	Controls whether the surface's material is affected by light sources. By default, this option is off.
Specular	(Lit materials only) Controls the color and intensity of the specular highlight. Default is gray. Click the color swatch and select a color, or double-click to display the Mini Color Editor.
Emissive	(Lit materials only) Controls lightness of areas not lit by lights. The color of the surface's material at the points farthest from a light source. Default is black. Click the color swatch and select a color, or double-click to display the Mini Color Editor.
Shininess	(Lit materials only) Controls size of light and how shiny or dull the surface's material appears. Default is 10.
Environment	(Lit materials only) A texture that is reflected on the surface, depending on the object's orientation and position.
R	Resets Environment to none
C	Displays Crop parameters *A negative crop value will cause areas outside of the texture to be displayed, and if the Allow Tiling for DS Inputs option (on the 3D DVE/Options property editor) is deselected then you may see undesirable artifacts.*
Texture	Displays file name of texture image mapped onto the surface
Tile	Controls whether a scaled-down texture is tiled or repeated on the surface. By default, this option is off.
Tint	Controls whether the material's texture is tinted by the Base color. By default, Tint is on.
Offset	Controls offset of texture relative to its original position on a surface. Default is 0.
Rotation	Controls angle of rotation of the texture on its surface. Default is 0°.

Option	Description
Scale	Controls scale factor of the texture on the surface. Default is 100%. *A scale value less than 100% will cause areas outside of the texture to be displayed, and if the Allow Tiling for DS Inputs option (on the 3D DVE/Options property editor) is deselected then you may see undesirable artifacts.*
Mapping	Lets you select the method of applying the texture to the surface.
Local	Applies the texture to each object as if it were a decal. If you use local mapping on a container object, each object within the container is applied separately. This is the default mapping.
Object Container	Applies the texture based on the dimensions of the object's container. For example, you can apply a texture to a shape but make the texture relative to the scene's dimensions. This option also allows you to apply a texture to the contents of an object, such as the characters in a text body.
Reflection	Uses the surface of the object as if it were a mirror reflecting the texture (*reflection map*). Reflection maps are mainly used as "ambient" textures.

Time Span (3D DVE)

The Time Span property editor lets you define the number of frames in which an object or camera exists. To change the time span, you must first select the object through the viewer or the 3D Object view.

Option	Description
This Frame Only	Specifies that the in timecode corresponds to the current frame and the out timecode corresponds to the frame that follows the current frame, for a duration of one frame.
This Frame to End	Specifies that the in timecode corresponds to the current frame and the out timecode corresponds to the frame that follows the last frame where the object was applied.

Option	Description
Start to End	Specifies that the in timecode corresponds to 00:00:00:00 (local time) and the out timecode corresponds to the frame that follows the last frame of the 3D DVE session.
Start to This Frame	Specifies that the in timecode corresponds to 00:00:00:00 and the out timecode corresponds to the current frame.
In	Specifies timecode of first frame in which you want the object to appear
Out	Specifies timecode of frame that follows the last frame in which you want the object to appear
Duration	Specifies total number of frames in which you want the object to appear
Lock	Retains object's duration, but slides it in time by changing the in or out timecode
Crop animation curves when changing object time span	Determines whether object's animation curves are cropped or scaled when the time span is modified

3D DVE

The 3D DVE property editor lets you define the behavior and appearance of 3D DVE objects.

Option	Description
Effect	Lets you select type of effect for DVE object
Border	Places colored frame around edge. The border can have a soft outer edge. Unlike the Border profile effect, which cannot be used on DVE objects, the border in a Border DVE overlaps the edges of an image. • Size: The thickness of the border; default is 0. • Softness: The softness of the outer edge of the border. A value of 0 (default) produces a hard edge. • Color: The color of the border; default s black.

Option	Description
Default	Creates rectangular surface. This is the default DVE.
Page Curl	Creates animated curl effect over duration of 3D DVE time span. Curls surface as if it were a page of a book being turned, showing the back surface on the opposite side. You can control the tightness and angle of the curl. • Radius: The size of the curl. Smaller values produce tighter curls, whereas larger values produce looser curls. The surface cannot curl around itself. The closest the surface can be is parallel to itself. Default is 0.10. • Angle: The direction that the surface will turn or flip across the surface. Default is 0. • Curl time: The position of the curl as it moves across the surface. Animate this property to curl the surface completely off. Default is 0.
Ripple	Produces parallel waves across surface. You can control the height, number, and direction of the waves. • Amplitude: The height of the waves in the ripple. Default is 0.10. • Angle: The direction that the ripples move across the surface. Default is 0. • Ripple time: The time required for the ripple to move across the surface. Animate this property to produce a rolling motion. Default is 0. • Frequency: The number of ripples on the surface. Default is 1.
Sphere	Produces cylindrical, spherical, and other distorted surfaces. You can control the horizontal and vertical curvature to produce different results. • Angle: The horizontal curvature of the surface. Default is 360. • Distortion: The vertical curvature of the surface. Default is 1.

Option	Description
Displacement	Controls use of a displacement map to simulate a non-smooth surface
Texture	Lets you select image whose alpha channel or grayscale version defines the contour on the surface
Scale	Scales magnitude of the displacement. Higher scale values produce larger, exaggerated bumps and valleys, whereas lower scale values produce smaller, subtle bumps and valleys.
Offset	Offsets magnitude of the displacement. Higher scale values produce larger, exaggerated bumps and valleys, whereas lower scale values produce smaller, subtle bumps and valleys.
Softness	Sets smoothness of surface. You can soften a displacement map to hide irregularities in grayscale levels in the texture. Higher softness values produce a smoother surface, whereas lower softness values produce a coarser surface.
Detail	Controls level of detail for DVE. Default is 1 for X and Y.
Options	Displays properties for selected DVE

3D DVE/Options

The 3D DVE/Options property editor lets you display and render backgrounds, and control the quality of objects drawn in the viewer.

Preferences Property Page

The Preferences property page lets you set the projection of your 3D DVE session, as well as display and render backgrounds.

Option	Description
Background	Displays .tif images and Avid DS Nitris inputs that you can use as the background in your scene

Option	Description
Allow Tiling for DS Inputs	Allows DS inputs, used as textures, to be tiled. Default is off. *Turning off this option will noticeably increase interactivity. If you're using textured surfaces, it will improve rendering speed.*
Auto-Create DVE on New Input	Automatically creates a DVE in the 3D DVE layout and connects the image to the new input in an Effects Tree. This option is on by default in the 3D DVE presets, but not in the 3D DVE layout.

Output Property Page

The Output property page lets you determine how objects in your 3D DVE session are rendered and displayed on the external monitor. You should raise the values when you're ready to do a final render.

Option	Description
Use Video-safe Colors	Ensures that the colors in the scene are not too saturated for the NTSC or PAL broadcast standard. Otherwise, artifacts appear on the video display.
Enable Motion Blur	Simulates a blurry motion. *Motion blur is a very time-intensive effect, especially when you use a long exposure time.*
Use Premultiplied Alpha	Multiplies red, green, and blue values of each pixel in the image by the pixel's alpha value. For example, if the red value of a pixel is 200 out of 255 and the alpha value for the pixel is 50 out of 100%, the red value would be stored as 100 (50% of 200). With the alpha channel information integrated in the color information, you can quickly composite the image with other images. This option is on by default.

Option	Description
Exposure	Represents exposure time, measured in seconds, that shutter is open. The blurriness of a moving object depends on how long the camera's shutter is open. The longer the shutter is open, the blurrier the object appears, and vice versa.
Suppress Vertical Jitter	Applies a one-pixel blur to text to dampen effect of jittery text. You should not use this option if the text is not moving vertically or if no jitter exists.
Enable Image Blur	Applies a slight blur (a 3x3 convolution) to helps to remove jaggies. This option is off by default.
Custom Quality	Lets you control and customize rendering quality
Antialiasing	Controls smoothness of edges of objects
None	Applies no antialiasing; produces jagged or aliased edges
Fast2d	Draws flat objects (not objects that are extruded, have a profile, or are DVEs) with antialiased line around edges for smoother edges, especially in high-resolution (film, DTV) projects
Low	Produces quick, low-quality rendering of objects. Outlines of objects appear aliased (jagged). Useful when you need the quickest response time (feedback) and aren't concerned with the visual accuracy of the objects. The quality setting does not affect the rendering quality.
Medium	Produces an average rendering of objects. The edges of objects are antialiased (smooth). This setting is the default and is sufficient for most projects.
High	Produces a higher-quality rendering of objects, but may take longer to render on screen, especially if the Enable Motion Blur is selected. The edges of objects are antialiased. Useful when you need the highest level of visual accuracy or realism.

Option	Description
Texturing	Controls quality of textured surfaces, in proportion to the time required to render the texture onto the surface. The lower the texturing quality, the faster it is to render the texture, and vice versa. On some workstations, texturing can be a slow operation depending on the configuration. At the Low texturing setting, large textures mapped onto small surfaces may appear pixelated.
Lighting	Controls quality of textured, lit surfaces. This parameter has no effect on textured surfaces whose specular color is black.
Low	Renders objects in one pass. Appropriate for objects with no highlights.
High	Renders objects using a second pass to display highlights properly.
Tessellation	Controls smoothness or approximation of curved edges on characters and shapes. Values: 0.10 to 10.00; default is 3.00. As the value increases, the curve is less faceted and smoother. This setting can have a significant effect on performance.
Shadowing	Controls quality of soft shadows. Values: 0.10 to 2.00. Default is 1.00, 0.50 is half as good, and 2.00 is twice as good. This setting can have a significant effect on performance. Low quality uses a setting of 0.50. Medium quality uses a setting of 1.00. High quality uses a setting of 2.00.
Motion Blur	Controls degree of blurring of fast-moving objects in a motion-blurred scene. Values: 0.25 to 2.00. Default is 1.00, 0.50 is half the blur, and 2.00 is twice as the blur. This setting can have a significant effect on performance. This setting affects rendered frames only.

Direct View Property Page

The Direct View property page lets you control the quality of objects drawn in the viewer. When in the Direct View mode, you can set the antialiasing level, texture, lighting, tessellation, shadows, and motion blur.

Option	Description
Antialiasing	Controls smoothness of the edges of objects
Fast2d	Draws flat objects (not objects that are extruded, have a profile, or are DVEs) with antialiased line around edges for smoother edges, especially in high-resolution (film, DTV) projects
None	Applies no antialiasing; produces jagged or aliased edges
Texturing	Controls quality of textured surfaces, in proportion to the time required to render the texture onto the surface. The lower the texturing quality, the faster it is to render the texture, and vice versa. On some workstations, texturing can be a slow operation, depending on the configuration. At the Low texturing setting, large textures mapped onto small surfaces may appear pixelated.
Lighting	Controls quality of textured, lit surfaces. Use the Low setting for matte objects and the High setting for objects with highlights. The High setting produces a better result. This parameter has no effect on textured surfaces whose specular color is black. Low quality uses Low lighting. Medium and High quality use High lighting.
Tessellation	Controls smoothness or approximation of curved edges on characters and shapes. Values: 0.10 to 10.00; default is 3.00. As the value increases, the curve is less faceted and smoother. This setting can have a significant effect on performance.

Option	Description
Shadowing	Controls quality of soft shadows. Values: 0.10 to 2.00. Default is 1.00, 0.50 is half as good, and 2.00 is twice as good. This setting can have a significant effect on performance. Low quality uses a setting of 0.50. Medium quality uses a setting of 1.00. High quality uses a setting of 2.00.
View as Wireframe	Displays all objects in wireframe
View Background	Turns the background on or off
Show Ground Plane	Turns the ground plane on or off
Enable External Monitor	Turns external monitor on or off

Camera

The Camera property editor lets you set the parameters which define how the camera will “see” your scene. You can set the position of the camera and its interest, the roll angle, the type of projection, and the clipping plane distances.

Option	Description
Position	Defines global coordinates of the camera in X, Y, and Z directions
Interest	Defines position of camera’s interest. The interest, what the camera is always looking at, is at the center of the interest plane. The interest plane is defined as the area visible through the camera.
Roll	Controls angle of camera roll. Negative values make the camera roll left and positive values make the camera roll right in the Z axis.
Projection	Defines type of projection to use
Orthographic	Uses an orthographic projection, in which all camera rays are parallel and objects do not change size as they change distance from the camera

Option	Description
Perspective	Uses a perspective projection, which simulates perspective foreshortening. This projection simulates a real camera.
Field of View	Lets you choose angle and type of field of view
Angle	Specifies angle of the field of view. Small angles are equivalent to a telephoto lens and larger angles are equivalent to a wide angle lens.
Vertical	Specifies vertical field of view
Horizontal	Specifies horizontal field of view
Clipping Planes	Sets minimum and maximum viewable distances from camera. Objects closer than the near clipping plane or farther than the far clipping plane are not visible. By default, the near plane is very close to the camera and the far plane is very far away, so most objects are usually visible. You can set clipping planes to display or hide specific objects.
Near	Sets minimum viewable distance from camera. Objects in front of this plane will not be visible.
Far	Sets maximum viewable distance camera. Objects behind this plane will not be visible.
Reset	Resets all parameters of the Camera property page to the default values

Path

The Path property editor lets you define the behavior and appearance of text on a path.

Option	Description
Baseline Offset	Controls offset of the characters of text, measured from their baseline, from the path. Default is 0% of the scene height.

Option	Description
Orientation	Lets you set direction of the characters of text on the path. Default orientation is Follow.

Transform

The Transform property page lets you define object transformations, such as position, scaling, and rotation adjustments.

Option	Description
Position	Controls the position of the object in three-dimensional space relative to the origin. Objects in a scene that are too close or too far away are not drawn. To simulate very large or very small objects, use the Scale controls. Default is 0%.
Scale	Controls the scale percentage, relative to the object's original size. Scaling occurs relative to the object's anchor point, unlike scaling an object manually. Default is 100%.
Rotation	Controls angle of rotation in three-dimensional space, relative to object's original orientation. Default is 0, 0, 0.
Anchor Point	Controls offset from the center of the object's bounding box, from which to scale or rotate the object. Default is 0, 0, 0.
Reset	Resets all parameters to the default values

Chapter 6
Compositing Reference

This chapter includes reference information on features you use during compositing.

- Layers View
- Effects Tree
- Compositing Effects

Layers View

The Layers view lets you determine the order and appearance of composited clips.

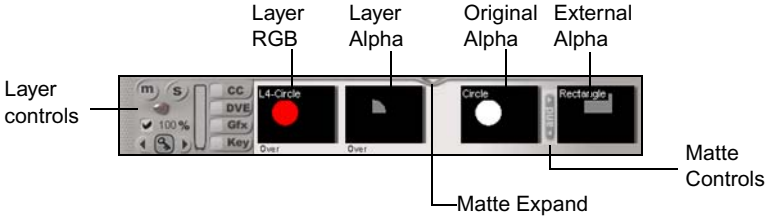
You can do the following for each layer:

- Apply these effects: Key, DVE, Color Correction, and Graphics
- Apply one or more external mattes to individual layers
- Apply compositing and blend operations between the RGB and alpha components of adjacent layers.

Layers

When working in the Compositing layout, the tracks on the timeline serve as a working area for you to prepare clips and create mattes. You can create a layer by dragging a track to the Layers view or by dragging clips from a bin to the Layers view.

You can have any number of layers in a composite. Each layer has controls that let you determine its order and appearance in the composite. You can add keyer, DVE, color correction or graphics effects, or Effects Trees, as well as apply external mattes on a layer.

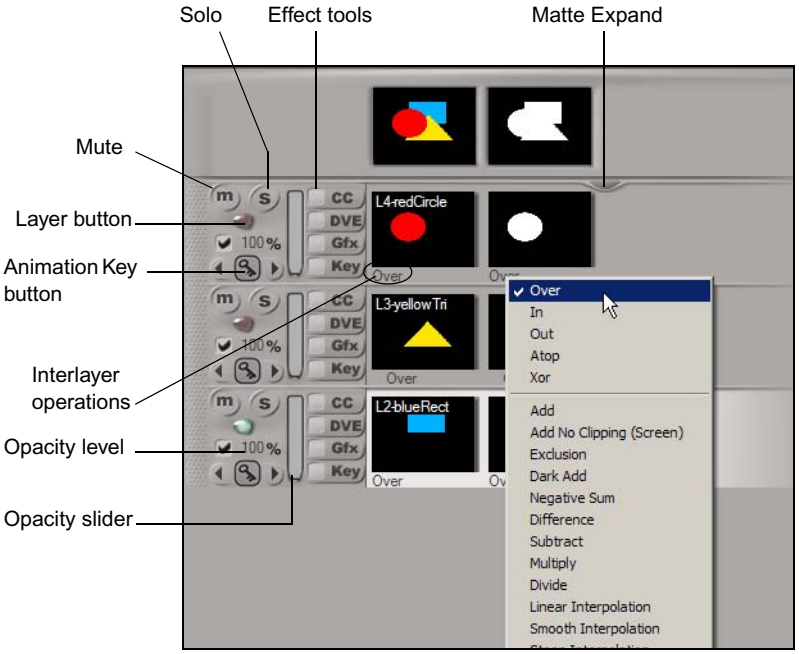


Use this	To
Layer controls	Manipulate the layers in a composite. You can adjust the transparency, mute, solo, animate, and add layer effects.
Layer RGB	View the image results after all mattes have been applied to a layer.
Layer alpha	View the combined results of all mattes applied to a layer.
Matte expand	Displays the original alpha and external alpha thumbnails.
Original alpha	View the original matte of the clip on a layer.
Matte controls	Apply matte compositing operations between the original and external mattes on a layer.
External alpha	View external mattes applied to a layer.

Layer Controls

The layer controls let you manipulate the layers in a composite. These controls let you mute, solo, or adjust the opacity of the layers.

On each layer, there are tools to add color correction, DVE, graphics, and keyer effects. You can also apply compositing and blending operations between layers.

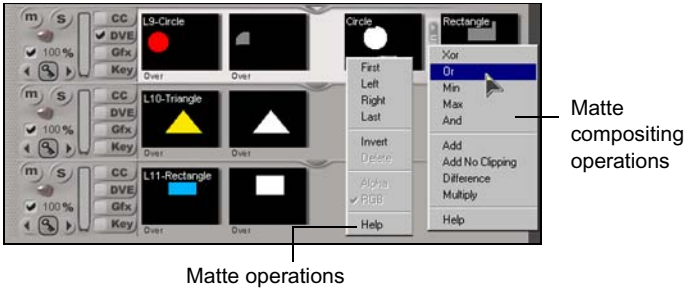


Use this	To
Mute	Turn off the view of the layer. In the viewer, the composite is rebuilt without the muted layer. You can mute more than one layer at a time.
Solo	Display the layer in the viewer and in the result layer. You can only solo one layer at a time.
Effect tools	Apply effects to layers. *A check mark beside these tools indicates that the effect was applied to the layer.*
CC	Define a color correction effect and apply it to the corresponding layer.
DVE	Define a DVE and apply it to the corresponding layer.
Gfx	Create a graphics effect and apply it to the corresponding layer.

Use this	To
Key	Define a keyer and apply it to the corresponding layer. *You can also load other effects such as third party plug-ins through the key tool. Once loaded, the tool's name changes from Key to FX.*
Matte expand	Show or hide the external mattes that have been applied to this layer.
Layer button	Select or move a track. When the button is green, it indicates that an Effects Tree has been applied to the layer.
Animation key	Animate the transparency of the mattes that have been applied to the layer and navigate between keyframes in an animation.
Interlayer operations	Apply compositing and blending operations between adjacent layers.
Opacity level	View or change the percentage of opacity that has been set by the opacity slider. Enter a specific value in this box to change the opacity level. The check box lets you turn the opacity setting on or off.
Opacity slider	Adjust the opacity of the layer.

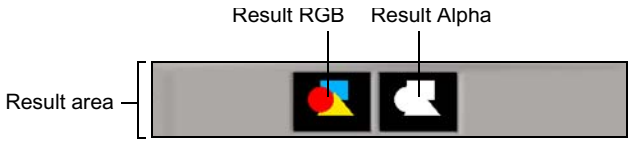
Matte Controls

The matte controls let you apply matte compositing operations between the original and external mattes on a layer. They also let you to change the order of external mattes.



Use this	To
Matte operations	Change the order and appearance of external mattes.
Matte compositing operations	Apply logic operations between mattes on a layer.

Result Area



Use this	To
Result RGB	View the resulting RGB channel of all the composited layers.
Result alpha	View/export the resulting alpha channel of all the composited layers. *An "Alpha Not Exported" message is displayed when the mattes from the layers have not been exported to the result area. This means that you won't see the composited result when you close the container clip.* To view the resulting matte, click the Result Alpha thumbnail. When you view the top timeline, the container clip will have an alpha channel. If it's on a background track, it will be composited on top of any clips below it. When you deselect this option, 100% white alpha is exported to the top timeline. ***Tip**: If you close a container clip and it isn't composited on the top timeline, ensure this option*

Compositing Tools Toolbar

The Compositing Tools toolbar lets you apply effects such as keyers, motion blurs, Impressionist, and Painterly. You can also add your own preset effects and customize the toolbar. This toolbar is in the .

To access the Compositing Tools toolbar

1. From the taskbar, click the **Compositing** button.
2. From the Compositing Tools toolbar, select a tool.

Tool	Description
Keyers	Effects that let you create a matte
Blue-Green Keyer	Applies the Blue-Green Keyer effect to a clip from which you can create a matte based on a blue or green color
Chroma Keyer	Applies the Chroma Keyer effect to a clip from which you can create a matte based on a color other than blue or green
Linear Luma Keyer	Applies the Linear Luma Keyer effect to a clip from which you can create a matte based on the luminance of an image
Other Effects	Lets you select other effects to apply to clips
Crop	Applies the Crop effect to a clip
Motion Blur	Applies the Motion Blur effect to a clip
Linear Gradient	Applies the Linear Gradient effect to a clip
Matte	Applies the Matte effect to a clip from which you can adjust an existing clip's matte
Impressionist	Displays a list of Impressionist effects that you can apply to a clip
Painterly	Displays a list of Painterly effects that you can apply to a clip

Result Area Menu

The Result Area pop-up menu lets you insert a new layer and select different display modes within a layer, as well as access the Global DVE property editor. You can also open a new viewer in which you can display the layer composite.

To access the Result Area Menu:

- In the Result Area of the Layers view, right-click an empty area.

Option	Description
Insert Layer	Adds a new layer to the composite
Display Result Area	Shows or hides the Result Area, which is located at the top of the Layers view and displays the result of the composited layers. This command is on by default.
Open Viewer	Displays the output of the composited layers in a floating viewer
Mute Background	If the bottommost layer has a matte, this command determines whether to use it or treat it like it has a full alpha for the RGB composite. If the layer has a matte and this command is deselected, then the bottommost layer will be composited over black. If the bottommost layer doesn't have a matte, its alpha channel has 100% solid alpha, which will be applied to the alpha channel for the composite using a matte composite operation. This command is on by default.
Force Premultiplied Output	When this option is selected, the bottommost layer of your composite is premultiplied. Premultiplication multiplies the RGB channels with the alpha channel. This option should not be selected if you are using the bottommost layer as your background.
Export Alpha	Places the resulting matte of the composite into the alpha channel of the composite container clip. When you view the top timeline, the container clip will have an alpha channel. If it's on a background track, it will be composited on top of any clips below it. When you deselect this option, 100% white alpha is exported to the top timeline. ***Tip****: If you close a container clip and it isn't composited on the top timeline, ensure this option is selected on the Layers view. This option will not appear to have any effect while inside a container clip.*

Option	Description
Output Frame Size	Forces the effect to process and output pixels that fall within the frame. For example, if you have a PAL sequence that is 720×576 and you process an image larger that the PAL frame (2000×2000), then only the pixels that fall within the PAL window will be processed and output from this effect. This command is on by default.
Global DVE Controls	Displays the Global DVE property editor in which you can apply a Global DVE to all layers in the composite

Layer Effect Menu

The Layer Effect pop-up menu lets you change the order of effects applied on layers.

To access the Layer effect menu:

- In the layer, right-click an effect.

Option	Description
Top	Moves the selected effect to the top of the layer effects
Raise	Moves the selected effect up one level in the layer effects
Lower	Moves the selected effect down one level in the layer effects
Bottom	Moves the selected layer to the bottom of the layer effects
Open Viewer	Displays the output of the selected effect in a floating viewer.

Layer Menu

The Layer pop-up menu lets you change the order of layers, set the premultiplication, apply an Effects Tree, and remove layers from your composite.

To access the Layer menu:

- Right-click a layer.

Option	Description
Bring to Front	Moves the selected layer to the topmost layer in the composite
Raise	Moves the selected layer up one level in the composite
Lower	Moves the selected layer down one level in the composite
Send to Back	Moves the selected layer to the bottommost layer in the composite
Premultiplied	Premultiplies the input's RGB channels with the alpha channel
Not Premultiplied	Does not premultiply the input's RGB channels with the alpha channel
Auto	Maintains the premultiplication setting indicated when the clip was captured
Mix	Blends the result of the effect with the original input. Mix works like opacity except that is applied after the composite.
Opacity	Decreases or increases the opacity of a layer to make it more or less transparent when composited on other layers. This is the default setting.
Clamp to valid color (RGBA)	Ensures that the result of the composite has valid RGBA colors. When you import a .psd file, you should select this option to maintain the blending operations performed in Photoshop.
Duplicate Layer	Duplicates the selected layer and places it on the topmost layer of the composite
Remove Layer	Removes the selected layer from the composite
Layer Name	Changes the selected layer's name
Effects Tree (layer)	Applies an Effects Tree to the selected layer

Matte Controls Menu

The Matte Controls pop-up menu lets you create a matte based on the combined alpha values of a selected layer. The options are known as matte operations.

The alpha channels of the foreground and background play a role in the computation of the color channels (RGB or YCbCr). These operations perform a premultiplication of the Alpha with the RGB channels, if required. Matte operations do not clamp the colors that are within the color gamut (values between 0.0 and 1.0). The input values on the other hand are clamped to be within the valid 0.0-1.0 range.

The operations that do not clamp the input or output pixel values to the legal color gamut can be applied to images that have blacker than blacker or whiter than white values, and produce images that have blacker than black or whiter than white values. Also note that values outside of the legal color ranges can be present in16 bit and float images.

To access the Matte Controls Menu:

- In the Layers view, right-click the Matte controls between the Original Alpha and External Alpha thumbnails.

Option	Description
Xor	Creates a matte from alpha values in mattes A and B, but excludes common values in A and B
Or	Creates a matte by combining alpha values in mattes A and B
Min	Creates a matte based on minimum pixel value of pixels in mattes A and B
Max	Creates a matte based on the maximum pixel value of mattes A and B
And	Creates a matte by intersecting alpha values in mattes A and B
Add	Creates a matte by adding the alpha values in mattes A and B
Add No Clipping (Screen)	Creates a matte by adding the alpha values in mattes A and B in a way that legal value pixels will not cause the image to look overexposed

Option	Description
Difference	Creates a matte by subtracting the alpha values of matte B from matte A
Multiply	Creates a matte by multiplying the alpha values of mattes A and B.

Interlayer Alpha Menu and Interlayer RGB Menu

The interlayer Alpha pop-up menu and interlayer RGB menu let you select which compositing operations will be performed between layers. The selected operation is performed between the current selected layer and the result of the layers below.

*By default, the interlayer operation is performed with current layer as the foreground and the result of the layers below as the background. The **Use as Background** option on the Alpha pop-up menu lets you use the Alpha from the layer as the background and the result of the layers below as the foreground.*

To access the Interlayer Alpha menu:

- In the Layers view, right-click a blending operation under the Layer Alpha thumbnail.

The Interlayer RGB pop-up menu lets you perform blending operations on the RGB components between adjacent layers.

To access the Interlayer RGB menu:

- In the Layers view, right-click a blend operation under the Layer RGB thumbnail.

The following table lists matte, blending, and other operations that are used when compositing using the Layers view.

Option	Description
Matte-based operations	The following matte-based operations are the only operations in which the alpha channels of the foreground and the background play a role in the computation of the color channels (RGB or YCbCr). These operations perform a premultiplication of the Alpha with the RGB channels if required.

The operations that do not clamp the input or output pixel values to the legal color gamut can be applied to images that have blacker than blacker or whiter than white values, and produce images that have blacker than black or whiter than white values. Also note that values outside of the legal color ranges can be present in16 bit and float images.

Over	Places the foreground over the background according to the foreground's alpha
In	Places the foreground image inside the alpha of the background image
Out	Places the foreground image outside the alpha of the background image
Atop	Places the foreground image inside the alpha of the background image and the background image outside the foreground alpha
Xor	Places the foreground image outside the alpha of the background image and the background image outside the alpha of the foreground image
Blending operations	The following blending operations are applied independently to each channel. The color channels are not affected by the alpha. Unless otherwise noted, the input and output of the following operations are not clamped to the valid color ranges.

In 16 bit and float, unlcamped operations can be used to create more complex mathematical expressions.

Add	Adds the foreground to the background. This may sometimes cause the image to appear overexposed.

Option	Description
Add No Clipping (Screen)	Adds the foreground and the background in such a way that legal pixel values will not cause the image to look overexposed.
Exclusion	Subtracts RGB values of the background image from the foreground. For values between black and white, the result has a more gentle, even contrast than you would get with the difference operation.
Dark Add	Adds the foreground to the background and then reduces all the pixel values. The result may look underexposed.
Negative Sum	This mode is similar to Difference for dark and light pixel values, but produces a lighter image for values in between
Difference	Takes the absolute difference between the foreground and background image
Subtract	Subtracts the background from the foreground
Multiply	Multiplies the foreground with the background. For legal color values, the result is a darker image.
Divide	Divides the foreground by the background. For legal color values, the result is a brighter image, which may look overexposed.
Linear Interpolation	Interpolates between the foreground and the background by taking the average of the two images
Smooth Interpolation	Interpolates between the foreground and the background using a smooth curve. The result slightly favors the darkest and lightest pixels in the image. The result is similar to Linear Interpolation but with more contrast. *The input and output images are clamped.*
Steep Interpolation	This mode is a linear interpolation that has been stretched below black and above white values. Only medium pixel values will stay within the valid color range.
Non-Linear Blending Operations	The following are non-linear functions of the foreground and the background. These operations have the input and output values clamped.

Over	Places the foreground over the background according to the foreground's alpha
In	Places the foreground image inside the alpha of the background image
Out	Places the foreground image outside the alpha of the background image
Atop	Places the foreground image inside the alpha of the background image and the background image outside the foreground alpha
Xor	Places the foreground image outside the alpha of the background image and the background image outside the alpha of the foreground image
Blending operations	The following blending operations are applied independently to each channel. The color channels are not affected by the alpha. Unless otherwise noted, the input and output of the following operations are not clamped to the valid color ranges.

In 16 bit and float, unlcamped operations can be used to create more complex mathematical expressions.

Add	Adds the foreground to the background. This may sometimes cause the image to appear overexposed.

Option	Description
Subtract	Subtracts the background from the foreground
Multiply	Multiplies the foreground with the background. For legal color values, the result is a darker image.
Divide	Divides the foreground by the background. For legal color values, the result is a brighter image, which may look overexposed.
Linear Interpolation	Interpolates between the foreground and the background by taking the average of the two images
Smooth Interpolation	Interpolates between the foreground and the background using a smooth curve. The result slightly favors the darkest and lightest pixels in the image. The result is similar to Linear Interpolation but with more contrast. *The input and output images are clamped.*
Steep Interpolation	This mode is a linear interpolation that has been stretched below black and above white values. Only medium pixel values will stay within the valid color range.
Non-Linear Blending Operations	The following are non-linear functions of the foreground and the background. These operations have the input and output values clamped.

Option	Description
Soft Light	A gentle blend lightening or darkening the background according to the foreground. The effect as a whole tends to brighten images, much like a soft light being shone on an image.
Color Dodge	Brightens the background by dividing by the inverse of the foreground. Dark pixels in the foreground will leave the background almost unchanged. Bright pixels in the foreground will significantly brighten background.
Color Burn	Darkens the background by the darkness of the background. Dark pixels in the foreground will darken the background. Bright pixels in the foreground will leave background almost unchanged.
Dodge Inverted Burn	This is a softer version of Color dodge. When foreground and background pixels are bright, a darkened version of Color Dodge is used. When foreground and background are dark, a brightened version of Color Burn is used.
Burn Inverted Dodge	This mode is the reverse of Dodge Inverted Burn and produces a result that is lighter than Color Burn. When foreground and background pixels are bright, a darkened inverse of Color Dodge is used. When foreground and background pixels are dark, a lightened inverse of Color Burn is used.
Dark Dodge	This operation is similar to Color Dodge, but produces a darker, more evenly lit image. The background pixels show through more clearly and are not brightened as significantly by the foreground.
Bright Burn	This operation is similar to Color Burn, but produces a brighter, more evenly lit image. The background pixels show through more clearly and are not darkened as significantly by the foreground.
Comparison operations	The following operations use a comparison between the foreground and background channels. The input and output for these operations are not clamped to legal values.
Lighter	Takes the higher pixel value between the foreground and the background for each the RGBA channels

Option	Description
Darker	Takes the lower pixel value between the foreground and the background for each of the RGBA channels
Non-additive Mix	Takes the pixel from the foreground or background based on which has the higher luminance value
Inverted Non-additive Mix	Takes the pixel from the foreground or background based on which has the lower luminance value
Color routing operations	The following operations route certain color channels form one of the two inputs. This is not a channel switching type of operation. The input and output for these operations are not clamped to legal values. These operations cannot be used on the alpha channel. By default, the alpha operation is set to Over.
Lightness	Combines the luminance values of the foreground image to the saturation and hue of the background.
Color	Combines the saturation and hue values of the foreground image to the luminance of the background.
Luma	Combines the luma channel (Y) of the foreground with the chroma channels (CbCr) of the background
Chroma	Combines the chroma channels (CbCr) of the foreground with the luma channel (Y) of the background.
Use Alpha as Mask	Uses the alpha of the foreground image to mask the result of the selected operations against the background image. Allows the blending operations to be applied only in the alpha regions of the foreground image. To apply the blending operation on the whole image, deselect this option.
Use Luma as Mask	Uses the luma of the foreground image to mask the result of the selected operations against the background image.

Only Luma or Alpha can be used as a mask, not both. These two options are only available on the RGB interlayer menu.

Option	Description
Use as Background	Swaps the foreground and the background in the operation. The current layer will be used as the background and the result of the layers below will be used as the foreground. This option can be set separately on the RGB interlayer menu and the Alpha interlayer menu. When Use as Background is set, the operation's name will be prefixed with [B] in the layer.
	When using Use as Background on the Alpha interlayer menu in combination with Use Alpha as Mask, the alpha for the mask will be taken from the result of the layers below, instead of the current layer. When Use as Background on the RGB interlayer menu is used in combination with Use Luma as Mask, the mask will be generated from the result of the layers below, instead of the current layer.
Bypass	Bypasses the current layer by passing through the result of the layers below

External Matte Menu

The External Matte pop-up menu lets you reorder external mattes on a layer, invert the alpha, or switch the external matte's alpha and RGB channels.

To access the External Matte menu:

- Right-click the External Matte thumbnail of a layer.

Option	Description
First	Moves the matte to the leftmost position
Left	Moves the matte one position to the left
Right	Moves the matte one position to the right
Last	Moves the matte to the rightmost position
Invert	Inverts the external matte so transparent areas become opaque and vice versa
Delete	Removes the external matte
Alpha	Uses the alpha channel of a track as an external matte

Option	Description
RGB	Uses the RGB channels of a track as an external matte

Effects Tree

Effects Trees lets you display the relationships between effects and images, as well as letting you save tree presets which you can apply to other clips or Effects Trees.

An Effects Tree is made up of nodes: the graphical representation of the input images, effects, and the resulting output. Nodes are joined by connectors, which connect input and output ports.

Effects Node Menu

The Effects Node pop-up menu lets you cut, copy, view, or bypass an effect, collapse a node, or display its property editor. You can rename effects and node input ports or display node input port's name using the name of the effect connected to the input. You can also fold/unfold and attract/repel nodes.

To access the Effects Node menu:

- In an Effects Tree, right-click an effect node or node input port.

Option	Description
Process	Lets you specify the objects you want to process. Processing computes any effect, transition, layer, composite, or container clip in your sequence, so that it can be viewed in real time during playback. The results of the processing is stored in a new media file (cache) so that your source media remains unaltered.
Purge Selected	Purge Selected to purge only the cache media associated with the selected cache bar.

Option	Description
Purge Below	Purges any unnecessary cache media that lies below the cache bar, while keeping the cache real time playable. (This option is useful if you processed using the Complete option and no longer need the caches at each level anymore.)
Purge	Purges the cache media associated with the cache bar, as well as any cache media that lies below it.
Cut	Cuts the selected node and places it on the Clipboard
Copy	Copies the selected node and places it on the Clipboard
Delete	Removes the selected node
Bypass	Bypasses the selected node(s). Only effect nodes can be bypassed (not input, output, or source generator nodes). This is useful if you want to view the output of the Effects Tree with or without various effects.
View	Lets you view the output of an input, effect, or output node in the viewer. You can view a single node at any time. ***Tip**: You can also use the Bypass command in conjunction with View. For example, if you are viewing an effect and you want to see the resulting image with or without the effect, simply bypass the selected node.*
Open Viewer	Displays the output of the selected node in a floating viewer.
Collapse	Collapses the selected node. This is useful when you have a multi-input effect that you want to collapse to create more space in the Effects Tree view.
Rename Effect	Renames the selected effect node. ***Tip**: You can also press the Alt key on your keyboard and then click a node's title bar to change its name.*

Option	Description
Rename Input	Renames the selected input port. If you're using the **Use Input Names** command as well, then only the first portion of the name (Input 1,for example) is changed. *This command is only available when you position the pointer over an input port, which turns white to show that it's selected.* ***Tip**: You can also press the Alt key and click a node's input name to change it.*
Use Input Names	On node input ports, display names of nodes to which they're connected instead of just Input 1, Input 2, etc. For example, if a Blue Green keyer is connected to Input 1 of a Composite node, then the input port name will be displayed as "Input 1- Blue Green Keyer" when you select this option from the Composite node. All input port names will update to reflect the input's name. *When an Input node is connected directly to an effect, the Input node's name is also added to the Input port's name. For example, if Input 1, named "Background", is connected to Input 2 of a Composite node, then the name will be Input 2 - Input 1 - Background.* *You can also select the Use Input Names option in the New Nodes box on the Effects Tree page of the User Preferences dialog box if you want all new effects you add to a tree to use the input node's name.*
Select Preceding Nodes	Selects all nodes connected before currently selected node. Useful for viewing all nodes that contribute up to the selected node.
Select Subsequent Nodes	Selects all nodes connected after currently selected node. Useful for viewing path defined by nodes that are modifying the output of the selected node.
Fold Minimal	Places selected nodes in a new Effects Tree with a red border. The new Effects Tree node only displays the inputs that are directly connected to the effect feeding the new Effects Tree.

Option	Description
Fold All	Places selected nodes in a new Effects Tree with a red border. The new Effects Tree node displays all inputs from each effect.
Unfold	Places all nodes in an Effects Tree into the parent Effects Tree
Unfold and Repel	Places all nodes in an Effects Tree into the parent Effects Tree. Any nodes that were close to the folded node are pushed away from the nodes as they are unfolded.
Attract	Pulls all nodes closer to the currently selected node(s). The amount they are pulled depends on the amount set in the Node Attract/Repel Spacing option on the Effects Tree Property Page of the User Preferences dialog box.
Repel	Pushes all nodes away from the currently selected node(s). The amount they are pushed depends on the amount set in the Node Attract/Repel Spacing option on the Effects Tree Property Page of the User Preferences dialog box.
Expose	Adds the selected effect to the Effects list in the Effects Tree property editor. This is useful when you create a complex effect that you want to share with others. You can select which effects are added to the Effects list, to ensure certain effects aren't altered. *This command is not displayed on Effects Tree nodes within Effects Trees.*
Effect Properties	Displays the effect's property editor
Add/Remove Input	Shows or hides an input port. Select from the menu. For dynamic input effect nodes such as the Composite and 3D DVE node, you can add new and delete existing input ports.

Input Node Menu

The Input Node pop-up menu lets you view or delete an input node.

To access the Input Node menu:

- In an Effects Tree, right-click an input node.

Option	Description
Delete	Delete the selected input node. *If there is only one input node in a tree, you cannot delete it.*
View	Lets you view the selected input node in the viewer. This is useful if you want to view an input without any effects applied to it.
Open Viewer	Displays the output of the selected node in a floating viewer
Select Subsequent Nodes	Selects all nodes connected after the currently selected node. This feature is useful, for example, to show you how various nodes affect the currently selected node.
Attract	Pulls all nodes closer to the currently selected node(s). The amount they are pulled depends on the size of the selected node(s).
Repel	Pushes all nodes away from the currently selected node(s). The amount they are pushed depends on the size of the selected node(s).

Output Node Menu

The Output Node pop-up menu lets you view an output node, select preceding nodes, or attract or repel nodes. If your tree contains many effects and the Output node is set to View, then you'll see all the applied effects in the viewer.

To access the Output Node menu:

- In an Effects Tree, right-click an output node.

Option	Description
Use Input Names	On node input ports, display names of nodes to which they're connected instead of just Input 1, Input 2, etc. *When an Input node is connected directly to an Output node, the Input node's name is also added to the Input port's name. For example, if Input 1, named "Background", is connected to the Output node, then the name will be Input - Input 1 - Background.*
View	Lets you view the selected Output node in the viewer
Open Viewer	Displays the output of the selected node in a floating viewer
Select Preceding Nodes	Selects all nodes connected before the currently selected node. This feature is useful, for example, to show you how various nodes in front of the currently selected node affect it.
Attract	Pulls all nodes closer to the currently selected node(s). The amount they are pulled depends on the size of the selected node(s).
Repel	Pushes all nodes away from the currently selected node(s). The amount they are pushed depends on the size of the selected node(s).

Effects Tree Menu

The Effects Tree pop-up menu lets you add or remove effects, move around the Effects Tree view, and display the Effects Tree property editor.

To access the Effects Tree menu:

- In the Effects Tree view, right-click an empty area.

Option	Description
Add Effect	Displays the Load Preset dialog box from which you can select an effect to add to the Effects Tree
Add Cache	Adds a cache node to the Effects Tree

Option	Description
Add Cache and Process	Adds a cache node to the Effects Tree, adds the cache node to the Cache List view, and displays the Processing Options dialog box. *The cache node must be connected to the tree before any effects can be processed.*
Select All	Selects all nodes in the Effects Tree
Frame Selected	Zooms the Effects Tree view in or out to display the selected nodes
Frame All	Zooms the Effects Tree view in or out to display all the nodes in the Effects Tree
Organize Branch	Organizes a branch or selected nodes of the Effects Tree to expose its connections
Organize All Nodes	Organizes and frames all the nodes of the Effects Tree to expose the way all nodes are connected. All input nodes are arranged on the left-hand side of the Effects Tree.
Densely Organize Branch	Organizes a branch or selected nodes in a condensed manner saving vertical space in the Effects Tree
Densely Organize All Nodes	Organizes all nodes in a condensed manner saving vertical space in the Effects Tree
Delete	Removes the selected node
Copy	Copies the selected node and places it on the Clipboard
Cut	Removes the selected node and places it on the Clipboard
Paste	Pastes a node from the Clipboard onto the Effects Tree view
Reset All	On a layer, all nodes except the primary input and output nodes are deleted. As a preset, all nodes except the inputs and output are deleted.
Birds Eye View	Turns the Birds Eye View on or off. When you position the pointer over the Birds Eye View, you can scroll the Effects Tree view to see areas of the Effects Tree currently not shown. Darker gray areas indicate the direction in which you can scroll the tree.
Properties	Displays the Effects Tree property editor

Composite Container Property Editor

The composite container property editor lets you set properties for the composite container clip on your timeline.

To access the composite container property editor:

1. Do one of the following:
   - Right-click on the composite container clip on the top timeline.
   - When inside a composite container, right-click an empty area and select **Properties**.
2. Select [composite container name] Properties.

General Property Page

The General property page of the composite container property editor lets you set the Force Premultiply Output and Export Alpha options.

Options	Description
Force Premultiply Output	When this option is selected, the bottommost layer of your composite is premultiplied. Premultiplication multiplies the RGB channels with the alpha channel. This option should not be selected if you are using the bottommost layer as your background. *If you select this option, all effects will no longer be real-time playable.*

Options	Description
Export Alpha	Places the resulting matte of the composite into the alpha channel of the composite container clip. When you view the top timeline, the container clip will have an alpha channel. If it's on a background track, it will be composited on top of any clips below it. When you deselect this option, 100% white alpha is exported to the top timeline. ***Tip**: If you close a container clip and it isn't composited on the top timeline, ensure this option is selected on the Layers view. This option will not appear to have any effect while inside a container clip.*

Compositing Effects

Avid DS Nitris includes many different effects that you can use when compositing. The term effect refers to a range of filters, DVEs, and keyers. For more information, see Applying Effects and Working with Effects.

The keyer effects, for example, let you combine a foreground image over a background image using a matte. You can use a matte that is already combined with the foreground image, or create your own using any of the Avid DS Nitris keyers.

AVX Host

The AVX Host effect lets you apply AVX plug-in effects. You can select an effect from the Generic property page. If you haven't installed any effects, then the Group/Category and Effect lists on the Generic property page will be blank.

The types of effects from which you can select depend on how you apply the AVX Host effect. For example, if you apply it as a clip or track effect, only image effects are displayed. If you apply it as a transition, only transition effects are displayed. However, if you apply it in an Effects Tree, all the effects are displayed.

Once you select an effect, the property editor changes to display the parameters available for the effect.

Generic Property Page

The Generic property page lets you load AVX plug-in effects and adjust the effect's parameters. Depending on the type of AVX plug-in effect, you can also animate various parameters. If you haven't installed any effects, then the Group/Category and Effect lists will be blank.

After you select an effect from the list, the parameters for the effect are displayed in the property editor. The effect's property page may also contain the Open Effect UI button, which lets you open a new interface for the effect.

To learn about individual parameters for an AVX plug-in effect, consult the vendor's documentation.

To load an AVX plug-in effect:

1. On the Generic property page, select a group/category from the Group/Category list.
2. Select an effect from the Effects list.

Option	Description
Group/Category	Displays the list of AVX plug-in effects, by vendor or group, that are currently installed. For example, VendorA may produce groups of products such as "MyEffects1 and MyEffects2". Once you select a vendor, the list in the Effects box updates to display the list of AVX plug-ins available for the group.
Effect	Lets you select an effect from a selected group. For example, vendor A may have sparkle effects in the MyEffects1 group or blur effects in the MyEffects 2 group. The list of effects that are displayed depend on how you applied the AVX Host effect. For example, if you apply it as a clip or track effect, only image effects are displayed. If you apply it as a transition, only transition effects are displayed. However, if you apply it in an Effects Tree, all the effects are displayed. Once you select an effect, the property editor changes to display the parameters available for the effect.

Blue-Green Keyer

The Blue-Green Keyer effect lets you create a matte that's based on a blue or green background color. This is a real -time effect.

Once the matte is created, you can composite the clip over another one.

Use the controls on the Key property page to create an initial key, and then adjust the matte further using the controls on the Matte and Crop property pages. You can also create a garbage matte in the Shapes property page to hide unwanted objects in your image.

Once you're satisfied with the matte, you can create a second matte for the spill color using the Spill Matte 1, Spill Matte 2, and Spill Replace property pages. You can adjust the spill matte independently from the matte you created on the Key property page.

The Options property page contains controls that let you specify if your material is frame or field-based.

Spill Matte 1 Property Page

The Spill Matte 1 property page lets you create an initial matte for the spill color.

This matte is separate from the matte created by the keyer on the Key property page. Since the mattes are separate from each other, you can manipulate and view them independently.

Using the Softness and Threshold controls, you can create a good initial matte. However, the matte may be a little grainy at this point. If so, use the Pre-blur controls to soften the spill matte.

Option	Description
Tune	Lets you create an initial spill matte

Option	Description
Softness	Adjusts range between transparent and opaque areas of the spill matte. Values: 0 to 100. A value of 0 produces no softness, and outputs a matte containing only transparent and opaque areas. Areas that are 100% transparent contain 100% spill color. A value greater than 0 produces a matte that contains transparent, semitransparent, and opaque areas, creating a softer matte.
Threshold	Adjusts the spill correction area. Values: –20 to 20. Increasing the Threshold value expands the area into neighboring pixels, while decreasing the value contracts the area. You can view the spill matte while adjusting the threshold to see areas that contain spill.
Pre-blur	Applies a blur before applying the key, removing noise from the matte
Apply	Turns the Pre-blur option on or off. This lets you compare the composite's appearance with or without the pre-blur effect.
Amount	Lets you control amount of pre-blur applied to spill matte. Values: 0 to 1000. Higher values decrease the amount of noise in the matte.
Apply	Turns spill matte on or off. This lets you compare the composite's appearance with or without the spill matte.
Output Spill Matte	Switches keyer output to display either the RGB channels or spill matte. When selected, the spill matte is output as an RGB image. This lets you view areas of the matte containing spill. Black areas represent total spill, gray areas represent partial spill, and white areas represent no spill.
Reset	Resets all parameters on this property page to the default values.

Chroma Keyer

The Chroma Keyer effect lets you create a matte based on a color. This is a real-time effect.

Once the matte is created, you can composite the clip over another one. If you want to create a matte based on a blue or green background color, you can also use the Blue-Green keyer.

Use the controls on the Key property page to create an initial key, and then adjust the matte further using controls on the Matte and Crop property pages. You can also create a garbage matte on the Shapes property page to hide unwanted objects in your image. Use the controls in the Spill Matte 1, Spill Matte 2, and Spill Replace property pages to remove spill from your image.

Spill Matte 1 Property Page

The Spill Matte 1 property page lets you create an initial matte for the spill color. This matte is separate from the matte created by the keyer on the Key property page. Since the mattes are separate from each other, you can manipulate and view them independently.

Using the Softness and Threshold controls, you can create a good initial matte. However, the matte may be a little grainy at this point. If so, use the Pre-blur controls to soften the spill matte.

Option	Description
Tune	Creates an initial spill matte
Chroma Tolerance	Lets you select the number of colors, similar to the selected key color that will be keyed out. Values: 0 to 180. Higher values key out more color. For example, if your key color is green and the Chroma Tolerance is set to 0, then only the selected key color is keyed out. The higher you set the tolerance, the more colors of a similar hue as the selected key color will be keyed out.
Gain	Adds more opacity to matte
Lift	Adds more transparency to matte

Option	Description
Pre-blur	Applies blur before applying the key, removing noise from the matte.
Apply	Turns the Pre-blur option on or off. This lets you compare the composite's appearance with or without the pre-blur effect.
Amount	Lets you control amount of pre-blur applied to matte. Values: 0 to 1000. Higher values decrease the amount of noise in the matte.
Apply	Turns spill matte on or off. This lets you compare the composite's appearance with or without the spill matte.
Output Spill Matte	Switches the keyer output to display either the RGB channels or the spill matte. When selected, the spill matte is output as an RGB image. This lets you view areas of the matte containing spill. Black areas represent total spill, gray areas represent partial spill, and white areas represent no spill.
Reset	Resets all parameters on this property page to the default values

Color Correction Classic

The Color Correction Classic effect lets you color correct an image. Using controls on each property page, you can adjust the hue, saturation, gain, and brightness.

There are several preset Color Correction effects that you can apply to your images, including Blue Duotone, Old Photo, Saturated, and Tritone. The Monochrome color correction effects, for example, are preset color correction effects that let you change an image's color to a monochromatic hue.

You can apply the Color Correction effect as an image or paint effect. However, when you apply it as a paint effect, only the Basic, Balance, Adjust, and Curves property pages are available.

Basic Property Page

The Basic property page lets you adjust the overall hue, saturation, gain, and brightness values of an image.

Option	Description
Hue	Lets you adjust hue of image. Similar to a color wheel. Values: 0 to 360 degrees.
Saturation	Lets you adjust the saturation of the image. Values: 0 to 200.
Gain	Lets you adjust the gain of the image. Values: 0 to 200 percent.
Brightness	Lets you adjust the brightness of the image. Values: –100 to +100.
Clamp To Video Levels	Lets you legalize your output if needed or preserve the full pixel range. To keep the video levels compliant with transmission standards, you can enable this option. When on, the output of the Color Correction is clamped to Video Levels (Legal YCbCr). Note that keeping these levels within safe color limits may produce a pleasing level for the rest of the image. If you need to use the full YCbCr range, regardless of the standard black and white levels, you can disable this option so no clamping is performed. When off, it preserves the full pixel range (“SuperBlack” and “SuperWhite”) throughout the process.

Balance Property Page

The Balance property page lets you adjust the color balance of the selected luminance range.

To adjust the color balance, select a range option, and then drag the color selector to a new color. The closer you move the color selector towards the edge of the color wheel, the higher the saturation of the color. The luminance remains constant when you adjust each color balance.

You can adjust the luminance of each range by adjusting the luminance slider.

Option	Description
Shadows	Lets you select shadow luminance range. When selected, you can adjust the color balance of shadow areas.
Midtones	Lets you select midtones luminance range. When selected, you can adjust the color balance of midtone areas.
Highlights	Lets you select highlight luminance range. When selected, you can adjust the color balance of highlight areas.
Master	Lets you select all luminance ranges. When selected, you can adjust the color balance of the shadows, midtones, and highlight ranges simultaneously.
Hue	Displays hue value of selected color in color wheel. Values: 0 to 360 degrees.
Gain	Displays gain value of selected color in color wheel. Values: 0 to 200 percent.
Luminance	Lets you adjust luminance of selected range. Values: -100 to +100 percent.
Color Picker	Picks a color from the color wheel. Click the Color Picker and click to select an button to change the color display: Color Wheel, Vectorscope, Hue, Saturation, and Value.
Color wheel	Displays entire spectrum of colors It is shown by default.
Color selector	Lets you shift color balance towards selected color
Reset	Resets parameters of selected option

Adjust Property Page

The Adjust property page lets you adjust the gamma, gain, and offset of each channel. For example, you can use the slides to adjust the gamma of the RGB globally, or individual R, G, B, L, or A channels.

Option	Description
Gamma	Lets you lighten or darken midtones relative to light and dark areas. Values: 0.1 to 5.0.
Gain	Lets you adjust gain of image. Values: 0 to 200.
Offset	Lets you adjust brightness of image. Values: -100 to +100.

Curves Property Page

The Curves property page contains function curves that let you remap RGB values globally, or individually remap the values of the red, green, blue, luma, and alpha channels. The default curve is linear.

Option	Description
X axis	Represents original normalized value of selected color channel. Values: 0 to 100.
Y axis	Represents resulting normalized value of color channel. Values: 0 to 100.
Function curves	Displays mapping of each color channel over full range of color values
RGB	Turns the RGB or R, G, or B function curve on or off. The function curves are represented by the following colors in the function curve graph: gray=RGB, red=R, blue=B, green=G.
Luma	Turns Luma function curve on or off. This function curve is represented as a gray curve in the function curve graph.
Alpha	Turns Alpha function curve on or off. This function curve is represented as a gray curve in the function curve graph.
Ranges	Turns Ranges function curves on or off. The function curves are represented by the following colors in the function curve graph: gray=shadows, light blue=midtones, white=highlights.
Apply	Turns function curves color correction mode on or off. This option is available when you select RGB, Luma, or Alpha from the list.

Option	Description
Reset	Resets all parameters on this property page to the default values

Composite

The Composite effect lets you composite multiple images together on a layer. You can apply multiple Composite effects in an Effects Tree.

The Composite effect shares the same property editor as all Blending Operation effect nodes located in the /Tree Effects/Blending Operations folder.

General Property Page

Masking Property Page

Options Property Page

Related Topics

Global Controls

Compositing Multiple Images

Applying Blending Operations in the Effects Tree

General Property Page

The General property page lets you mute or solo each input and control its opacity and mix settings. It also lets you control premultiplication settings for each input. By default, all clips are set to Auto, which will maintain the clip's current premultiplication state.

The General property page lets you combine inputs using blending operations. You can apply the operations on the R, G, B, and alpha components of each input. The operations differ between the R, G, B, and alpha channels. The RGB operation that you select is automatically applied to the alpha channel. You can, however, change the alpha operation separately. These operations are the same as those found on each layer in the Layers view. Keep in mind L1 (Layer1) is the bottom-most layer in your composite.

You can also control if images are composited over a black background and whether or not the alpha is exported. Also, keep in mind that Input 1 is the bottom-most layer in your composite.

Option	Description
Mute	Mutes layers so that they are not displayed in the viewer. Muting is useful when you have several layers in your composite and you want to preview one layer, but not the others. The muted layer will not be included in the processed result.
Solo	Solos the layer so that it is the only one displayed in the viewer. Soloing is useful when you want to view one layer without seeing effects from other layers. You can solo one or more layers and this has no effect on the processed result.
Opacity	Changes an input's opacity

Output Menu (Composite Effect)

Blending Operations (Composite Effect)

Layer Menu (Composite Effect)

Output Menu (Composite Effect)

The Output pop-up menu lets you select or deselect the Force Premultiplied Output and Export Alpha options.

To access the Output menu:

- Right-click the Output button.

Option	Description
Forced Premultiplied Output	Turns the black background on or off. When selected, the background is turned off. This feature is useful when you have one or more layers that you want to composite over a black background.

Option	Description
Export Alpha	Exports the Composite effect's alpha channel. When you use several Composite effects, or use a Composite effect in conjunction with a layer or other effects in the same tree, you may need to export the effect's alpha channel so that it is correctly composited. *This option is independent of the Export Alpha option on a layer.*

Layer Menu (Composite Effect)

The Layer pop-up menu in the General property page lets you set the premultiplication, apply opacity and mix.

To access the Layer menu:

- Right-click a layer.

Options	Description
Premultiplied	Premultiplies the input's RGB channels with the alpha channel
Not Premultiplied	Does not premultiply the input's RGB channels with the alpha channel
Auto	Maintains the premultiplication setting indicated when the clip was captured. This is the default setting.
Mix	Blends the result of the effect with the original input. Mix works like opacity except that is applied after the composite.
Opacity	Decreases or increases the opacity of a layer to make it more or less transparent when composited on other layers. This is the default setting.
Clamp to valid color (RGBA)	Ensures that the result of the composite has valid RGBA colors. When you import a .psd file, you should select this option to maintain the blending operations performed in Photoshop.

Related Topics

Compositing Multiple Images

Blending Operations (Composite Effect)

Blending operations in the Composite effect property editor lets you combine inputs using compositing or blending operations. You can apply the operations on the R, G, B, and alpha components of each input.

The operations differ between the R, G, B, and alpha channels. The RGB operation that you select is automatically applied to the alpha channel. You can, however, change the alpha operation separately. These operations are the same as those found on each layer.

To apply blending operations:

- Right-click the RGB or alpha operator between the two layers on which you want to apply the operation, and select an operator from the menu.

Option	Description
RGB	Controls how an input's RGB components are composited. Changing the RGB operators also changes the Alpha operators. The following matte operations are applied based on the alpha channel of the image(s): Over, In, Out, Atop, and Xor. The following blend operations can be applied to the RGB channels of an image (the alpha channels have no effect on the RGB result): Add, Add no clipping, Difference, Multiply, Lighter, Darker, Luminance, Color, Non-Additive, Invert Non-Additive, and Bypass.
Alpha	Controls how an input's alpha components are composited. For descriptions in the menu, see the descriptions for RGB.
Over	Places the foreground over the background according to the foreground's alpha
In	Places the foreground image inside the alpha of the background image

Option	Description
Out	Places the foreground image outside the alpha of the background image
Atop	Places the foreground image inside the alpha of the background image and the background image outside the foreground alpha
Xor	Places the foreground image outside the alpha of the background image and the background image outside the alpha of the foreground image
Add	Adds the foreground to the background. This may sometimes cause the image to appear overexposed.
Add no clipping	Adds the foreground and the background in such a way that legal pixel values will not cause the image to look overexposed.
Exclusion	Subtracts RGB values of the background image from the foreground. For values between black and white, the result has a more gentle, even contrast than you would get with the difference operation.
Dark Add	Adds the foreground to the background and then reduces all the pixel values. The result may look underexposed.
Negative Sum	This mode is similar to Difference for dark and light pixel values, but produces a lighter image for values in between
Difference	Takes the absolute difference between the foreground and background image
Subtract	Subtracts the background from the foreground
Multiply	Multiplies the foreground with the background. For legal color values, the result is a darker image.
Divide	Divides the foreground by the background. For legal color values, the result is a brighter image, which may look overexposed.
Linear Interpolation	Interpolates between the foreground and the background by taking the average of the two images

Option	Description
Smooth Interpolation	Interpolates between the foreground and the background using a smooth curve. The result slightly favors the darkest and lightest pixels in the image. The result is similar to Linear Interpolation but with more contrast. *The input and output images are clamped.*
Steep Interpolation	This mode is a linear interpolation that has been stretched below black and above white values. Only medium pixel values will stay within the valid color range.
Overlay	Based on the brightness of the background pixels, this operation is a combination of Add No Clipping and a Multiply. The result image is darker than Add No Clipping, but brighter than a multiply. The contrast (highlight/shadows) of the background is preserved and the image takes the color and pattern of the foreground. This is useful when adding film grain to a shot.
Hard Light	The inverse of Overlay, this operation is based on the brightness of the foreground pixel and combines Add No Clipping and Multiply. The result looks like the bright regions of Add No Clipping and the dark regions of Multiply. The blend shows the lightness or darkness of the original color, providing an effect that is similar to shining a harsh light on the image.
Soft Light	A gentle blend lightening or darkening the background according to the foreground. The effect as a whole tends to brighten images, much like a soft light being shone on an image.
Color Dodge	Brightens the background by dividing by the inverse of the foreground. Dark pixels in the foreground will leave the background almost unchanged. Bright pixels in the foreground will significantly brighten background.
Color Burn	Darkens the background by the darkness of the background. Dark pixels in the foreground will darken the background. Bright pixels in the foreground will leave background almost unchanged.

Option	Description
Dodge Inverted Burn	This is a softer version of Color dodge. When foreground and background pixels are bright, a darkened version of Color Dodge is used. When foreground and background are dark, a brightened version of Color Burn is used.
Burn Inverted Dodge	This mode is the reverse of Dodge Inverted Burn and produces a result that is lighter than Color Burn. When foreground and background pixels are bright, a darkened inverse of Color Dodge is used. When foreground and background pixels are dark, a lightened inverse of Color Burn is used.
Dark Dodge	This operation is similar to Color Dodge, but produces a darker, more evenly lit image. The background pixels show through more clearly and are not brightened as significantly by the foreground.
Bright Burn	This operation is similar to Color Burn, but produces a brighter, more evenly lit image. The background pixels show through more clearly and are not darkened as significantly by the foreground.
Lighter	Takes the higher pixel value between the foreground and the background for each the RGBA channels
Darker	Takes the lower pixel value between the foreground and the background for each of the RGBA channels
Non-Additive Mix	Takes the pixel from the foreground or background based on which has the higher luminance value
Invert Non-Additive Mix	Takes the pixel from the foreground or background based on which has the lower luminance value
Lightness	Combines the luminance values of the foreground image to the saturation and hue of the background.
Color	Combines the saturation and hue values of the foreground image to the luminance of the background.
Luma	Combines the luma channel (Y) of the foreground with the chroma channels (CbCr) of the background

Option	Description
Chroma	Combines the chroma channels (CbCr) of the foreground with the luma channel (Y) of the background.
Bypass	Does not apply any matte or blend operation between inputs.
Use as Background	Swaps the foreground and the background in the operation. This option can be set separately on the RGB menu and the Alpha menu. When Use as Background is set, the operation's name will be prefixed with [B] in the layer.

Related Topics

Applying Blending Operations in the Effects Tree

Difference Keyer

The Difference Keyer effect lets you create a matte based on the difference between the foreground and reference clips.

The foreground clip contains an image that you want to isolate, and the reference clip contains a background similar to the foreground clip. When you apply the Difference Keyer effect, only the isolated image in the clip is retained.

You can apply the Difference Keyer effect to a layer or an Effects Tree. When you apply the effect to an Effects Tree, the Reference property page is not available as you have two inputs instead.

General Property Page

The General property page lets you apply a pre-blur to the matte. You can also preserve an original matte, or switch the output to display either the alpha or RGB channels.

Option	Description
Pre-blur	Applies blur before picking the key color, removing noise from the color picked as the key color. *This option does not blur the RGB output of your image nor does it blur the alpha of the image after the key (the blur on the Matte property page does just that). Instead, it applies a blur to an internal copy of the RGB image and then keys this image. This eliminates problems, such as film grain before keying, resulting in a matte that looks cleaner and softer.*
Apply	Turns Pre-blur option on or off. This lets you compare the composite's appearance with or without the pre-blur effect.
Amount	Lets you control amount of pre-blur applied to matte. Values: 0 to 1000. Higher values decrease the amount of noise in the matte.
Keep Original Alpha	Applies keyer only to non-transparent areas of original alpha channel. When you have an existing matte, such as a garbage matte, use this option to ensure that the keyed matte is generated only in the opaque areas of the original matte. When you do not have an existing matte, this option has no effect because the default alpha channel is 100% opaque.
Output Matte	Switches the keyer output to display either the RGB channels or matte. When selected, the matte is output as an RGB image.
Reset	Resets all parameters on this property page to the default values

Spill Property Page

The Spill property page lets you adjust the amount and hue of the spill color in an image's RGB channels.

When an image contains transparency, such as glass or smoke, the selected key color is inherently displayed in the transparent image. In other cases, the key color (blue or green) may reflect on foreground elements, thereby “spilling” into the foreground. Spill correction can correct such flaws either by reducing the amount of spill or by replacing the spill color with a more desirable color. Spill correction in the Difference keyer is only effective if you are keying out blue or green screen shots.

You can also apply spill correction as a clip or track effect. The Spill Correction effect is useful when you have a clip that has an existing matte and you need to remove or adjust the blue or green spill color. The Spill Correction effect is in the Image Effects folder.

Option	Description
Pick Replace Hue	Lets you select a color whose hue will replace the current spill hue. Click Pick Replace Hue and click a color in the viewer.
Pick Spill Color	Lets you specify the image's spill color by picking a color in the viewer. This button is available when you apply the Spill Correction effect to a clip or track or when using Spill Correction in the Difference keyer.
Color swatch	Displays selected or default color. Click color swatch to display Mini Color Editor.
Hue	Lets you modify hue of replacement spill hue
Saturation	Lets you modify replacement spill color's saturation
Luminance Offset	Lets you add or subtract luminance to or the original luminance. A value of 0 represents the original luminance.
Threshold	Adjusts spill correction area. Increasing the Threshold value expands the area into neighboring pixels, and decreasing the value contracts the area.
Softness	Adjusts amount of blur applied between replacement color and adjacent colors in RGB image
Apply	Turns Spill Correction effect on or off. When you select this option, the effect is applied to the image. When you deselect this option, you can bypass the effect to display the original image.
Reset	Resets all parameters on this property page to the default values

Reference Property Page

The Reference property page is where you place your reference clip. When you do this, the Difference keyer determines the difference between the reference clip and the layer on which the key is applied, and creates a matte for the selected layer.

DVE

The DVE effect lets you transform the size, position, and shape of images in three-dimensional space. You can apply DVEs to clips on the timeline, layers on the Layers view, or in an Effects Tree. On the timeline, you can use DVEs for transitions between two clips. Using DVEs, you can create effects such as push-wipes, fly-bys, or picture-in-picture.

When you apply a DVE as a transition, an additional property page (Source) is available on which you can adjust the source image's opacity level, and the direction in which the DVE transition will be applied.

DVE Tools

The DVE Tools toolbar lets you manipulate DVEs, display wireframes, preview animation in wireframe, and lock a DVE wireframe in place so you don't modify it by accident. This toolbar is in the Using the Result Area.

To access the DVE Tools toolbar:

- Select **View > Default toolbars > DVE tools**.

Button	Tool	Description
	Rotate	Rotates the selected DVE
	Scale	Scales the selected DVE
	Crop	Crops the selected DVE

Button	Tool	Description
	Tool Properties	Displays the Tool Properties dialog box, from which you can set how DVEs are displayed in the viewer. You can select the following: Show Values, Show Handles, and Show All Wireframes.
	Show All Wireframes	Displays all DVE wireframes in the viewer. This is useful when you have several layers with DVEs and you want to see all the wireframes at the same time.
	Wireframe Preview	Plays an animated DVE in the viewer, displaying it in wireframe mode
	Lock Selection	Locks the selected DVE in place. This is useful when you have several DVEs that you are manipulating in the viewer, but don't want to accidentally move one.

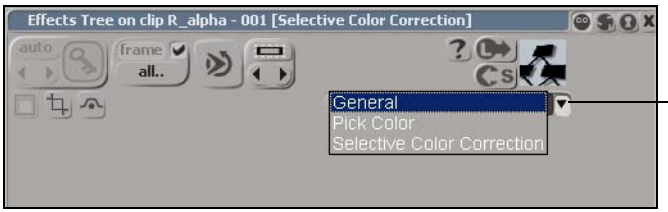
Tool Properties

The Tool Properties dialog box lets you select how DVEs are displayed in the viewer.

Use this	To
Show Values	Displays the numerical values in the viewer while you scale, rotate, translate, or offset a DVE
Show Handles	Displays handles on the sides and corners of the DVE bounding box
Show All Wireframes	Displays all DVE wireframes in the viewer. When you have multiple DVEs on multiple layers, each DVE wireframe is displayed in the viewer. *This option is only available when you use DVEs in the Layers view.*

Effects Tree Property Editor

The Effects Tree property editor lets you switch between effects applied in the Effects Tree. When you select an effect from the Effects list, the property pages associated with the effect are displayed in the property editor.



When you apply an Effects Tree on the timeline, only the General property page opens until you apply more effects.

To expand an Effects Tree, do one of the following:

- In the Effects property editor, click the **Expand** button.
- Hold down the Ctrl key and double-click the effect to expand the Effects tree directly from the timeline.

Flicker

The Flicker effect lets you map variations in the luminance of one clip to another clip. This effect is useful, for example, if you have a background clip with strobe lights going on and off, and you want to composite another clip on top that doesn't have the strobe lights. You can map the luminance from the clip with the strobe lights to the one that doesn't have them.

You adjust the luminance in each frame by selecting reference regions for the black and/or white levels.

White Property Page

The White property page lets you select a region of the image which has the levels of white to which you want to normalize your clip, and set the reference frame, degree, and brightness of the effect.

Option	Description
Select Region in Image	Lets you select a reference region for the white levels (highlights) in the reference frame. Draw a box in the viewer to select the region. The color swatch updates to display the luminance.

Option	Description
Color swatch	Displays selected reference highlight luminance
Set as Reference Frame	Sets the current frame as the reference frame. The reference frame contains the reference region with the desired black and/or white levels.
Amount	Sets degree to which Deflicker effect is applied. Values: 0 to 200%; default is 100%. If you lower the amount to 50%, then the luminance correction is cut by 50%.
Brightness	Lets you adjust the image's brightness. Values: -100 to +100.
Apply	Lets you turn the White property page on or off
Output Reference	Displays the reference image (input 2) from which you select the luminance levels. *Once you set the properties for this effect, be sure to turn this option off or you won't see the composited result.*

Black Property Page

The Black property page lets you select a region of the image which has the levels of black to which you want to normalize your clip, and set the reference frame, degree, and brightness of the effect.

Option	Description
Select Region in Image	Lets you select a reference region for the black levels (lowlights) in the reference frame. Draw a box in the viewer to select the region. The color swatch updates to display the luminance.
Color swatch	Displays selected reference lowlight luminance
Set as Reference Frame	Sets the current frame as the reference frame. The reference frame contains the reference region with the desired black and/or white levels.

Option	Description
Amount	Sets the degree to which the Deflicker effect is applied. Values: 0 to 200%; default is 100%. If you lower the amount to 50%, then the luminance correction is cut by 50%.
Brightness	Lets you adjust the brightness in the image. Values: -100 to +100.
Apply	Lets you turn the Black property page on or off.
Output Reference	Displays the reference image (input 2) from which you select the luminance levels. *Once you set the properties for this effect, be sure to turn this option off or you won't see the composited result.*

HSL Keyer

The HSL Keyer effect lets you create a matte based on the hue, luminance, and saturation (HSL) values of an image. Once the matte is created, you can composite the clip over another one.

Use the controls on the Clip Values property page to create an initial key, and then adjust the matte further using controls on the Matte and Map property pages.

You can apply the HSL Keyer effect as an image or paint effect. When you apply it as a paint effect, only the Clip Values, Matte, and Map property pages are available.

Clip Values Property Page

The Clip Values property page lets you create a matte based on the hue, luminance, and saturation (HSL) values of an image. You can control the range of hue, luminance, and saturation within the image that will create the matte.

When you adjust the Low Clip or High Clip values, the corresponding Softness slider will also be adjusted when the Low Clip or High Clip values become equal to the Softness values. For example, if you adjust the Low Soft value until it is equal to or higher than the Low Clip value, then both sliders will move to the new value.

Option	Description
Hue	Refers to color and is expressed as a degree from 0 to 360 on a standard color wheel. For example, a value of 0 represents red, a value of 180 represents cyan, and a value of 300 represents magenta.
Luminance	Refers to the relative lightness or darkness of a color. Values: 0 (darkest/black result) to 1 (lightest/white result).
Saturation	Refers to the degree of mixture between a pure hue and neutral gray. Values: 0 (least saturated color) to 1 (most saturated color).
Low Soft	Creates a soft transition between transparent and opaque areas keyed with Low Clip. Adjusting the Low Soft value lets you force opaque areas of the matte to become semitransparent. Increasing the value causes more pixels to become semitransparent. You can set this value by adjusting the slider, entering a value, or by making a pixel or rectangular selection (Ctrl+Shift-drag) in the viewer.
Low Clip	Lets you force semitransparent areas of the alpha channel to become transparent. Adjusting the Low Clip value above 0 forces all semitransparent areas between the new value and 0 to become transparent. You can set this value by adjusting the slider, entering a value, or by making a pixel or rectangular selection (Ctrl-drag) in the viewer.
High Clip	Lets you force semitransparent areas of the alpha channel to become opaque. Adjusting the High Clip value below 1 forces all semitransparent areas between the new value and 1 to become opaque. You can set this value by adjusting the slider, entering a value, or by making a pixel or rectangular selection (Ctrl-drag) in the viewer.

Option	Description
High Soft	Creates a soft transition between transparent and opaque areas keyed with High Clip. Adjusting the High Soft value lets you force transparent areas of the matte to become semitransparent. Increasing the value causes more pixels to become semitransparent. You can set this value by adjusting the slider, entering a value, or by making a pixel or rectangular selection (Ctrl+Shift-drag) in the viewer.
Reset	Resets all parameters to the default settings
Keep Original Alpha	Applies the keyer only to the non-transparent areas of the original alpha channel. When you have an existing matte, such as a garbage matte, use this option to ensure that the keyed matte is generated only in the opaque areas of the original matte. When you do not have an existing matte, this option has no effect because the default alpha channel is 100% opaque.
Invert Key	Inverts resulting alpha channel pixel values to create a “negative” of the matte
FG Suppress	Adjusts color values of foreground areas of image (the areas that are not keyed out) by reducing the presence of the color that you keyed out. This option takes the average of the range of values keyed out and diminishes its presence in the foreground areas. Use this option to remove a bluish cast resulting from light reflecting off a blue screen or to remove blue color remaining at the edges of objects after keying.
Activate	Lets you activate a tool, such as a keyer or DVE. Since several property editors can be open simultaneously, you must use this button to select which one to activate while you work interactively with the viewer.

Matte Property Page

The Matte property page lets you apply post-process mapping to the matte. It also contains controls that let you blur, shrink, grow, or invert your matte.

Option	Description
Blur	Lets you control softness the matte
Radius	Defines size of area around each pixel that contributes to the new, averaged value. The greater the radius, the softer the blur.
Amount	Sets degree to which blur effect is applied. The higher the value, the softer the blur. Values: 0 to 1000.
Apply	Turns Blur option on or off, letting you compare the composite's appearance with and without the blur effect
Size	Defines size of area around each pixel that contributes to new averaged value
Shrink/Grow	Increases or decreases size of matte
Apply	Turns Size option on or off, letting you compare the composite's appearance with and without the Size effect
Reset	Resets all parameters on this property page to the default values

Map Property Page

The Map property page lets you adjust areas of the mate generated by the keyer that have slight shades of opaque or transparent alphas in areas that you think should be fully opaque or transparent.

The function curve lets you apply post-process mapping to the matte generated by the keyer. By modifying the function curve, you can adjust areas of the matte according to their degree of transparency making semitransparent areas completely opaque or fully transparent.

Option	Description
X axis	Represents original transparency values of currently defined matte. Values: 0 (transparent) to 1 (opaque).
Y axis	Represents resulting transparency values of matte (adjustable). Values: 0 (transparent) to 1 (opaque).

Option	Description
Function Curve	Lets you vary transparency range of alpha channel. By moving the function curve up, pixels in that transparency range become more opaque. By moving the function curve down, pixels become more transparent.
Apply	Turns Map option on or off, and lets you compare the matte with or without adjustments to the function curve

Key Combiner (Alpha or Luma)

The Key Combiner effect lets you combine the RGB channels of an image with an alpha channel created from the channels of another image.

The Key Combiner - Alpha selects alpha as the source, by default, from which to map to the output's image's alpha channel.

The Key Combiner - Luma selects luma as the source, by default, from which to map the output's image's alpha channel.

Linear Luma Keyer

The Linear Luma Keyer effect lets you create a matte based on the luminance values of an image. This is a real-time effect.

If your image contains a background color of black, white or gray, use the Linear Luma Keyer to create a matte. Once the matte is created, you can composite the clip over another one.

Use the controls on the Clip Values property page to create an initial key, and then adjust the matte further using controls on the Matte and Map property pages.

Luma Keyer

The Luma Keyer effect lets you create a matte based on the luminance values of an image. If your image contains a background color of black, white or gray, use the Luma keyer to create a matte. Once the matte is created, you can composite the clip over another one.

Use the controls on the Key Values property page to create an initial key, and then adjust the further using controls on the Matte, Map, and Masking property pages.

Matte Property Page

The Matte property page lets you blur, shrink, grow, or inverse your matte.

Option	Description
Blur	Lets you control the softness of the matte
Radius	Lets you define the size of the area around each pixel that contributes to the new averaged value
Amount	Lets you set the degree to which blur filter is applied. Values: 0 to 100. The greater the value, the softer the blur.
Apply	Turns Blur option on or off. This lets you compare the composite's appearance with and without the blur effect.
Size	Increases or decreases size of matte
Shrink/Grow	Increases or decreases size of matte
Apply	Turns Shrink/Grow parameter on or off. When this option is selected, the effect is applied to the image. When deselected, you can bypass the effect to display the original image.
Reset	Resets all parameters on this property page to the default values

Map Property Page

The Map property page contains a function curve that lets you apply post-process mapping to the matte generated by the Luminance or HSL keyers. By modifying the function curve, you can adjust areas of the matte according to their degree of transparency.

If the foreground image should not contain any transparency, you can improve the matte by adjusting the function curve to remove the transparency.

By moving a portion of the function curve up, pixels in that transparency range become more opaque. Conversely, by moving a portion of the function curve down, pixels in that transparency range become more transparent. For example, if you move the key point currently at X=0, Y=0 up to X=0, Y=0.9, all the currently transparent areas of the matte become 90% opaque.

Option	Description
X axis on graph	Represents original transparency values of currently defined matte. Values: 0 (transparent) to 1 (opaque).
Y axis on graph	Represents the resulting transparency values of the matte (adjustable). Values: 0 (transparent) to 1 (opaque).
Function curve	Lets you vary transparency range of alpha channel. By moving the function curve up, pixels in that transparency range become more opaque. By moving the function curve down, pixels become more transparent.
Apply	Turns mapping on or off, letting you compare the matte with or without adjustments to the function curve

Matte Effect

The Matte effect lets you clean specific areas of an existing matte or create a new matte for an image. This effect is useful if you import a clip that has a matte in its alpha channel, but the matte requires touching up.

Using the shape tools, you can create a garbage matte and, if necessary, track the shapes using the shape tracking tools.

***Tip**: The Matte property editor contains three of the same property pages as the Blue-Green Keyer property editor. Once you apply the effect, you can use the same methods to clean your matte as you would using the Blue-Green Keyer property editor.*

Matte Composite

The Matte Composite effect lets you composite multiple mattes together. You can use the R, G, B, or alpha channels from an external source for the matte and apply Boolean operations to combine the layers. You can use the output of this effect as an input to any effect in the Effects Tree.

General Property Page

The General property page lets you composite mattes together. You can specify whether to use an input's RGB or alpha channels for the matte and apply Boolean operations between each layer. You can also use an invert of an image's RGB or alpha channels for the matte.

Option	Description
Input	Displays layer on which you are affecting. To use the controls, you must first connect a node to the input of the Matte Composite effect.
Mute	Mutes layers so that they are not displayed in the viewer. Muting is useful when you have several layers in your composite and you want to preview one layer, but not the others. The muted layer will not be included in the processed result.
Solo	Solos the layer so that it is the only one displayed in the viewer. Soloing is useful when you want to view one layer without seeing effects from other layers. You can solo one or more layers and this has no effect on the processed result.
Invert	Lets you invert RGB or alpha channels
Channel	Lets you select channel to use as a matte
RGB	Uses an input's RGB channels as a matte
Alpha	Uses an input's alpha channels as a matte
Operation	Lets you select a Boolean operation to apply between each layer in the composite, based on alpha or RGB channels. Each operation is applied to the current layer and the first layer above it that has an input.

Option	Description
Xor	Creates matte by combining two inputs, but excludes common values in the inputs
Or	Creates matte by combining two inputs
Min	Creates matte based on minimum pixel values of pixels in two inputs. Use this operation instead of the And operation when you are working with non-binary alpha values (when there are more than two values in the image). This is the default option.
Max	Creates matte based on the maximum pixel value of two inputs. Use this operation instead of the Or operation when you composite non-binary alpha values (when there are more than two values in the image).
And	Creates matte by selecting common values of two inputs
Add	Adds the pixel values of the foreground matte to the background
Add No Clipping	Adds the pixel values of the foreground matte to the background, but applies a special algorithm that prevents the matte from appearing overexposed
Difference	Subtracts the pixel values of the background matte from the foreground
Multiply	Multiplies pixel values of the foreground matte with the background. The result is always darker.
Invert Output	Inverts output of composited mattes
Output Matte	Switches keyer output to display either RGB channels or matte. When you select this option, the matte is output as an RGB image.

Motion Tracker

The Motion Tracker lets you track a moving object, stabilize camera shakes, and perform 4-point transformations. Avid DS Nitris uses the DVE controls to displace the image in one layer and track the target in another layer along the X, Y, and Z axes. When processed, the layer image is usually composited over the reference layer.

The Reference and Layer property pages let you set the type of transformation, the start and end frames (time span) over which the transformation will occur and the tracking mode (1, 2, or 4-point tracking).

Option	Description
> (track forward)	When Reference or Result is selected, starts forward tracking on the reference clip. When Layer is selected, activates tracking on the layer clip. A motion path is generated on the selected clip.
< (track backward)	Lets you track from a current frame backwards. Useful when track accuracy degrades over a number of frames. You can stop the tracker, reselect the tracking point, and then track backwards correcting the inaccurate track timespan.
Stop	Stops the tracking. This button is displayed after you press the > (track forward) or < (track backward) buttons.
Mode	Lets you use one, two, or four trackers to define the region for tracking
1-point	One-point tracking ties a single tracker in the layer image to a single tracker in the reference image. The layer image simply translates along the path of the tracker.
2-point	Two-point tracking ties two trackers in the layer image to two trackers in the reference image. The layer image is translated, scaled, and rotated so that the trackers in layer image can follow the trackers in the reference image.
4-point	Four-point tracking ties a set of four trackers in the layer clip to four trackers in the reference clip. The layer image is translated and distorted so that its four trackers can follow the four trackers in the reference clip.
Edit	Lets you select the clip to track: reference or layer
Reference	The reference clip is the clip to be tracked. This option lets you select and display a reference clip, adjust its trackers, and track an area of the image.
Layer	The layer clip is the clip that will follow the tracking motion. This option lets you display the layer clip, and if necessary adjust its trackers to have a specific area of the clip follow the motion path created by the reference clip.

Option	Description
Result	Displays result of the composite of reference and layer clips
Update View	Turns update view on or off. When selected, viewer updates during tracking. Deselect this option for faster processing.
Show Path	Turns motion path view on or off. When selected, displays the motion path created by the tracker.

Reference/Layer/Result Property Pages

When you select an option in the Edit box, the associated property page opens. For example, if you select the Reference option in the Edit box, the Reference property page opens.

The Reference and Layer property pages let you set the type of transformation, and the start and end frames (time span) over which the transformation will occur. Additional settings let you set the tracking mode (1, 2, or 4-point tracking), display the motion path, update the viewer, and activate the tracking process.

When tracking is started, individual trackers (R1-R4, L1-L4) sample a target area of the reference clip at each frame of the specified time span. In each subsequent frame, the motion tracker searches for the target image within the tracker's search region. When the target is found, a keyframe is set. The resulting motion path controls the tracker DVE and the layer image is moved accordingly.

When you select the Result option, the Result property page opens and you can see the composited results of reference and layer images.

Option	Description
Start Frame	Sets first frame of the reference/layer clip to be tracked. You can enter a new timecode in this box, or drag the in-point to the desired starting point on the applicable track in the Compositing timeline.
End Frame	Sets last frame of the reference/layer clip to be tracked. You can enter a new timecode in this box, or drag the out-point to desired ending point on the applicable track in the Compositing timeline.

Option	Description
Transformation	Lets you select whether to perform tracking or stabilizing
Track (De-stabilize)	Uses motion path(s) to control the tracker DVE and move the layer clip, so that it follows the motion in the reference clip
Stabilize	Uses motion path of a reference object to create a compensating motion that “pins” the object

Advanced Property Page

The Advanced property page lets you:

- Deactivate translation when you apply 1-point tracking, and
- Deactivate scaling, translation, and/or rotation when you apply 2-point tracking.

When you apply 4-point tracking, the Crop options become available, letting you crop the layer image to the reference tracker’s polygon, and apply a blur to the cropped image.

Option	Description
Disable	Lets you turn off tracker results for scaling, translation, and rotation. For example, if you are tracking a reference image that also requires stabilization, you may not want the tracker to scale, translate, or rotate the layer image while the tracking is performed. When 1-point tracking is selected, you can only disable the translation. When 2-point tracking is selected, you can disable all the options. When 4-point tracking is selected, these options are not available.
Scaling in X	Turns Scaling in X on or off
Scaling in Y	Turns Scaling in Y on or off
Translation in X	Turns Translation in X on or off
Translation in Y	Turns Translation in Y on or off
Rotation	Turns Rotation on or off

Option	Description
Tool	Sets the tracker magnification
Magnification	Sets magnification value for tracker
Track in Fields	Tracks each field separately and sets a key on each field. The target used is the contents of the target region in field 1 of the target frame. If you track in fields, you do not need to first deinterlace, track, and reinterlace the clip. Once you track in fields be sure to process in fields.
Transform Offsets	Applies the tracked transformation or scaling to the offset keeping the offset point in the correct position relative to the reference point. It is ON by default.
Crop Tracker Polygon	Lets you crop a layer image to its tracker polygon and apply a blur to the polygon's edge. These options are only available when 4-point tracking is selected.
Apply Crop	Crops layer's alpha channel to reference's tracker polygon
Crop RGB	Applies the crop to the layer's RGB channels
Antialiasing	Lets you set antialiasing options
Apply	Turns antialiasing option on or off. Smooths the jagged lines that can occur when drawing diagonal or curved strokes. It is ON by default.
Extra Filtering	Provides subpixel control of extra filtering applied to the antialiasing. This property allows a tradeoff between image sharpness and smoothness of the antialiasing.
Supersampling	Lets you choose the precision of the antialiasing; a value of 8x8 provides higher precision than 4x4.
Blur	Lets you blur shapes
Apply	Blurs edges of selected shape(s). The higher the value, the softer the blur. Values: 0 to 1000.
X	Applies blur in the horizontal (X) direction
Y	Applies blur in the vertical (Y) direction

Option	Description
Lock	Locks the X/Y Radius sliders together so they can easily be set to the same ratio

Motion Path Menu

The Motion Path menu lets you adjust the speed of a motion path between keyframes.

- In the viewer, right-click a keyframe to access the Motion Path menu.

Option	Description
Stay Until Next Key	Maintains the image's current position until the next keyframe
Constant Speed	Moves the image at a constant speed from the current keyframe to the next
Smooth Speed	Adjusts the speed of the image before and after the keyframe to create a smooth motion
Ease In/Ease Out	Slows down the image so it stops at the current keyframe, and then speeds up again

Over Effect

The Over effect composites the foreground image over a background image. It can be applied within an Effects Tree to composite two layers. The Over effect is a real-time effect, which lets you composite layers and still have real-time playback.

Premultiplication

The Premultiplication effect lets you change a clip's premultiplication at any point. You can also change an outgoing image's RGB pixels by premultiplying or unpremultiplying the image as necessary.

General Property Page

The General property page lets you change a clip's premultiplication setting. By default, all clips are set to Auto, which will maintain the clip's premultiplication setting when the material was captured.

Option	Description
Auto	Maintains the premultiplication setting indicated when the clip was captured.
Modify Image	Changes outgoing image's RGB pixels by premultiplying or unpremultiplying the image according to the premultiplication setting. *If you select Auto in the Premultiplication State box, then this option is not available.*
Premultiplied	If the Modify Image option is selected, the input's RGB channels is premultiplied with the alpha channel. If the Modify Image option is not selected, the image is marked as being premultiplied.
Not Premultiplied	If the Modify Image option is selected, the input's RGB channel are "un-premultiplied" with the alpha channel. If the Modify Image option is not selected, the image is marked as being not premultiplied.

Spill Correction

The Spill Correction effect lets you remove the blue or green spill color in an image. You can adjust the amount and hue of spill color in the image's RGB channels.

Spill Property Page

The Spill property page lets you adjust the amount and hue of the spill color in an image's RGB channels. This effect is useful when you have a clip that has an existing matte and you need to remove or adjust the blue or green spill color.

Option	Description
Pick Replace Hue	Lets you select a color whose hue will replace the current spill hue by picking a color in the viewer
Pick Spill Color	Lets you specify the image's spill color by picking a color in the viewer
Color swatch	Displays current color. Click color swatch to display Mini Color Editor.
Hue	Lets you modify hue of replacement spill hue
Saturation	Lets you modify replacement spill color's saturation
Luminance Offset	Lets you add or subtract luminance to or from the original luminance A value of 0 represents the original luminance.
Threshold	Adjusts spill correction area. Increasing the Threshold value expands the pixel range to which spill correction is applied, while decreasing the threshold value contracts the pixel range.
Softness	Adjusts amount of blur applied between replacement color and adjacent colors in the RGB image
Apply	Turns Spill Correction effect on or off
Reset	Resets all parameters to the default values

Tracker/Stabilizer

The Tracker/Stabilizer lets you track or stabilize your clips through the Effects Tree without switching to the Compositing layout.

If you want to stabilize your clip while working in the Effects Tree, you can use the Stabilize effect, which is a preset of the Tracker.

Option	Description
< >	Starts tracking forward or backward. When In 1-layer is selected, tracking is started on the layer clip. When In 2-ref is selected, tracking is started on the reference clip. During tracking, a motion path is generated on the selected clip.
1-point	One-point tracking ties a single tracker in the layer image to a single tracker in the reference image. The layer image simply translates along the path of the tracker.
2-point	Two-point tracking ties two trackers in the layer image to two trackers in the reference image. The layer image is translated, scaled, and rotated, so that the trackers in the layer image can follow the trackers in the reference image.
4-point	Four-point tracking ties four trackers in the layer clip to four trackers in the reference clip. The layer image is translated and distorted, so that its four trackers can follow the four trackers in the reference clip.
Output	Displays result of tracking or stabilization applied to the input of the reference and layer clips.
In 1-layer	In track mode, the layer clip is always the clip from which the tracker is applied. In stabilize mode, the layer clip is the same as the reference clip. This lets you display the layer clip, and if necessary, adjust its trackers and track an area of the image.
In 2-ref	In track mode, the reference clip is the clip that you track, so that the layer trackers are aligned with the reference trackers. In stabilize mode, the reference clip is the same as the layer clip. This lets you display the reference clip, and if necessary, adjust its trackers and track an area of the image.
Show	Turns motion path view on or off. When selected, it displays the motion path created by the tracker.
Update	Turns update view on or off. When selected, the viewer updates during tracking. Deselect this option for faster processing.

Input1/Input2/Output Property Pages

When you select an option in the Edit box, the associated property page opens. For example, if you select the In 2-ref option in the Edit box, the Input 2 property page opens.

The Input 1 and Input 2 property pages let you set the type of transformation, and the start and end frames (time span) over which the transformation will occur. Additional settings let you set the tracking mode (1, 2, or 4-point tracking), display the motion path, update the viewer, and start tracking.

When tracking is started, individual trackers (R1-R4, L1-L4) sample a target area of the reference clip at each frame of the specified time span. In each subsequent frame, the motion tracker searches for the target image within the tracker's search region. When the target is found, a keyframe is set. The resulting motion path controls the tracker DVE, and the layer image is moved accordingly.

When you select the Output option, the Output property page opens and you can see the composited results of input 1 and 2.

Option	Description
Start Frame	Specifies first frame of reference/layer clip to be tracked or stabilized. To set the first frame, drag the in-point to the desired starting point on the desired track in the timeline.
End Frame	Specifies last frame of reference/layer clip to be tracked or stabilized. To set the last frame, drag the out-point to the desired end point on the desired track in the timeline.
Transformation	Specifies type of transformation
Track	Uses motion path(s) to control the tracker DVE and move the layer clip, so that it follows the motion in the reference clip
Stabilize	Uses the motion path of a reference object to create a compensating motion that "pins" the object

Advanced Property Page

The Advanced property page lets you deactivate translation when you:

- Apply 1-point tracking or
- Deactivate scaling, translation, and rotation when you apply 2-point tracking.

When you apply 4-point tracking, the Crop options become available, which let you crop the layer image to the reference tracker's polygon, and apply a blur to the cropped image.

Option	Description
Disable	Turns off tracker results for scaling, translation, and rotation. For example, if you're tracking a reference image that also requires stabilization, you may not want the tracker to scale, translate, or rotate the layer image while the tracking is performed. When 1-point tracking is selected, you can only disable the translation. When 2-point tracking is selected, you can disable all the options. When 4-point tracking is selected, these options are not available.
Scaling in X	Turns Scaling in X on or off
Scaling in Y	Turns Scaling in Y on or off
Translation in X	Turns Translation in X on or off
Translation in Y	Turns Translation in Y on or off
Rotation	Turns Rotation on or off
Crop To Tracker Polygon	Lets you crop a layer image to its tracker polygon and apply a blur to the polygon's edge. These options are only available when 4-point tracking is selected.
Blur Edges	Defines size of blur at edges of tracker polygon. Values: 0 to 1000.
Apply Blur	Turns Blur effect on or off. This lets you compare the composite's appearance with and without the blur effect.
Apply Crop	Crops layer's alpha channel to reference's tracker polygon
Crop RGB	Lets you apply the crop to the layer's RGB channels
Tool	Lets you set the tracker magnification

Option	Description
Magnification	Sets magnification value for tracker
Track in Fields	Tracks each field separately and sets a key on each field. The target used is the contents of the target region in field 1 of the target frame. If you track in fields you do not need to first deinterlace, track, and reinterlace the clip. Once you track in fields be sure to process in fields.
Transform Offsets	Applies the tracked transformation or scaling to the offset keeping the offset point in the correct position relative to the reference point. It is ON by default.
Antialiasing	Lets you set antialiasing options
Apply	Turns antialiasing option on or off. Smooths the jagged lines that can occur when drawing diagonal or curved strokes. It is ON by default.
Extra Filtering	Provides subpixel control of extra filtering applied to the antialiasing. This property allows a tradeoff between image sharpness and smoothness of the antialiasing.
Supersampling	Lets you choose the precision of the antialiasing; a value of 8x8 provides higher precision than 4x4.
Blur	Lets you blur shapes
Apply	Blurs edges of selected shape(s). The higher the value, the softer the blur. Values: 0 to 1000.
X	Applies blur in the horizontal (X) direction
Y	Applies blur in the vertical (Y) direction
Lock	Locks the X/Y Radius sliders together so they can easily be set to the same ratio

Quality Property Page

The Quality property page lets you apply filters that can improve the quality of a scaled or rotated image. When an image is scaled down or rotated, small jagged lines can appear on the oblique edges of objects or sometimes within the image. You can also specify the channels on which the DVE will be applied, and the type of source material you are using.

Option	Description
Quality	Settings that control the speed of processing and affect the result of the processed image. When you scale or rotate an image, a resampling algorithm is applied to enhance the image's quality. The options are also arranged according to speed, with Unfiltered being the fastest and Pixel Summing Bicubic being the slowest. If you scale down an image, the following resampling algorithms produce a higher-quality image: Filtered, Pixel Summing Bilinear, or Pixel Summing Bicubic. If you scale up an image, the following resampling algorithms produce a higher-quality image: Bilinear (also equivalent to Filtered and Pixel Summing Bilinear) or Bicubic (also equivalent to Pixel Summing Bicubic).
Unfiltered	Applies no filter to the image (this is the fastest mode)
Bilinear	Useful when scaling a DVE up, which will improve the scaled image's quality. This is the default setting.
Bicubic	Produces a sharper image than the Bilinear option when you scale a DVE up
Pixel Summing Bilinear	Produces a less blurry image than the Filtered option when you scale an image down using pixel averaging. If you scale an image up, a bilinear interpolation is used, producing a sharper image.
Pixel Summing Bicubic	Produces a less blurry image than the Filtered or Pixel Summing Bilinear options when you scale an image down, using pixel averaging. If you scale an image up, a bicubic interpolation is used, producing a sharper image.
Filtered	Useful when you scale a DVE down, which will improve the scaled image's quality

Option	Description
Filter Level	Determines the strength of the filter when in Pixel Summing Blinear, Pixel Summing Bicubic, or Filtered mode. Higher settings result in a stronger filter and longer processing time.
Channels	Lets you specify the channels on which the DVE will be applied
Red	Applies DVE to red channel
Green	Applies DVE to green channel
Blue	Applies DVE to blue channel
Alpha	Applies DVE to alpha channel
Motion Blur	Lets you apply a motion blur to an animated DVE
Apply	Turns Motion Blur effect on or off
Duration	Sets duration of motion blur between current frame and next frame. Values: 0 to 100%; default is 50%.
Number Samples	Lets you set number of samples per frame, which can improve the smoothness of the motion blur. Values: 1 to 100. A value of 1 applies no motion blur. A value higher than 1 increases the number of samples. For example, if you set the number of samples to 2, then two images are superimposed on top of each other at the current frame. If you set the number of samples to 4, then four images are superimposed, and so on. The default value of 8 usually provides a smooth motion blur. If the animation has a large movement between frames, then you should increase the number of samples to create a smoother motion blur. *The larger the number of samples, the longer the process time.*

Transform Node

The transform node lets you apply global transformations on more than one image. It is used together with the DVE and Tracker Effect nodes.

Option	Description
Translate	Lets you control location of image along X, Y, and Z axes
X	Moves image in X direction. Enter a positive value to move the image to the right and a negative value to move it to the left.
Y	Moves image in Y direction. Enter a positive value to move the image up and a negative value to move it down.
Z	Moves image in Z direction. Entering a positive number moves the image closer, while a negative number moves it farther away.
Scale (%)	Lets you control the size properties of the image along the X and Y axes. A value of 100 represents the image's original scaling. Units are percentages. For example, 200 doubles the scaling and 50 halves it.
X	Scales image in X direction. To scale proportionally, assign identical values to X and Y.
Y	Scales image in Y direction
Lock XY	Links X and Y values, so if you change one value, the other value is the same. This option has no effect when you interactively manipulate an image in the viewer.
Offset	Lets you specify how far the object's center is displaced from its original center. The center is the point around which the image revolves. The X, Y, and Z default values are 0, 0, 0.
X	Specifies center offset along X axis
Y	Specifies center offset along Y axis
Z	Specifies center offset along Z axis
Affect	Specifies the plane(s) the offset will affect.
Rotate	Lets you control the image's angle of rotation along the X, Y, and Z axes. These options are set relative to the image plane.
X	Rotates image along X axis

Option	Description
Y	Rotates image along Y axis
Z	Rotates image along Z axis. Enter a negative number (in degrees) to rotate clockwise and a positive number to rotate counterclockwise.
Rotation Interpolation	Specifies the algorithm to be used for interpolation of animated rotations.
FCurve	Selecting this option allows you to do multiple revolutions of rotation, such as, winding motion. You can also edit the rotation curves in the animation editor.
Linear Quaternions	Performs the calculation based on the shortest rotation path between keyframes. Creates a more robotic movement.
Cubic Quaternions	Similar to Linear calculation but produces smoother movement.
Scale	Turns scale tool on or off
Rotate	Turns rotate tool on or off
Crop	Turns crop tool on or off
Reset	Resets parameters on this property page to default values

Global DVE

A global DVE applies a transformation to all participating layers in the composite. You can only apply a global DVE from the layers.

Option	Description
Translate	Lets you control location of image along X, Y, and Z axes
X	Moves image in X direction. Enter a positive value to move the image to the right and a negative value to move it to the left.

Option	Description
Y	Moves image in Y direction. Enter a positive value to move the image up and a negative value to move it down.
Z	Moves image in Z direction. Entering a positive number moves the image closer, while a negative number moves it farther away.
Scale (%)	Lets you control the size properties of the image along the X and Y axes. A value of 100 represents the image's original scaling. Units are percentages. For example, 200 doubles the scaling and 50 halves it.
X	Scales image in X direction. To scale proportionally, assign identical values to X and Y.
Y	Scales image in Y direction
Lock XY	Links X and Y values, so if you change one value, the other value is the same. This option has no effect when you interactively manipulate an image in the viewer.
Offset	Lets you specify how far the object's center is displaced from its original center. The center is the point around which the image revolves. The X, Y, and Z default values are 0, 0, 0.
X	Specifies center offset along X axis
Y	Specifies center offset along Y axis
Z	Specifies center offset along Z axis
Affect	Specifies the plane(s) the offset will affect.
Rotate	Lets you control the image's angle of rotation along the X, Y, and Z axes. These options are set relative to the image plane.
X	Rotates image along X axis
Y	Rotates image along Y axis
Z	Rotates image along Z axis. Enter a negative number (in degrees) to rotate clockwise and a positive number to rotate counterclockwise.

Option	Description
Rotation Interpolation	Specifies the algorithm to be used for interpolation of animated rotations.
FCurve	Selecting this option allows you to do multiple revolutions of rotation, such as, winding motion. You can also edit the rotation curves in the animation editor.
Linear Quaternions	Performs the calculation based on the shortest rotation path between keyframes. Creates a more robotic movement.
Cubic Quaternions	Similar to Linear calculation but produces smoother movement.
Scale	Turns scale tool on or off
Rotate	Turns rotate tool on or off
Crop	Turns crop tool on or off
Reset	Resets parameters on this property page to default values

Chapter 7
Image Effects Reference

This chapter contains reference information for image effects.

3D Warp

The 3D Warp effect lets you apply 3D animated scenes, such as a page turn or melting screen to your images. You can apply a 3D warp to clips or tracks, as a transition or source generator, or in an Effects Tree. When you apply a 3D Warp in an Effects Tree, it is applied as a transition with two inputs.

General Property Page

The General property page lets you select a type of 3D Warp effect, choose a rendering switch, and select a preview mode.

While many 3D Warp effects are shipped with Avid DS Nitris, you can also load 3D scenes that were created in Softimage|XSI. Using the Rendering Switches, you can apply or bypass scene attributes that you used when you created your 3D scene.

You can preview the 3D Warp effect in wireframe or shaded mode.

Option	Description
Select effect	Lets you select a 3D scene to be used as the warp effect
New	Lets you select a 3D scene created with Softimage|XSI to be used as an effect, transition or source generator

Option	Description
Rendering Switches	Turns the global parameter used in your 3D scene on or off. When you create a scene in Softimage|XSI, you need to set parameters to define the appearance and material definition of objects. The appearance of an object is defined in terms of color, texture, transparency, etc., while the object's material is defined by processing the object's surface in relation to a light source. While there are numerous settings for each parameter, Global Switches in Softimage|XSI provide a method of applying or bypassing all settings for each parameter, including: Refraction, Antialiasing, Back Culling, 3D Textures, Reflection, and Shadows. In Avid DS Nitris, you can also choose which Rendering Switches (Global Switches) to apply or bypass when you process the 3D Warp effect.
Refraction	Turns refraction on or off. Refraction is the bending of light as it passes through a transparent or translucent object. If refraction was used when the 3D scene was created and you select this option, the parameters used in the 3D scene are applied.
Antialiasing	Turns antialiasing on or off. Antialiasing is a method of smoothing out and sharpening rough or jagged edges of images to produce a more polished look. If antialiasing was used when the 3D scene was created and you select this option, the parameters used in the 3D scene are applied.
Back Culling	Turns back culling on or off. Back culling lets you define which faces of an object are rendered. When this option is selected, only the faces whose normals are facing the camera are rendered, while the back faces are "culled" (ignored). If back culling was used when the 3D scene was created and you select this option, the parameters used in the 3D scene are applied.

Option	Description
3D Textures	Turns 3D textures on or off. 3D Textures let you define an object's surface appearance. Patterns are applied to an object in three-dimensional space, simulating a solid mass. The three categories of patterns include marble, wood, and clouds. If 3D textures were used when the 3D scene was created and you select this option, the parameters used in the 3D scene are applied.
Reflection	Turns reflection on or off. Reflections are created when the surface of an object behaves like a mirror to reflect the image of another object. Reflectivity can be part of an object's material definition. If reflection was used when the 3D scene was created, and you select this option, the parameters used in the 3D scene are applied.
Shadows	Turns shadows on or off. Shadows are areas that are totally or partially obscured from light by an object. If shadows were used when the 3D scene was created, and you select this option, the parameters used in the 3D scene are applied.
Preview Mode	Lets you select method to preview results of the effect in the viewer while you scrub the position indicator on the timeline
Active While Scrubbing	Turns Preview mode on or off when you scrub the timeline
Wireframe	Lets you view the results of the effect in wireframe mode in the viewer
Shaded	Lets you view the results of the effect in shaded mode in the viewer

Timing Property Page

The Timing property page contains a function curve that displays the following:

- The percentage of the animation that the effect has progressed at a specific time, and

- The amount and duration of the original image that is dissolved into the 3D scene before the first keyframe and after the last keyframe.

You can interactively manipulate the function curve to adjust these amounts or change the direction of the 3D scene's animation. You can also change the curve to linear, Bézier, or constant.

Sometimes, the rendered 3D scene may not have the same quality as the original image in Avid DS Nitris. This can be due to different lighting, antialiasing, etc., applied to the 3D scene in Softimage|XSI. To compensate for the quality change, you can dissolve the first and last frames of the 3D scene into the original image in Avid DS Nitris over a duration of frames at the start and end of the effect using the In and Out controls. This creates a smoother transition between the original image and the 3D scene.

Adjusting the In and Out values modifies the value in the Amount box, as well as the function curve.

Option	Description
X axis	Represents SMPTE timecode. You can drag the position indicator in the function curve graph to a new timecode to see how far the effect has progressed through the animation.
Y axis	Represents percentage through the animation the effect has progressed. Values: 0 to 100%. A value of 0 means the 3D animation has not started and a value of 100 means the 3D animation is complete. Adjusting the Y axis also adjusts the value displayed in the Amount box. You can also adjust the direction of the animation by adding more control points to the function curve.
Amount	Represents percentage through the animation the effect has progressed at the time specified on the X axis. When you move a control point on the function curve graph, the Amount value changes to display the value at the specified timecode. Adjusting the Amount value also adjusts the Y axis on the function curve.
In	Lets you adjust the duration, in frames, that the effect is dissolved in at the beginning of the effect

Option	Description
Out	Lets you adjust the duration, in frames, that the effect is dissolved out at the end of the effect

Generic Property Page

The Generic property page contains the specific scene properties that you used when you created your 3D scene.

When you click the Scene Properties button, a dynamic list of all the properties saved with the scene is displayed. You can interactively set these properties from within Avid DS Nitris.

Option	Description
3D Warp	Displays 3D Warp properties that were set on the General and Timing property pages
Scene Properties	Displays additional scene properties that were used when the 3D scene was created
	Indicates that you can animate a parameter. To add animation, change a parameter's value, then click this button beside the parameter. When a keyframe is set, this button turns red with a line through it.
	Indicates that a parameter is animated, but you are not currently on the keyframe

Source Property Page

The Source property page lets you adjust the 3D Warp effect's opacity and change the transition's source direction.

Option	Description
Opacity	Controls the transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

Option	Description
Source (To)	Applies the 3D Warp effect to the clip in which the transition is coming from
Source (From)	Applies the 3D Warp effect to the clip in which the transition is going to

Accented Edges

The Accented Edges effect lets you add accents to the edges in an image. When applied to a high-resolution image, the final accented edges are small and the effect is very similar in appearance to egg tempera. For a more painterly result, try applying this effect before some of the other effects, such as the Dry Brush, Watercolor, or Texturizer effect.

Accented Edges Property Page

The Accented Edges property page lets you adjust the edges of the image, as well as the effect's smoothness and opacity.

Option	Description
Edge Width	Increases or decreases the width of the edges
Edge Brightness	Brightens (like white chalk) or darkens (like black ink) edges
Smoothness	Makes the overall image retain more detail or makes it smoother. This control is useful for making a photograph appear more painterly.
Opacity	Controls the transparency of the effect. Values range from 0 (completely transparent) to 100 (completely opaque).

Angled Strokes

The Angled Strokes effect lets you paint an image with diagonal strokes. The lighter areas of the image are painted with strokes in one direction and the darker areas are painted with strokes in the opposite direction.

Angled Strokes Property Page

The Angled Strokes property page lets you adjust the edges of the image, as well as the effect's smoothness and opacity.

Option	Description
Direction Balance	Controls how much of the image is painted with left or right diagonal strokes
Stroke Length	Controls stroke length
Sharpness	Controls sharpness of image
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

To exaggerate this effect:

1. Scale the image to 50% or 25% of its original size.
2. Apply the **Angled Strokes** effect.
3. Restore the image to its original size.
4. If desired, sharpen the image to make the strokes more apparent.

Bas Relief

The Bas Relief effect lets you make an image appear as if it has been carved in low relief and lit to show the surface modulations.

Use this effect to liven up plain black-and-white images. To accentuate the appearance of the image being sculpted in stone, first apply the Bas Relief effect and then apply the Texturizer effect using Sandstone or another texture of your choice. It helps to set the light position in both effects to the same direction.

You can create metallic looking 3D text using this effect. After typing the text, deselect the text body, then select the individual characters with the Magic Wand tool and apply the Bas Relief effect. To change the color of the text, set the foreground color to the color you want.

Bas Relief Property Page

The Bas Relief property page lets you adjust the level of detail in the image, the direction from which the image is illuminated, the smoothness level, as well as the opacity level. By default, the foreground is set to black and the background is set to white. This produces a monochrome (grayscale) image. You can specify different colors for the foreground and background to vary the effect.

Option	Description
Detail	Adjusts level of detail in image
Light Position	Selects direction from which to illuminate image. Changing the light position highlights different carved areas.
Smoothness	Increases or decreases smoothness of image
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).
Foreground	Lets you choose color of foreground
Background	Lets you choose color of background
Color swatch	Displays selected or default background color. Click the color swatch to display the Mini Color Editor.

Blur

The Blur effect reduces noise by smoothing the image. You can apply the Blur effect as an image or paint effect. As a a paint effect, only the parameters of the General property page are available.

General Property Page

The General property page lets you define a blur effect and control how it is applied to an image. The Blur effect removes noise from areas of an image where color transitions occur. It works by averaging the values of pixels.

When used as an image effect, you can apply a blur to the entire clip or track or just a portion. You can also specify an area of the image where the blur will be applied.

When used as a paint effect, the blur becomes a property of the graphics object (either a paint stroke or text).

Option	Description
Size	Defines size of area around each pixel that contributes to new, averaged value. The greater the radius, the softer the blur.
X Radius	Lets you change radius of horizontal direction. Values: 0 to 1000.
Y Radius	Lets you change radius of vertical direction. Values: 0 to 1000.
Lock XY to Pixel Ratio	Locks X/Y Radius sliders together so they can easily be set to the same ratio
Amount	Sets degree to which the effect is applied. This option is only available when using Decay or Gaussian blur.
Mix	Overlaps original image with the blurred image. Use this setting to create a hazy effect with some details showing through. *The Mix parameter is only available on the Blur effect in the \Paint\Effects folder when a blur is applied to a paint stroke.*
Blur Method	Lets you choose method in which blur is applied to an image
Uniform	Blurs image so the value of a pixel is the average of all pixels within a rectangular region defined by the X and Y radius. The curve of this blur is represented as a straight line.
Decay	Blurs image in a similar manner as a Uniform blur, but maintains a sharper image. The blurring applies more weight on the center pixels.

Option	Description
Gaussian	Blurs image using a radially symmetrical blur. It is similar to Uniform and Decay blurs; sharper than a Uniform blur, but less than a Decay blur. It is also slower to process than a Uniform blur.

Bubble

The Bubble effect simulates the Pointillist style of painting.

The possible source channels include RGBA, inverted RGBA, and HLS. The possible destination channels are RGBA.

General Property Page

To simulate the Pointillist style of painting, randomly placed spots of color are rendered onto the selected background color.

Option	Description
Hue Jitter	Randomly modifies hue of the color of the bubbles for a more Pointillist look
Size	Changes size of bubbles
Antialias	Smoothes edges of bubbles
Red	Defines current red background color
Green	Defines current green background color
Blue	Defines current blue background color

Chalk and Charcoal

The Chalk and Charcoal effect lets you draw the image onto a solid mid-gray background, translating the dark areas of the image into coarse charcoal strokes and the light areas into coarse chalk strokes.

By default, the foreground is set to black and the background is set to white. This produces a monochrome (grayscale) image. You can specify different colors for the foreground and background to vary the effect.

Chalk and Charcoal Property Page

The Chalk and Charcoal property page lets you adjust the amount of light and dark areas drawn with the charcoal, the stroke pressure, and the opacity level.

Option	Description
Charcoal Area	Increases or decreases amount of dark areas drawn with charcoal
Chalk Area	Increases or decreases amount of light areas drawn with chalk
Stroke Pressure	Controls amount of pressure on charcoal stroke
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).
Foreground	Lets you choose color of foreground
Background	Lets you choose color of background
Color swatch	Displays selected or default background color. Click the color swatch to display the Mini Color Editor.

Channel Switcher

The Channel Switcher effect lets you map selected channels (components) of an image to other channels. You can apply it to clips, tracks, or layers.

This effect is useful, for example, if there is a logo or text created in another application and you want to use it in Avid DS Nitris. In most cases, the alpha channel and RGB channels are exported separately as RGB images from the application. To combine both images, you need to apply a Channel Switcher effect to the RGB image that you want to use as a matte, and then combine both images using a Key Combiner effect.

General Property Page

The General property page lets you map selected channels (components) of an image to other channels.

When you apply a particular channel to another, the pixel values of the source channel are applied to the destination channel. You can create a variety of effects resulting from changes in the color values, including the creation of mattes. You can quickly create a matte by mapping the G channel of an imported white-over-black title to the alpha channel.

If the RGB destination channels all have the same source channel, the result is a grayscale image.

Command	Description
Source	Lets you specify which channel to map to the corresponding RGBA destination channels
Red	Selects alternate source channel for red component
Green	Selects alternate source channel for green component
Blue	Selects alternate source channel for blue component
Alpha	Selects alternate source channel for alpha component
Invert Red	Inverts red color values. Each pixel's brightness value is converted to the inverse value based on a 256-color scale. A value of 0 is changed to 255.
Invert Green	Inverts green color values. Each pixel's brightness value is converted to the inverse value based on a 256-color scale. A value of 0 is changed to 255.
Invert Blue	Inverts blue color values. Each pixel's brightness value is converted to the inverse value based on a 256-color scale. A value of 0 is changed to 255.
Invert Alpha	Inverts alpha values. Each pixel's brightness value is converted to the inverse value based on a 256-color scale. A value of 0 is changed to 255.
Hue	Selects hue as alternate source channel for the R, G, B, or alpha channels

Command	Description
Lightness	Selects lightness as alternate source channel for the R, G, B, or alpha channels
Saturation	Selects saturation as alternate source channel for the R, G, B, or alpha channels
Destination	Provides view of channel being changed
Clear Channel	Lets you map selected channel to 0% value. For example, if you map the alpha channel to clear, then the value of 0% creates a black alpha channel.
Fill Channel	Lets you map selected channel to 100% value. For example, if you map the alpha channel to fill, then the value of 100% creates a white alpha channel.

To change the alpha channel source, you must first select the Process option in the Masking property page.

Charcoal

The Charcoal effect lets you draw the image onto a surface that resembles rough, textured paper. Strong edges are drawn boldly, while midtones are sketched with a diagonal stroke.

Charcoal Property Page

The Charcoal property page lets you control the charcoal thickness, detail, light/dark balance, the opacity level, and choose the foreground and background colors. By default, the foreground is set to black and the background is set to white. This produces a monochrome (grayscale) image. You can specify different colors for the foreground and background to vary the effect.

Option	Description
Charcoal Thickness	Controls thickness of charcoal lines
Detail	Controls amount of detail in final image

Option	Description
Light/Dark Balance	Adjusts proportion of background to foreground color
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).
Foreground	Displays selected or default foreground color
Background	Displays selected or default background color
Color swatch	Displays selected or default background color. Click the color swatch to display the Mini Color Editor.

Chrome

The Chrome effect lets you create a highly polished, smooth chrome surface. Features of the original image become bumps and depressions in the reflecting surface. This effect produces a monochrome (grayscale) image.

Chrome Property Page

The Chrome property page lets you adjust the level of detail in the chrome surface, the surface roughness, and the opacity level. To vary the effect, increase the brightness and contrast after applying the Chrome effect.

Option	Description
Detail	Controls level of detail in chrome surface
Smoothness	Increases or decreases smoothness of image
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

Clouds

The Clouds effect creates soft, undulating cirrus cloud images. You can animate individual parameters, and change the sky and cloud color.

Option	Description
Translate X	Controls horizontal (X axis) location of the center of the texture
Translate Y	Controls vertical (Y axis) location of the center of the texture
Scale X	Horizontally scales the texture (X axis) about the texture origin (which you can move using the Translate controls)
Scale Y	Vertically scales the texture (Y axis) about the texture origin (which you can move using the Translate controls)
Sky color	Displays current sky color (Background Color Value)
Cloud color	Displays current cloud color (Foreground Color Value)
Color swatch	Displays selected or default background color. Click the color swatch to display the Mini Color Editor.
Density	Adjusts density of clouds in the clip. Values: 0 (no clouds) to 500 (maximum amout of clouds).

Composite several layers of the Clouds effect at various scales and densities, while animating the translations for a delicate breeze effect. To simulate moving forward through clouds, use the Granite effect.

Color Gradient

The Color Gradient effect lets you apply a gradual transition between two, three, or four colors in an image. Each color you specify begins at the corner of the image and gradually fades toward the center. You can specify the same color, a different color, or vary your color selection for each corner.

You can apply the Color Gradient effect as a fill or brush effect in a graphics session, as an image effect in an editing session, or as a background source generator.

Color Gradient Property Page

The Color Gradient property page lets you adjust the gradual transition between two, three, or four colors in an image.

Option	Description
Color to Adjust	Specifies one of the four corners of the image. You can modify each corner's color using the RGBA sliders.
Color swatch	Displays selected or default background color. Click the color swatch to display the Mini Color Editor.
Color sliders	Sets intensity of each color channel of selected corner. The RGBA color model is used. Values: 0 to 100.
Composite	Lets you change color information of resulting image by using one of nine different composite filters
Normal	Blends source image and gradient colors equally
Darken	Compares color information in each channel of the source and gradient, and selects the darker-colored pixels. Pixels lighter than the gradient color are replaced and pixels darker than the gradient color remain unchanged.
Lighten	Compares color information in each channel of the source and gradient, and selects the lighter-colored pixels. Pixels darker than the gradient color are replaced and pixels lighter than the gradient color remain unchanged.
Difference	Compares color information in each channel of the source and gradient. Subtracts the source color value from the gradient color value (or the reverse), depending on which color has the greater brightness value.
Multiply	Compares color information in each channel and multiplies the source color with the gradient color. This results in a darker-colored image. When a color is multiplied with black, the result is black. When a color is multiplied with white, the color is unchanged.
Hue	Produces a resulting image that contains the hue of the gradient color and the luminance and saturation of the source image

Option	Description
Saturation	Produces a resulting image that contains the saturation of the gradient color and the hue and luminance of the source image
Color	Produces a resulting image that contains the hue and saturation of the gradient color and the luminance of the source image. This maintains the gray levels in the image and is useful for tinting color images.
Luminosity	Produces a resulting image that contains the luminance of the gradient color and the hue and saturation of the source image
Opacity	Controls transparency of color gradient. A value of 0 creates a completely transparent effect; a value of 100 makes it completely opaque, obscuring the underlying image.
Dither	Adds noise to the color gradient. The higher the value, the more noise is added.

Color Space Adjustment

The Color Space Adjustment effect lets you adjust the difference in color levels that can occur due to YUV to RGB conversion. When you import clips into Avid DS Nitris, they are imported in YUV color space. However, when you apply some effects or transitions, all or part of the clip may be converted to RGB color space.

General Property Page

The General property page lets you select how the YUV colors will be modified within the RGB color space. You can also display areas of an image that contain invalid RGB colors or illegal YUV colors.

Option	Description
Clip	Clips YUV colors to lie within RGB color space

Option	Description
Adjust	Adjusts YUV colors to lie within RGB color space. Values: 0 to 100%. Lower values affect more chrominance and less luminance. Higher values affect more luminance and less chrominance. A value of 0 does not affect luminance, and a value of 100 does not affect chrominance.
Highlight	Lets you switch the viewer to display colors in an image that do not lie within RGB color space
Red	Displays pixels that are over the RGB limit
Green	Displays pixels that are under the RGB limit
Blue	Displays pixels that have an illegal YUV range

Colored Pencil

The Colored Pencil effect lets you draw the image with colored pencils on a solid background. Strong edges are retained and give a rough crosshatched appearance, while the solid background shows through in the smoother areas of the image.

Colored Pencil Property Page

The Colored Pencil property page lets you adjust the pencil width, stroke pressure, brightness of the paper, and level of opacity.

Option	Description
Pencil Width	Controls width of pencil stroke
Stroke Pressure	Adjusts degree of pressure on stroke
Paper Brightness	Adjusts brightness of paper
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

Option	Description
Background	Lets you select background color
Color swatch	Displays selected or default background color. Click the color swatch to display the Mini Color Editor.

To heighten the pencil sketch look:

1. Convert the image to grayscale (if it is not already).
2. Apply the Colored Pencil effect with the Paper Brightness control at its maximum value.
3. Increase the contrast of the resulting image using the program's brightness and contrast controls.

To create a striking pencil sketch effect:

1. Apply the **Photocopy** effect once or twice to the image.
2. Apply the **Colored Pencil** effect to the result.
3. Increase the brightness and contrast of the resulting image for the desired look.

Conte Crayon

The Conte Crayon (pronounced "con-tay") effect lets you create the appearance that an image was drawn with conte crayon on a texture of your choice. This style is characterized by dense dark colors, highly textured midtones, and pure whites.

By default, this effect produces a monochrome (grayscale) image, but it can use the current foreground and background colors to color the final result.

Conte Crayon Property Page

The Conte Crayon property page lets you select the texture, the position from which to illuminate, as well as the level of detail of the image.

Option	Description
Texture Type	Selects underlying texture (Brick, Burlap, Canvas, Sandstone) and controls how it is applied using the other parameters
Light Position	Selects position from which to illuminate the image. Different light positions enhance different areas of the image.
Scaling %	Reduces or enlarges size of applied texture
Relief	Controls level of detail of the resulting image surface
Foreground Level	Controls amount of white (foreground color)
Background Level	Controls amount of black (background color)
Foreground	Displays selected or default foreground color
Background	Displays selected or default background color
Color swatch	Displays selected or default background color. Click the color swatch to display the Mini Color Editor.
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).
Invert Texture	Inverts color values of texture. Each pixel's brightness value is converted to the inverse value based on a 256-color scale. A value of 0 is changed to 255.

***Tip**: Choose a foreground color to emulate one of the various colors of conte crayon that are common, such as black, sepia, or sanguine.*

Choose a background color that is white with a small amount of the foreground color added to it to create a soft, blended look in the final drawing. You can create this color by increasing the brightness to 100% in the foreground color and then decreasing the saturation until the resulting color is light enough for the background but still retains some of the original foreground color.

Craquelure

The Craquelure effect lets you paint the image onto a high-relief plaster surface, producing a fine network of cracks that follow the contours of the image.

Craquelure Property Page

The Craquelure property page lets you adjust the spacing, depth, and brightness of the crack, as well as the opacity level.

Option	Description
Crack Spacing	Controls distance between cracks
Crack Depth	Increases or decreases depth of cracks created in image
Crack Brightness	Increases or decreases brightness of cracks
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

Crop

The Crop effect lets you crop an image from the top, bottom, left, or right edges. You can apply color to the cropped regions and apply the crop to the R, G, B, or alpha channels.

There are three presets of the Crop effect, called Letterbox, in the \Image Effects\Crops folder.

Crosshatch

The Crosshatch effect lets you draw an image with the appearance of fine crosshatching throughout. This effect adds texture and roughens the edges of colored areas while preserving the details and features of the original image.

Crosshatch Property Page

The Crosshatch property page lets you adjust the length, strength, and sharpness of the strokes, as well as the level of opacity.

Option	Description
Stroke Length	Increases or decreases length of strokes
Sharpness	Increases or decreases amount of sharpness
Strength	Increases or decreases number of times you want the effect applied successively to the image. Increasing the number of iterations gives a stronger effect.
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

Custom Filter

The Custom Filter effect lets you create your own custom effects and apply them to an image. A mathematical process called the “convolution operator” is used to modify the brightness values of pixels. You can also specify an area of the image where the custom effect will be applied.

There are also presets in the \Custom Effects folder, including blur, emboss, and sharpen effects.

General Property Page

The General property page lets you create custom effects and save them for future use.

Option	Description
Radius	The value that a pixel is changed to is determined by values that you specify for the pixels in a ring surrounding it. The radius of this ring can range from 0 to 3 pixels in either the X or Y direction. The resulting ring is known as a “kernel”, or a matrix, that defines a square grid surrounding the pixel of interest. Each pixel in this grid can affect the pixel of interest. For example, an X radius of 3 and a Y radius of 2 specifies a 7x5 kernel.
X	Sets number of pixels in the X direction out from the center pixel that the ring of pixels will have
Y	Sets number of pixels in the Y direction out from the center pixel that the ring of pixels will have
Kernel	You assign a numeric value representing a particular brightness to any pixel in the grid. This number specifies the effect that pixel will have on the pixel of interest (the one in the center). For each pixel, the kernel value is multiplied by the individual RGB values. These multiplied values are then added together and the sum is divided by any Scale factor you enter. Lastly, any Offset value you specify is added. This calculation is done for each pixel of the image.
Weight Value Boxes	Determines brightness values for pixels surrounding center pixel. You can also change the center pixel value.
Scale	Scales degree of effect. For example, entering 2 reduces the brightness by half. (The sum of all the brightness values are divided by this value.)
Offset	Shifts pedestal of final color value of the pixel. This value is added to the result of the scaling calculation.

Cutout

The Cutout effect lets you make an image appear as though it was made from roughly cut pieces of colored paper. High-contrast images appear as if in silhouette, while colored images are built up from several layers of colored paper. The Cutout effect is also reminiscent of lino block prints, especially when it's applied to high-contrast original images.

Cutout Property Page

The Cutout property page lets you attach or detach an image to a cutout. It also contains settings for applying filters to improve the quality of a transformed image, and determine whether the image's alpha channel is used or not.

Option	Description
Transform Image	Attaches cutout to image from which it was created. When you move the cutout, its image follows the cutout. Deselect this option to detach the cutout from its image. When you move the cutout, the underlying image remains in place.
Transformation Quality	Controls image quality of a transformed cutout. When you scale, skew, or rotate a cutout, its quality can deteriorate—small jagged lines can appear on oblique edges of objects or sometimes within the image.
Unfiltered	Applies no filter to image. This is the fastest mode.
Bilinear	Applies fast, medium quality filter. This is the default setting.
Filtered	Applies strong filter to image. Useful when transforming hard edges and when the transformed image (either scaled or rotated) is smaller than the original image. This is the slowest mode.
Level	Determines strength of filter using Filtered mode. Higher settings result in a stronger filter and longer processing time.
Use Alpha	Lets you use alpha channel of image. By default, this option is off.

Dark Strokes

The Dark Strokes effect lets you paint the image with diagonal black-and-white brush strokes. Light areas become white and are painted with long strokes that extend into non-white areas. Dark areas become black and are painted with short, tight strokes.

Dark Strokes Property Page

The Dark Strokes property page lets you adjust the balance and intensity of the black and white paint strokes, as well as the opacity level.

Option	Description
Balance	Changes proportions of areas affected by each of the two painting strokes
Black Intensity	Controls intensity of black painted on the image
White Intensity	Controls intensity of white painted on the image
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

***Tip**: You can create a graphic pen appearance by sharpening the image after applying the Dark Strokes effect.*

Defield

The Defield effect lets you remove the field motion of the input in order to create a frame-based output.

On the Masking property page, you can also apply pixel masking, but not channel masking.

General Property Page

The General property page lets you choose how to remove field motion; by merging fields or by duplicating them.

Option	Description
Mode	Lets you choose how to remove field motion
Merge Fields	Merges both fields to remove field motion
Duplicate Field 1	Duplicates field 1 to remove field motion
Duplicate Field 2	Duplicates field 2 to remove field motion

Deflicker

The Deflicker effect lets you correct the luminance of a clip which, in some cases, can vary between frames. You adjust the luminance in each frame by selecting reference regions for the black and/or white levels.

Black Property Page

The Black property page lets you select a region of the image that has the levels of black to which you want to normalize your clip, and set the reference frame, degree, and brightness of the effect.

Option	Description
Select Region in Image	Lets you choose a reference region for the black levels (lowlights) in the reference frame. Draw a box in the viewer to select the region. The color swatch updates to display the luminance.
Color swatch	Displays selected or default color.
Set as Reference Frame	Sets the current frame as the reference frame. The reference frame contains the reference region with the desired black and/or white levels.
Amount	Sets degree to which the Deflicker effect is applied. Values: 0 to 200%. The default is 100%. If you lower the amount to 50%, then the luminance correction is cut by 50%.

Option	Description
Brightness	Lets you adjust the brightness in the image. Values: -100 to +100.
Apply	Turns the Black property page on or off

White Property Page

The White property page lets you select a region of the image that has the levels of white to which you want to normalize your clip, and set the reference frame, degree, and brightness of the effect.

Option	Description
Select Region in Image	Lets you choose a reference region for the white levels (highlights) in the reference frame. Draw a box in the viewer to select the region. The color swatch updates to display the luminance.
Color swatch	Displays selected reference highlight luminance.
Set as Reference Frame	Sets the current frame as the reference frame. The reference frame contains the reference region with the desired black and/or white levels.
Amount	Sets degree to which the Deflicker effect is applied. Values: 0 to 200%. The default is 100%. If you lower the amount to 50%, then the luminance correction is cut by 50%.
Brightness	Lets you adjust image's brightness. Values: -100 to +100.
Apply	Turns the White property page on or off

Depth of Field

The Depth of Field effect lets you simulate the performance of a camera lens, using the Z-depth information contained in files rendered in Softimage|XSI or mental ray.

In an actual camera, the focal length of the lens defines a distance at which objects appear perfectly focused. Points that are closer or farther away from this distance plane will be out of focus.

This effect lets you create a scene where objects appear in focus in the foreground and blurred in the background.

Depth of Field Property Page

The Depth of Field property page lets you set the focus plane, length, and f-stop to get the desired depth of field effect.

Option	Description
Focus Plane	Represents the distance of the “in focus” plane from the simulated camera. Objects at this distance will appear in focus. Clicking the Pick button lets you click in the viewer and select the distance of the object you clicked on**.** Click the Pick button again to turn it off.
Pick	Lets you interactively pick a region in the viewer as the Focus Plane
Focal Length	Represents the focal length of the simulated lens. A lens with a short focal length will give more depth of field than one with a longer length.
Aperture (F-stop)	Represents the relative aperture size of the simulated camera. High values give a greater depth of field, and objects in both the foreground and background appear in focus. Low aperture values produce a shallow depth of field where a plane appears sharply in focus, and all other planes appear blurred.
Strength	Represents the scaling factor of the pixel size of the Circle of Confusion
AntiAliasing	Defines the level of smoothing of jagged edges along lines and curves
Circle of Confusion	Defines the maximum value that any pixel will be blurred into the surrounding pixels for out of focus planes

External Data Property Page

The External Data property page lets you specify the file name, frame range, and resolution of the rendered .Zpic file.

The .pic and .Zpic files must have the same names. If they don't, an error message is displayed.

Option	Description
File Path	Specifies file name for rendererd .Zpic files
Browse	Lets you navigate to folder in which .Zpic file is located
Frame Range	Specifies range of frames for .Zpic file
Start	Specifies first frame for .Zpic file
End	Specifies last frame for .Zpic file
Resolution	Represents the resolution that matches that of the current project
X	Represents X resolution of current project
Y	Represents Y resolution of current project

Deterministic Noise

The Deterministic Noise effect lets you create a stable, regular noise pattern. You can add consistent noise to the input image. If desired, the noise can vary on a frame-by-frame basis.

You can apply the Deterministic Noise effect as an image effect or use it as a source generator. When used as a source generator, only the Deterministic Noise property page is available.

Deterministic Noise Property Page

The Deterministic Noise property page lets you change the color information of the resulting image and set the noise pattern.

Option	Description
Composite	Lets you change the color information of the resulting image by using one of nine different composite filters
Normal	Blends source image and gradient colors equally
Darken	Compares the color information in each channel of the source and gradient, and selects the darker-colored pixels. Pixels lighter than the gradient color are replaced and pixels darker than the gradient color remain unchanged.
Lighten	Compares the color information in each channel of the source and gradient, and selects the lighter-colored pixels. Pixels darker than the gradient color are replaced and pixels lighter than the gradient color remain unchanged.
Difference	Compares the color information in each channel of the source and gradient. Subtracts the source color value from the gradient color value (or the reverse), depending on which color has the greater brightness value.
Multiply	Compares the color information in each channel and multiplies the source color with the gradient color. This results in a darker-colored image. When a color is multiplied with black, the result is black. When a color is multiplied with white, the color is unchanged.
Hue	Produces an image that contains the hue of the gradient color, and the luminance and saturation of the source image
Saturation	Produces an image that contains the saturation of the gradient color, and the hue and luminance of the source image
Color	Produces an image that contains the hue and saturation of the gradient color, and the luminance of the source image. This maintains the gray levels in the image and is useful for tinting color images.
Luminosity	Produces an image that contains the luminance of the gradient color, and the hue and saturation of the source image

Option	Description
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).
Same for Every Frame	Repeats generated noise pattern for each frame. When deselected, you can vary the noise pattern for individual frames.
Mono	Generates monochromatic noise. When deselected, it generates colored noise.
Translate X	Moves noise pattern horizontally
Translate Y	Moves noise pattern vertically

***Tip**: To add subtle noise patterns, try experimenting with the various composite methods at low opacity values.*

Diffuse Glow

The Diffuse Glow effect lets you process an image as if it is being viewed through a soft diffusion filter. Bright areas glow with a diffuse brightness, while other areas are muted with a soft granularity.

By default, this effect uses white for the glow color. However, if a background color is set, this effect uses the background color for the glow.

Diffuse Glow Property Page

The Diffuse Glow property page lets you adjust the graininess and amount of grain, the background color, and the opacity level.

Option	Description
Graininess	Controls amount of grain in the image
Glow Amount	Controls area affected by the glow effect
Clear Amount	Controls area of image that is left clear, or unaffected, by the glow

Option	Description
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).
Background	Displays selected or default background color. Double-click color swatch to display Mini Color Editor.

To create a hand-tinted look:

1. Apply the **Diffuse Glow** effect to a color image.
2. Copy the resulting image into a new file by converting it to an .avi file.
3. Remove the color from the duplicate image by converting it to a grayscale image.

4. Convert the resulting image from grayscale back to color.
5. Copy and paste one image onto the other and apply a 50% blend between them.

Dip to Color

The Dip to Color effect is both an image effect and transition effect.

When applied as an image effect, the effect dissolves from the first clip to a user-selected background color for the first half of the effect. The second half of the effect dissolves from the background color to black transparent.

When applied as a transition, the effect dissolves from the first clip to a user-selected background color for the first half of the transition.The second half of the transition dissolves from the background color to the second clip.

Timing Property Page

The Timing property page lets you control the timing (rate and duration) of the dip to color. The horizontal (X axis) represents the SMPTE timecode. The vertical (Y axis) indicates the amount of the mix. By modifying the slope of the curve, you can control the timing and percentage of the mix.

Option	Description
X axis	Represents the SMPTE timecode
Y axis	Represents proportion (in percentage) of clip in mix. Values: 0 (no original clip) to 100 (full original clip).
Curve	Uses curve to define how the mix varies in your dip to color. Move the key points up to increase the proportion of the original clip, and down to decrease it. You can add or remove key points to vary the mix. *To change the curve type from Bézier to constant or linear, right-click the Animation Key button and select it from the menu.*

Option	Description
Position indicator	Moves red position indicator across graph to view result of the dip to color in different parts of the clip. The position indicator in the animation graph matches that of the timeline.
Amount	Represents proportion of original clip in mix at a given time (value of the Y axis). Move the position indicator to view the value at a specific frame.

Drop Shadow

The Drop Shadow effect lets you apply a drop shadow effect to your image.

General Property Page

The General property page lets you define the appearance of shadows by specifying the shadow's opacity and level of softness. To produce the shadow, use the matte from an existing clip or container clip. You can apply these settings to both the shadow and foreground, or only the shadow.

Option	Description
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).
Softness	Lets you define the type of blur to apply to a shadow
Fast	Turns Fast option on or off. When selected, a fast but lower-quality blur is applied to the shadow.
Output	Controls which elements are included in the output
Shadow + Foreground	Outputs original foreground image with its corresponding shadow
Shadow Only	Outputs only the shadow, without the original foreground image

Dry Brush

The Dry Brush effect lets you paint the edges of the image using a dry brush technique. It also simplifies the image into areas of common color.

Dry Brush Property Page

The Dry Brush property page lets you adjust the brush size and detail, choose the texture, and set the opacity level.

Option	Description
Brush Size	Controls brush size and complexity of paint style. Higher values give you a larger brush that simplifies the painting style. Lower values give you a smaller brush to paint, making the painting style more complex.
Brush Detail	Controls amount of detail in individual paint strokes and daubs
Texture	Lets you adjust texture from smooth to rough
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

***Tip**: After applying the Dry Brush effect, use the Emboss effect or sharpen the image with the Sharpen effect.*

Edge

The Edge effect lets you emphasize the edges in an image in different ways. You can enhance the appearance of edges by keeping the original image, as well as detect the edges by highlighting them without keeping the original image.

You can apply the Edge effect as an image or paint effect. When you apply it as a paint effect, only the parameters of the General property page are available.

You can also use Edge as a brush or fill effect in a graphics session, but it is better suited to be used as a fill.

General Property Page

The Edge property page lets you emphasize or detect the edges in an image.

Option	Description
Type	Lets you enhance edges and specify how non-edge areas are treated by the effect
Detection	Enhances edges and decreases value of pixels in non-edge areas to 0 (black). To define the edge and brightness level, adjust the Edge Sensitivity and Brightness.
Enhancement	Enhances edges without changing other areas of image
Direction	Lets you specify direction in which effect searches for edges
No Direction	Removes all the direction checks
All Directions	Selects all direction check boxes. This means that edges that run in any direction are detected. After selecting this option, you can also choose individual directions by deselecting the directions you don't want to detect.
Edge Sensitivity	Controls how an edge is defined for edge detection. The greater the sensitivity, the more edges are found (that is, less difference in the color value of adjacent pixels is needed to be considered an edge).
Brightness	Controls level of brightness applied to detected edges. The greater the value, the brighter the edges.

Emboss Image

The Emboss Image effect gives the illusion that the image has been raised from its surface and lit from a specific direction, making it appear three-dimensional.

Emboss Image Property Page

Option	Description
Relief	Adjusts amount of embossing
Light Position	Selects direction from which to illuminate the image. Changing the light position will highlight different embossed features in the image.
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

For striking results, try applying this effect after other effects.

Field Invert

The Field Invert effect lets you invert an input's fields, so that even lines become odd, and vice versa. You can also preserve the line order when you invert the fields.

On the Masking property page, you can also apply pixel masking, but not channel masking.

General Property Page

The General property page lets preserve the line order when you invert an input's fields.

When the Preserve Line Order option is off (by default), the lines are simply swapped, inverting the fields as well as the lines. When the option is on, the order of the lines is preserved, but the fields are still swapped by applying a one line translation.

Film

The Film effect lets you simulate the appearance of film for footage originally recorded on video.

General Property Page

The General property page lets you add noise, adjust the luminance flicker, and simulate the optical glow of film.

Option	Description
Noise	Lets you apply a noise filter to randomly modify the RGB values of individual pixels in the image. This gives the image a speckled or grainy appearance.
Apply	Turns noise on or off
Per Channel	Turns option on or off. When selected, you can modify the RGB values on a per channel basis. When deselected, you can modify all channels simultaneously with the same value.
R	Sets amount of noise applied to red channel
G	Sets amount of noise applied to green channel
B	Sets amount of noise applied to blue channel
Luminance Flicker	Sets degree to which the luminance varies randomly from one frame to another
Apply	Turns luminance flicker on or off
Amplitude	Defines range of luminance variations. A low value results in a less intense flicker, and a high value results in a more intense flicker.
Optical Glow	Sets luminance threshold and diffusion level of the optical glow
Level	Sets level of diffusion applied to the highlight and lowlight ranges set below. Values: 0 to 1000.
Presence	Sets the degree to which the overall optical glow effect is blended with the original image. Values: 0 to 100.
Highlight	Sets the luminance threshold above which the diffusion effect is applied. Values: 0 to 100.
Lowlight	Sets the luminance threshold below which the diffusion effect is not applied. Values: 0 to 100.

RGB Curves Property Page

The RGB Curves property page lets you simulate the film's response to light by applying RGB gamma-type curves.

Option	Description
Apply	Turns RGB gamma curves on or off
RGB	Modifies gamma values of red, green, and blue channels
Red	Modifies gamma values of red channel
Green	Modifies gamma values of green channel
Blue	Modifies gamma values of blue channel
Reset	Resets all curves to their original position

Film Grain

The Film Grain effect lets you add the appearance of photographic grain to the image. An even pattern is added to the darks and midtones of the image. A smoother, more saturated pattern is added to the image's lighter areas.

Film Grain Property Page

The Film Grain property page lets you adjust the gain, highlight area, highlight intensity, and opacity of the effect.

Option	Description
Grain	Controls amount of graininess (or noise) in image
Highlight Area	Controls area containing highlights. As you increase the area, neighboring pixels become highlight areas.
Highlight intensity	Controls intensity of areas containing highlights
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

Fog

The Fog effect lets you add atmospheric fog to an animated scene. You can specify a gradual onset of the fog, so that objects in the foreground appear less obscured than those in the background. You can also specify the distance at which the fog begins, as well as its intensity. The Fog effect applies the simulated fog by using the Z-depth information contained in .Zpic files rendered with the Softimage renderer or mental ray.

Fog Property Page

The Fog Effect property page lets you select the fog depth, color, opacity, and start distance.

Option	Description
Red, Green, Blue	Lets you select a color for the fog
Maximum Depth	Represents depth at which fog reaches maximum intensity. The intensity of the fog increases linearly from the Start Distance to the Maximum Depth.

Option	Description
Start Distance	Specifies distance from the simulated camera at which the fog begins
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

External Data Property Page

The External Data property page lets you specify the file name, frame range, and resolution of the rendered .Zpic file.

The .pic and .Zpic files must have the same names. If they don't, an error message is displayed.

Option	Description
File Path	Specifies file name for rendererd .Zpic files
Browse	Lets you navigate to folder in which .Zpic file is located
Frame Range	Specifies range of frames for .Zpic file
Start	Specifies first frame for .Zpic file
End	Specifies last frame for .Zpic file
Resolution	Represents the resolution that matches that of the current project
X	Represents X resolution of current project
Y	Represents Y resolution of current project

Fractal Noise

The Fractal Noise effect lets you create a variety of different textures. By adjusting the detail and color properties of a basic underlying pattern, you can create textures ranging from soft clouds and fog, to stone, paper, sand, liquid or cloth.

You can also animate textures to create the effect of moving through them, or to have them moving across the screen.

Settings Property Page

The Settings property page lets you adjust the texture generated by the Fractal Noise source generator. You can also adjust the way that the texture will behave when animated, add turbulence, and select the basic pattern or seed, of your texture.

Option	Description
Texture	Controls appearance and amount of detail in texture
Octaves	Adjusts level of detail in texture. As you increase the number of octaves, you increase the levels of detail in the texture.
Octave Mixing Weight	Adjusts relative weight of octaves in texture. As the value increases, the octaves blend together more, creating a smoother texture. As the value decreases, the octaves blend together less, creating a rougher texture.
Octave Scaling Ratio	Adjusts intensity of a smaller octave relative to previous octave. As the value increases, the finer details in the texture stand out more.
Turbulence	Inverts color gradient in parts of texture to give the edges of the fractal noise pattern more definition
Animation	Lets you adjust the way the texture will behave when animated.
Base Animation Velocity	Adjusts the degree to which the texture changes over time. High velocity creates faster, more distinct changes when the texture is animated. Low velocity creates slower, more subtle changes in the texture.
Octave Velocity Ratio	Specifies the speed of the octaves in an animation. When set to 1, each octave moves at the same speed. At higher values, each octave moves faster than the previous one, according to the specified ratio.
Random Seed	Lets you view or change current seed for the fractal noise pattern

Option	Description
New Seed	Changes current seed to a randomly selected new seed
Reset	Resets all parameters to the default values

Transform Property Page

The Transform property page lets you apply DVE-type transformations to a fractal noise pattern. You can scale the pattern, rotate it in two or three dimensions, or move it along the X or Y axes.

Option	Description
Scale (%)	Lets you control the size properties of the image along X and Y axes. A value of 100 represents the image's original scaling. Units are percentages. For example, 200 doubles the scaling and 50 halves it.
X	Scales image in X direction. To scale proportionally, assign identical values to X and Y.
Y	Scales image in Y direction
Lock XY	Links X and Y values, so that if you change one value, the other value is the same. This option has no effect when you interactively manipulate an image in the viewer.
Rotate	Lets you control image's angle of rotation along X, Y, and Z axes. The Rotate options are set relative to the image plane.
X	Rotates image along X axis
Y	Rotates image along Y axis
Z	Rotates image along Z axis. Enter a negative number (in degrees) to rotate clockwise and a positive number to rotate counterclockwise.
Translate	Lets you control location of image along X, Y, and Z axes
X	Moves image in X direction. Enter a positive value to move the image to the right and a negative value to move it to the left.

Option	Description
Y	Moves image in Y direction. Enter a positive value to move the image up and a negative value to move it down.
Octave Ratio	Specifies speed of octaves in an animation. When set to 1, each octave will move at the same speed. At higher values, each octave will move faster than the previous one, according to the specified ratio.

Colors Property Page

The Colors property page lets you set the color blend in your fractal noise texture. You can create and edit intermediate colors to create a blend between several colors. You can also specify how the gradient is applied.

The color at the left end of the gradient “preview” bar is the color at the center of the gradient, and the color at the right end is farthest from the center. As you increase the distance between the two, this last stripe of color moves farther away from the center. Up to 20 colors can be placed in the gradient. You can move their relative positions left or right (toward or away from the gradient center) by clicking the Move Left (<<) or Move Right (>>) buttons.

Option	Description
Add	Adds intermediate colors to the gradient. A new color marker is placed at the mid-point, between the current color indicator and the next marker.
Delete	Removes selected color from color gradient
Edit Last	Moves current color indicator to previous color marker
Edit Next	Moves current color indicator to next color marker
Move Left (<<)	Moves position of current color marker to the left
Color swatch	Displays selected or default background color. Click the color swatch and select a color, or double-click to display the Mini Color Editor.
Move Right (>>)	Moves position of current color marker to the right
Red	Lets you adjust red channel
Green	Lets you adjust green channel
Blue	Lets you adjust blue channel
Alpha	Lets you adjust alpha channel
Gradient Density	Lets you adjust the number of times that the color gradient will be used in the texture. The overall effect is to create contours around the basic pattern. The higher the Gradient Density, the higher the number of contours.

Option	Description
Gradient Offset	Changes starting color of the gradient to a different color within the gradient
Smooth	Blurs edges of the color gradient to create a smoother transition from one color to another
Reset	Resets all parameters to the default values

Frame Average

The Frame Average effect lets you create trails, motion blurs, and perform noise removal on video clips. You can set the number of previous and next frames that are combined to create a new frame.

For example, if you select one previous frame and one next frame, then the current frame will become an average of the current frame plus the previous and next frames. This effect is applied to all frames in the clip.

General Property Page

The General property page lets you choose how many frames to average into the current frame, and how to treat the first and last frames. You can also choose a compositing method to specify how the frames are blended.

Option	Description
Number of Frames to Sample	Lets you select number of previous and next frames that will be combined with current frame
Previous	Lets you select number of previous frames to combine with current frame
Next	Lets you select number of next frames to combine with current frame
Missing Frames	Lets you choose how to treat first and last frames of clip
Repeat the first/last frame	Repeats first or last frame when the position indicator is over the first or last frames
Use a solid color	Ignores alpha channel. The effect is not applied to the alpha channel, nor is the alpha channel used for any masking purposes.
Color swatch	Displays current or default color. Click the color swatch to display Mini Color Editor.
Compositing Mode	Lets you choose a method in which frames will be combined
Average	Blends mean average of current, previous, and next frames
Min Rank	Takes minimum RGB values of current, previous, and next frames, and combines them into the current frame
Max Rank	Takes maximum RGB values of current, previous, and next frames, and combines them into the current frame
Median Rank	Blends median average of current, previous, and next frames
Average Mode	Lets you choose a method in which frames will be averaged

Option	Description
Uniform	Blurs the image so that the value of a pixel is the average of all pixels over the previous or next frames defined by the Number of Frames to Sample parameter
Gaussian	Similar to Uniform blur, but maintains more sharpness in the image

Fresco

The Fresco effect processes the image in a coarse painting style with short, rounded, hastily applied daubs.

Fresco Property Page

The Fresco property page lets you adjust the brush size and detail, as well as the texture and opacity level.

Option	Description
Brush Size	Adjusts brush size
Brush Detail	Adjusts detail within each paint daub
Texture	Lets you create a smooth texture or a rougher texture
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

Glass

The Glass effect lets you distort an image as if it is being viewed through a refracting glass surface.

Glass Property Page

The Glass property page lets you choose from a variety of glass surfaces, or create your own.

Option	Description
Texture Type	Lets you select a texture for the distortion.
Bricks	Applies a brick texture to the image
Burlap	Applies a burlap texture to the image
Canvas	Applies a canvas texture to the image
Tiny Lens	Applies a texture similar to bubble wrap to the image
Scaling	Adjusts the scale of the texture's surface. Values range from 50 to 200%. The larger the value, the larger the scale of the texture with respect to the size of your image.
Distortion	Adjusts the amount of distortion (the "thickness" of the glass) applied to the image. Values range from 0 to 20. Higher values increase the amount of distortion.
Smoothness	Adjusts the smoothness of the texture. Values range from 1 to 15. Higher values make the image smoother, and lower values make it sharper.
Opacity	Adjusts the opacity of the texture applied to the image. Values range from 0 to 100. Higher values increase the opacity.
Invert Texture	Inverts the texture so that bright areas of the texture become dark and vice versa. Unless you specify that the texture be inverted, the areas of the image where the texture is dark will appear to be lower than the areas where the texture is light.

Glowing Edges

The Glowing Edges effect lets you enhance the edges of an image with bright glowing colors.

Glowing Edges Property Page

The Glowing Edges property page lets you adjust the width and brightness of the edge, smoothness, and the level of opacity.

Option	Description
Edge Width	Controls width of edges
Edge Brightness	Controls brightness of edges
Smoothness	Controls smoothness of image
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

***Tip**: To enhance the colors in the final image, increase the contrast of the image (using the brightness and contrast controls) before applying the Glowing Edges effect. Note that increasing the contrast can also create new edges.*

Grain

The Grain effect lets you add a wide variety of grain types to an image. Use this effect to match the grain in images from different sources.

Grain Property Page

The Grain property page lets you adjust the graininess and type of grain, the contrast, and the level of opacity.

Option	Description
Graininess	Controls graininess of effect
Grain Type	Lets you select a type of grain. If you select Stippled, this effect uses the foreground and background colors.
Contrast	Increases or decreases contrast of image

Option	Description
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

***Tip**: The grain types available for this effect are useful for adding "tooth" to an image before applying other effects. This is especially useful with synthetic images that have been created by paint programs, 3D graphics programs, or typographical programs. Synthetic images tend to lack the detail of scanned photographs or images from a video source. Adding a small amount of grain gives good results when combined with most other effects.*

You can simulate the appearance of old photographs by using the various grain types. The effect is enhanced if the image's colors are changed to a sepia tone (yellow/brown tint) using the hue/saturation controls. For a more realistic look, try adding small speckles of paint with a paint tool to simulate bits of dirt. You may also want to randomly blur areas of the image using the Blur tool.

Granite

The Granite effect lets you create a range of natural effects: granite, fire, clouds, terrain, and soft noise patterns. You can generate textures by varying the scale and color.

Option	Description
Translate X	Controls horizontal (X axis) location of the center of the texture
Translate Y	Controls vertical (Y axis) location of the center of the texture
Scale X	Horizontally scales texture (X axis) about the texture origin (which you can move using the Translate controls)
Scale Y	Vertically scales texture (Y axis) about the texture origin (which you can move using the Translate controls)

Option	Description
Colors	Displays current colors
Color swatches	Displays current color. Double-click color swatch to display Mini Color Editor.
Same for Every Frame	When selected, the generated pattern remains the same for each frame. When deselected, the pattern varies from one frame to the next.

Simply changing the colors to shades of blue creates a versatile cloud effect that can be scaled up or scrolled. Use blue and green to create terrain-like textures. To create fire, scale the texture using the Scale Y controls to create an elongated pattern. Then change the colors to red, orange, and black. You can also animate the Translate Y parameter to make the flames go up.

Graphic Pen

The Graphic Pen effect lets you use fine linear ink strokes to capture details in the original image. The result appears to have been drawn on paper laid against a fine-grained wood surface. The pen strokes are denser in darker areas, but are not visible in lighter areas.

By default, this effect produces a monochrome (grayscale) image, but it can use the foreground and background colors, if they are available.

Graphic Pen Property Page

The Graphic Pen property page lets you adjust the length and direction of the stroke, light/dark balance, opacity level, and the color of the background and foreground.

Option	Description
Stroke Length	Lets you adjust length of strokes

Option	Description
Stroke Direction	Specifies direction in which ink strokes are drawn: Right Diagonal, Horizontal, Left Diagonal, or Vertical
Light/Dark Balance	Specifies proportion of white to black background color. Higher values give the image a higher proportion of black (foreground color) and lower values give a higher proportion of white (background color)
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).
Foreground	Lets you choose color of foreground
Background	Lets you choose color of background
Color swatch	Displays selected or default background color. Click the color swatch to display Mini Color Editor.

***Tip**: Try posterizing or increasing the contrast of the image before applying the Graphic Pen effect. You can also blur the image after applying the effect to smooth the pen lines.*

Halftone Screen

The Halftone Screen effect lets you process an image as if it has been printed using a halftone screen. You can select from a variety of standard screens.

Unlike digital halftone representations, this effect varies the element size smoothly to represent the continuous tones of an image. The elements blend together like those created by an analog halftone screen.

By default, this effect produces a monochrome (grayscale) image, but it can use the current foreground and background colors to color the final result.

Halftone Screen Property Page

The Halftone property page lets you adjust the size and type of screen, the contrast, opacity level, and background and foreground color.

Option	Description
Size	Increases or decreases size of elements
Screen Type	Lets you select type of screen: circle, dot, or line
Contrast	Increases or decreases contrast of image
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).
Foreground	Lets you choose color of foreground
Background	Lets you choose color of background
Color swatch	Displays selected or default background color. Double-click color swatch to display Mini Color Editor.

***Tip**: You can create interesting variations by blurring the original image before applying the Halftone Screen effect. This is particularly useful for softening the edges around high-contrast objects, such as text.*

Applying the Halftone Screen effect to images that have been posterized or processed with the Cutout effect creates halftone dots of uniform size in large, flat areas of common color.

Impressionist Effects

The Impressionist effects lets you apply an Impressionist look to an image.

Brush Property Page

The Brush property page lets you access all of the Impressionist brushes. You can modify the orientation of a stroke and apply a number of brush effects to the selected brush.

Option	Description
Brush	Displays name of current brush

Option	Description
Load New Brush	Lets you select a new brush from the Brush dialog box
Smudge	Controls degree to which edges of brush strokes are smudged or softened
Pressure	Controls amount of pressure applied to brush strokes. Default value is 100. As you decrease the pressure, the brush strokes become more transparent, making the background visible.
Orientation	Lets you select a method to orient the brush stroke, including the angle and range
Orient the Strokes	Lets you select an orientation method
Optimally	Selects the best stroke orientation based on the image content at each stroke location. This method usually produces the best results since the strokes tend to align themselves with the image features. Note that the orientation angle of the strokes will always fall in the range specified by the Start Angle and Range of Angles settings.
Fixed Angle	Orients the strokes at a fixed angle that is specified in the Start Angle setting
Randomly	Orients the strokes randomly throughout the image. The orientation angle of the strokes will always fall in the range specified by the Start Angle and Range of Angles settings.
By Hue	Orients the strokes according to the hue values of the input image at each stroke location. For example, in areas of red hue, the strokes are oriented one way and in areas of blue hue, the strokes are oriented another way. The result also depends on the values set for the Number of Angles, Start Angle, and Range of Angles.
By Saturation	Orients the strokes according to the saturation values of the input image at each stroke location. For example, the strokes are oriented one way in highly saturated areas of the image and in another way in darker areas of the image.

Option	Description
By Brightness	Orients the strokes according to the brightness values of the input image at each stroke location. For example, the strokes are oriented one way in bright areas of the image and in another way in darker areas of the image.
Radially	Orients the strokes radially from the center of the image
Number of Angles	Specifies how many distinct orientations (or angles) of the current brush to use to process the output image. You can set a maximum of 128 different angles. To maintain a high degree of likeness with the original image, you must use a high number of angles. This also takes longer to process.
Start Angle	Specifies starting angle of strokes in degrees
Range of Angles	Specifies the range of angles or arc over which the brush strokes are plotted. A common setting is 360º (full range) with a starting angle of 0º. The value you specify for the number of angles refers to the number of distinct brush orientations between 0 and 360º that is used when plotting brush strokes. The number of angles is also synonymous with angular resolution, which means that the higher the number of angles, the more accurately the plotted brush strokes will represent the original image.
Effect	Lets you apply a special effect to modify the currently selected brush. You can apply an effect to make the brush strokes appear three-dimensional (Emboss, Bas Relief, 3D Metallic), transparent (Glass), like a felt marker (Marker), or detail enhanced (Modify Color).
None	Turns off Brush Effect option
Emboss	Applies a three-dimensional appearance to the brush effect by side-lighting the effect using one of eight directions. Use the Light Position list to choose the direction from which to light the brush effect. Select the Invert Brush Texture to invert the polarity of the brush (change peaks to valleys and vice-versa).

Option	Description
Bas Relief	Applies a three-dimensional quality to the brush effect, which makes it appear as if it were carved from stone in low relief and lit to accent the surface modulations. Use the Light Position list to choose the direction from which to light the brush effect.
Detail	Sets amount of detail in original brush
Smooth	Controls smoothness of brush effect
Light Position	Lets you select a position from which to illuminate the image. Different light positions enhance different areas of the image.
3D Metallic	Applies a metallic or shiny three-dimensional appearance to the brush effect
Shininess	Controls shininess of brush
Smoothness	Controls smoothness of brush effect
Glass	Makes the brush effect appear as if it were composed of rough, transparent refractive glass. Since the brush effect is transparent and refractive, you can see a distorted version of the background through them. To ensure the effect is apparent, make sure the Background Color parameter (Color property page) is not set to a constant color and contains some detail. For example, try using the Image option to make sure that details from the original image are maintained.
Distortion	Sets the degree to which the brush effect distorts the background content
Smoothness	Controls smoothness of brush effect
Marker	Makes the brush effect appear as if it was drawn with a felt marker. A characteristic of marker strokes is that they become darker in areas where they overlap. Use the Build Up control to define this characteristic.

Option	Description
Build Up	Controls the rate at which overlapping strokes become darker. Move the slider to the left to build up more slowly (requires more overlapping strokes before the overlap area becomes black) and to the right to build up quickly (requires fewer overlapping strokes before the overlap area becomes black).
Modify Color	Lets you alter the attributes of the color of each brush effect according to the texture or brightness profile of the current brush. Most of the brushes supplied with the Impressionist effects are highly textured. That is, they have peaks and valleys in brightness across the extent of the brush which show details of a particular effect type. This effect allows you to modify the brightness, saturation, and hue components of the color of each brush effect, according to the texture or brightness of the current brush. You can use this effect to emphasize the texture and detail contained within each brush effect. This makes each effect stand out more and allows you to achieve fanciful coloring effects.
Hue	Modifies the hue component of the effect's color according to the brightness of the currently selected brush. In brighter areas of the brush, the stroke hue value will be increased and in darker areas of the brush the stroke hue value will be decreased.
Saturation	Modifies the saturation component of the effect's color according to the brightness of the currently selected brush. In brighter areas of the brush, the stroke saturation value will increase, and in darker areas of the brush, the stroke saturation value will decrease.
Bright	Modifies the brightness component of the effect's color according to the brightness of the currently selected brush. In brighter areas of the brush, the stroke brightness value will increase, and in darker areas of the brush, the stroke brightness value will decrease.

Plot Property Page

The Plot property page lets you control how the brush strokes are placed throughout the image.

Option	Description
Place Strokes	Lets you select a method by which the brush strokes are placed on the images
Randomly	Places the strokes randomly throughout the image according to the Coverage setting
Coverage	Controls the percentage of the background that is covered by brush strokes
On Grid	Places the strokes on an evenly spaced square grid pattern throughout the image. You can control the grid spacing by setting the grid size. You can deviate from the regular grid spacing by setting the Jitter percentage.
Grid Size	Sets the spacing of the grid points
Jitter	Sets the degree to which the location of the brush stroke randomly deviates (jitters) from the actual grid points. The higher the Jitter values, the greater the degree of perturbation or jittering from the grid point. Placing strokes on a grid can result in an unwanted regular stroke pattern. Use this parameter to restore a more natural appearance, one that is less rigid and more regular looking.
Repeatable Results	Reuses the same “random” parameters when an Impressionist effect is applied. This is useful when processing a sequence of images in an animation. When this option is selected, the Impressionist attributes appear fixed over the length of the sequence. When this option is deselected, the Impressionist attributes appear at random or on a frame-by-frame basis.
Placement Quality	Sets how accurately (from Best to Poor) the brush strokes are placed, sized, and oriented on the image. The higher the quality setting, the better the strokes will align with details in the input image and the slower the processing speed.

Option	Description
Use External Mask	Applies the brush strokes to a particular portion of the input image. When selected, you can specify a file that contains the mask image. White or nearly white areas of the mask image will be plotted. Non-white (or black) areas of the mask image will not be plotted.
External Mask	Lets you specify a file to use as the mask. The accepted file formats are .tif, .bmp, or .tga. When you select an image to use as a mask, it is automatically converted to a grayscale image. The selected file must match the dimensions of the original input image.
Mask	Specifies current mask

Size Property Page

The Size property page lets you specify the size(s) of the brush strokes the Impressionist effect uses to process the output image. You can enlarge or reduce the size of the currently selected brush.

Option	Description
Scale the Strokes	Lets you select a method in which to resize strokes. Note that each of the methods are also influenced by the Number of Sizes, Scale Strokes Proportionally, Min/Max/Width/Height, and Size Distribution settings.
Optimally	Applies a special technique to choose the best stroke size based on the image content at each stroke location. This method usually produces the best results since small strokes are chosen in detailed areas of the input image and large strokes are chosen in areas of less detail. Note that the size of the strokes will always fall in the range specified by the Min/Max/Width/Height control settings.
Fixed Size	Applies fixed size for all strokes in output image
Randomly	Applies random stroke sizes to process the output image. Note that the size of the strokes will always fall in the range specified by the Min/Max/Width/Height control settings.

Option	Description
By Hue	Sizes strokes according to the hue component of the color of the input image at each stroke location. For example, in areas of red hue the strokes will be sized one way and in areas of blue hue the strokes will be sized another way (depending on the Number of Sizes and Min/Max/Width/Height settings).
By Saturation	Sizes strokes according to the saturation component of the color of the input image at each stroke location. For example, in areas of the image that are highly saturated the strokes will be sized one way and in areas of the image that are not saturated the strokes will be sized another way, depending on the Number of Sizes and Min/Max/Width/Height settings.
By Brightness	Sizes strokes according to the brightness component of the color of the input image at each stroke location. For example, in bright areas of the image the strokes will be sized one way and in darker areas of the image the strokes will be sized another way, depending on the Number of Sizes and Min/Max/Width/Height settings.
Number of Sizes	Sets number of different sizes for the currently selected brush used to process the output image. You can set a maximum of 16 different sizes. Note that the more sizes you use, the more faithful the resulting image will be to the original, but the longer processing will take.
Actual Brush Size	Displays size of current brush

Option	Description
Width/Height /Minimum/ Maximum	Set size(s) of brush strokes used to process the output image. The Minimum Width parameter sets the minimum or smallest width of the brush to be used, while the Maximum Width parameter sets the maximum or largest width of the brush to be used. The Minimum Height parameter sets the minimum or smallest height of the brush to be used, while the Maximum Height parameter sets the maximum or largest height of the brush to be used. When the Number of Sizes control is set to 1, the maximum and minimum sizes will be the same. When the Number of Sizes parameter is set to 2, the first brush size will be the minimum size and the second brush size will be the maximum brush size. When the Number of Sizes parameter is set to 3 or above, the first brush size will always be the minimum brush size, the last brush will always be the maximum size, and the ones in between are equally spaced over the minimum to maximum range.
Lock Aspect Ratio	Links width and height of brush, so that if you change one dimension, the other varies proportionally
Size Distribution	When the Scale the Strokes parameter is set to Optimally, this control determines the size distribution of the strokes used to create the output image. This is useful when setting the balance between the different sizes of strokes used to create the final image.

Color Property Page

The Color property page lets you set the color of the brush strokes and the background to which they are applied.

Option	Description
Stroke Color	Lets you select the stroke color
Image	Applies brush effect on original image
Grayscale Image	Applies brush effect on a grayscale version of original image

Option	Description
Sepia Image	Applies brush effect on a sepia tinted version of original image
Tinted Image	Applies brush effect on a tinted version of original image. Set the tint color by clicking color swatch to display the Mini Color Editor.
Tonal Image	Applies brush effect on a tonal version of original image. In a tonal image, the original image colors have been blended with a constant, user-specified color. You can set this tonal color by clicking the color swatch to display the Mini Color Editor.
Custom Color	Applies brush effect on a constant background color that you specify by clicking the color swatch to display the Mini Color Editor.
Jitter H	Randomly modifies hue of the color
Jitter S	Randomly modifies saturation of the color
Jitter B	Randomly modifies brightness of the color
Background Color	Lets you select background on which the brush effect is drawn
Image	Applies brush effect on original image
Grayscale Image	Applies brush effect on a grayscale version of original image
Sepia Image	Applies brush effect on a sepia tinted version of original image
Tinted Image	Applies brush effect on a tinted version of original image. Set the tint color by clicking the color swatch to display the Mini Color Editor.
Tonal Image	Applies brush effect on a tonal version of original image. In a tonal image, the original image colors have been blended with a constant, user specified color. You can set this tonal color by clicking the color swatch to display the Mini Color Editor.
Custom Color	Applies brush effect on a constant background color that you specify by clicking the color swatch. Click the color swatch to display the Mini Color Editor.

Option	Description
Brightness	Controls brightness of image
Contrast	Controls contrast of image
Palette	Specifies a palette or range of colors to use in the final image. You can select from a number of preset palettes or create your own by selecting the Custom option.
Color swatch	Displays selected or default background color. Click the color swatch and select a color, or double-click to display the Mini Color Editor.

Paper Property Page

The Paper settings let you define whether the stroke placement occurs randomly or within a grid.

Option	Description
Paper	Displays name and path of current paper grain
Load New Image	Lets you choose an underlying paper texture (or paper grain) to which you apply the strokes
Invert Texture	Inverts polarity of paper texture. Depressions in the texture become bumps and vice versa.
Scaling	Sets percentage by which the selected paper texture is spatially scaled in both the horizontal and vertical directions relative to its original size. Higher values scale the texture up (make the pattern bigger) and lower values scale the texture down (make the pattern smaller). A setting of 100 leaves the paper texture at its original size. Scaling settings greater than 100 expand the texture and its pattern relative to the original. Scaling settings less than 100 shrinks the texture relative to the original.

Option	Description
Grain	Controls amount of brush stroke that rubs off onto the paper texture surface-revealing the grain of texture. Higher values increase the amount of paper grain, thereby reducing the amount that rubs off on the texture. Lower values reduce the amount of paper grain and increase the amount of the stroke that rubs off on the surface. A setting of 0 has no effect. Note that the interaction between the stroke and paper background is also influenced by the Brush Pressure settings.
Relief	When the Relief is set to a non-zero value, you can select a light position to define from which side the paper texture is lit. From the list, choose one of eight light positions. Depending on the light direction, more or less detail in the paper texture is revealed.

Ink Outlines

The Ink Outlines effect lets you draw an image with fine lines around the original details. The resulting image resembles a “corroded” pen-and-ink drawing.

Ink Outlines Property Page

The Ink Outlines property page lets you adjust the stroke length, the light and dark intensity, and the level of opacity.

Option	Description
Stroke Length	Adjusts length of strokes
Dark Intensity	Adjusts intensity of dark areas in image
Light Intensity	Adjusts intensity of light areas in image
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

***Tip**: To change the textures created by the Ink Outlines effect, first apply the Paint Daubs or Grain effect. Add a small amount of blur and then adjust the brightness and contrast of the image if the output of the Ink Outlines effect is too harsh.*

Related Topics

Log2Lin

Linearizing Film-Based Material

Linear Gradient

The Linear Gradient effect lets you blend strips of color that can have arbitrarily set widths. You can set the starting point of the strip (outside the frame, if necessary) along with the angle of the gradient. You can also animate many of the parameters and specify up to 20 different colors.

You can use this effect as a source generator, image effect, or as a brush or fill effect in a graphics session. As a brush or fill effect, the gradient is either constrained to the bounding box of the stroke or the boundaries of the viewer.

Properties Property Page

The Properties property page lets you adjust the size, orientation, and position of the linear gradient. You can also set the method by which the effect is combined (composited) with the original image.

Option	Description
Composite	Changes color information of the resulting image by using one of nine different composite filters. You can also change the opacity and noise level of the gradient. *This parameter is not available when the Linear Gradient is used as a source generator.*
Normal	Blends source image and gradient colors equally

Option	Description
Darken	Compares color information in each channel of the source and gradient, and selects the darker colored pixels. Pixels lighter than the gradient color are replaced and pixels darker than the gradient color remain unchanged.
Lighten	Compares color information in each channel of the source and gradient, and selects the lighter colored pixels. Pixels darker than the gradient color are replaced and pixels lighter than the gradient color remain unchanged.
Difference	Compares color information in each channel of the source and gradient. Subtracts the source color value from the gradient color value (or the reverse) depending on which color has the greater brightness value.
Multiply	Compares color information in each channel and multiplies the source color with the gradient color for a darker colored image. When a color is multiplied with black, the result is black; when multiplied with white, the color is unchanged.
Hue	Produces image that contains the hue of the gradient color, and the luminance and saturation of the source image
Saturation	Produces image that contains the saturation of the gradient color and the hue and luminance of the source image
Color	Produces image that contains the hue and saturation of the gradient color and the luminance of the source image. This maintains the gray levels in the image and is useful for tinting color images.
Luminosity	Produces image that contains the luminance of the gradient color and the hue and saturation of the source image.
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque). *This parameter is not available when the Linear Gradient is used as a source generator.*
Dither	Adds noise to the color gradient. The greater the dither value, the more noise is added.

Option	Description
Angle	Rotates gradient around the center by the specified angle in the counterclockwise direction
Stretch	Stretches gradient over a portion of the frame. By default, the gradient is spread over the height of the frame. Decreasing the Stretch value concentrates the gradient in a smaller portion of the frame; increasing the value expands the gradient.
Center X	Controls horizontal (X axis) location of the center of the gradient
Center Y	Controls vertical (Y axis) location of the center of the gradient

LogLin Remapping

The LogLin Remapping effect lets you convert logarithmic-based media to linear-based media prior to applying effects. This conversion is known as linearizing. It also lets you convert linearized material back to log-based media.

It has two presets: Log2Lin and Lin2Log.

Related Topics

Linearizing Film-Based Material

Log2Lin

The Log2Lin effect lets you linearize film-based media through a Log2Lin remapping.

Options	Description
Red	Adjusts levels for the red color channel only
Green	Adjusts levels for the green channel only
Blue	Adjusts levels for the blue channel only

Options	Description
Enable	Enables the level adjustments made for each channel
Units	Displays the units as one of the following: • **Normalized %**: Percentage format with the black point at 0% and the white point at 100% by default • **8 bits graphics**: 8 bit format with the black point at 0 and the white point at 255 by default • **8 bits video**: 8 bit format with the black point at 0 and the white point at 255 by default • **10 bits graphics**: 10 bit format with the black point at 0 and the white point at 1023 by default • **10 bits video**: 8 bit format with the black point at 64 and the white point at 940 by default
Type	Select the type of conversion • **Gamma**: Displays the Gamma curve and lets you adjust the it value by using the Gamma setting. This is the default. • **Log > Lin**: Converts the data from log to linear and lets you adjust all RGB controls, film gamma, and softclipping settings for the highlights. • **Lin > Log**: Converts the data from linear to log and lets you adjust all RGB controls • **File LUT**: Lets you open a saved LUT file, which determines the controls you can adjust
Lock RGB	Locks RGB values while making further adjustments
Lock axis	Locks the XY axis while making further adjustments
Film Gamma	Adjusts the film gamma for your footage. *The value should be entered only when you know the film gamma for your footage.*
Gamma	Controls the Gamma value of the transformation curves on the page and applies to either one of the color channels. Lowering the value darkens or intensifies the selected color channel. Raising the value lightens or subtracts the selected color channel. For Gamma type: Values: 0 to 10; 1 is the default value For lin and log type: Values: 0 to 10; 1.7 is the default value

Options	Description
Softclip	Softclips the values for the highlights. Any color information that is beyond reference white (code value 685) is cut off. To soften the hard cut-off, apply the softclip value especially when you know that there's valuable information beyond reference white. It also helps to softclip to avoid problems later when you apply blending operations or gain and gamma to the image. Values: 0 to 50; 0 is the default value.
Export LUT...	Exports the LUT. Set the values in the LUT dialog box and click OK to save them.
Invert	Swaps between Lin to Log and Log to Lin

Lin2Log

The Lin2Log effect lets you convert linear-based media back to log-based media.

Options	Description
Red	Adjusts levels for the red color channel only
Green	Adjusts levels for the green channel only
Blue	Adjusts levels for the blue channel only
Enable	Enables the level adjustments made for each channel
Units	Displays the units as one of the following: • **Normalized %**: Percentage format with the black point at 0% and the white point at 100% by default • **8 bits graphics**: 8 bit format with the black point at 0 and the white point at 255 by default • **8 bits video**: 8 bit format with the black point at 0 and the white point at 255 by default • **10 bits graphics**: 10 bit format with the black point at 0 and the white point at 1023 by default • **10 bits video**: 8 bit format with the black point at 64 and the white point at 940 by default

Options	Description
Type	Select the type of conversion • **Gamma**: Displays the Gamma curve and lets you adjust the it value by using the Gamma setting. This is the default. • **Log > Lin**: Converts the data from log to linear and lets you adjust all RGB controls, film gamma, and softclipping settings for the highlights. • **Lin > Log**: Converts the data from linear to log and lets you adjust all RGB controls • **File LUT**: Lets you open a saved LUT file, which determines the controls you can adjust
Lock RGB	Locks RGB values while making further adjustments
Lock axis	Locks the XY axis while making further adjustments
Film Gamma	Adjusts the film gamma for your footage. *The value should be entered only when you know the film gamma for your footage.*
Gamma	Controls the Gamma value of the transformation curves on the page and applies to either one of the color channels. Lowering the value darkens or intensifies the selected color channel. Raising the value lightens or subtracts the selected color channel. For Gamma type: Values: 0 to 10; 1 is the default value For lin and log type: Values: 0 to 10; 1.7 is the default value
Export LUT...	Exports the LUT. Set the values in the LUT dialog box and click OK to save them.
Invert	Swaps between Lin2Log and Log2Lin

Related Topics

Lin2Log

Linearizing Film-Based Material

Marble

The Marble effect layers different colors to create a marbled look. You can modify the color to create psychedelic shapes and backgrounds or other shades of marble. You can animate some parameters to create the effect of the texture being explored.

Option	Description
Translate X	Controls horizontal (X axis) location of the center of the texture
Translate Y	Controls vertical (Y axis) location of the center of the texture
Scale X	Horizontally scales texture (X axis) about the texture origin (which you can move using the Translate controls)
Scale Y	Vertically scales texture (Y axis) about the texture origin (which you can move using the Translate controls)
Colors	Displays current colors
Color swatches	Displays selected or default background color. Click the color swatch and select a color, or double-click to display the Mini Color Editor.
Same For Every Frame	When selected, the generated pattern remains the same for each frame. When deselected, the pattern varies from one frame to the next.

Morph

The Morph effect lets you transform one image or a sequence of images into another over one or more frames. You can morph between still or moving images.

Shapes Property Page

The Shapes property page lets you create, edit, and join shapes that define the part(s) of the image that you want to deform.

Option	Description
Shape Creation	Lets you create different kinds of open or closed shapes. These shapes define the source and destination areas of the image that you want to warp.
Freehand	Creates open or closed freeform shapes, and simulates the feeling of drawing with a pencil on paper
Polyline	Creates straight lines, Bézier curves, or combination of the two
Ellipse	Creates oval and circular shapes
Rectangle	Creates rectangular and square shapes
Apply	Turns Morph effect on or off
Show Shapes	Determines whether shapes appear in viewer or not
Transformations	A collection of tools that let you pick, move, scale, rotate, and skew your shapes
Select	Lets you pick a shape. Once a shape is selected, you can drag it to place it in the correct location.
Scale	Increases or decreases size of shape
Rotate	Modifies rotational angle of shape
Skew	Slants a shape
Editing Tools	A collection of tools that let you pick, edit, and connect the shapes you created
Join	Connects shapes together creating a relationship between them
Copy and Join	Copies an existing shape and connects the two shapes together in one step
Edit Shape	Manipulates control points of selected shape
Correspondence	Modifies points on the curves, so that you can match up key features on the source shape with those on the target shape
Density	Increases precision of shape during processing by adding correspondence vectors between the two shapes

Option	Description
Output	Lets you choose images to display in viewer
Source	Displays source or outgoing image in viewer. When selected, you can draw source and target shapes on the source image.
Destination	Displays destination or incoming image in viewer. When selected, you can draw source and target shapes on the destination image.
Mix	Displays a mix of source and destination images in the viewer. The transparency value will determine the extent to which you see one or the other. When selected, you can draw source and target shapes on the morphed image to create a warp for both images.
Shape Interpolation Amount	Determines amount by which the source shape has transformed or warped into the target shape
Transparency	Determines portion of the destination clip in the mix at any given time. Move the position indicator to view the value at a specific time.

Render Property Page

The Render property page lets you modify the quality of the morphed images and the time it takes to process the effect.

Option	Description
Edge Mode	Determines method by which Avid DS Nitris interprets the shapes you created. Depending on which option you choose, the outer edges and area outside the closed shapes are handled differently.
Fixed	Fixes borders of image in place. This option can cause some ripping or shearing of the image near the borders.
Sliding	Lets borders of an image slide or move with the rest of the morphed image to avoid shearing the image near the borders.

Option	Description
Cookie Cutter	Lets you keep everything that falls within your closed shapes and removes everything else. Useful for creating mattes. *This option cannot be used with open-ended shapes.*
Warp Precision	Governs mathematical precision of Morph effect. The option you choose affects the quality of the processed images and the time required for processing.
Linear	Results in low quality images. This option is the fastest, uses the least amount of memory, and is very useful for quick tests.
Low	Results in reasonable quality images, with slightly longer processing times than the Linear option
Medium	Results in good quality images, with slightly longer processing times than the Low option
High	Results in professional quality images with reasonable processing times
Very High	Results in very smooth transitions between shapes, but processing time is long. This option should only be used if the High setting does not produce good enough results.
Super High	Results in extremely smooth transitions between shapes, but processing time is extremely long. This option is not recommended unless you require the highest of quality.
Interpolation	Determines how the actual pixels of the morphed object are calculated. This option affects the quality and processing time.
None	Results in marginal image quality, but the processing time is very fast
Bilinear	Results in better image quality than None option, but processing time is slower
Scaling	Results in least amount of degradation when target shape is scaled down by more than 50% of the source shape. This option takes the longest time to process.

Option	Description
Antialiasing	Determines whether the edges of the morphed image are smooth or jagged. When this option is selected, the edges are smoother, but processing time increases.
Soften Edges	Determines how the edges of the morphed image blend into the rest of the image. When this option is selected, the transition between the edge of the morphed image and the rest of the image is smoother.

Mosaic

The Mosaic effect lets you process an image as if it was composed of small squares or tiles laid on a flat surface. The tiles appear to be lit from the side, enhancing their texture.

Mosaic Property Page

The Mosaic property page lets you adjust the tile size, the width and color of the grout, as well as the level of the opacity.

Option	Description
Tile Size	Controls size of tiles. Size is measured in pixels.
Grout Width	Controls size of grout. Grout width is measured in pixels.
Lighten Grout	Darkens or lightens color of grout between tiles
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

Motion Blur

The Motion Blur effect lets you simulate the effect of motion in an image. Applying a straight, unidirectional blur to the image creates the simulation. The result of this effect is similar to a moving object that was photographed with a slow shutter speed. This effect works by simultaneously shifting pixel values in a straight direction and blurring them together.

Motion Blur Property Page

The Motion Blur property page lets you set and animate the length and angle of the blur.

Option	Description
Composite	Changes the look of the effect by adding one of nine different filters
Normal	Blends source image and gradient colors equally
Darken	Compares color information in each channel of the source and gradient, and selects the darker-colored pixels. Pixels lighter than the gradient color are replaced and pixels darker than the gradient color remain unchanged.
Lighten	Compares color information in each channel of the source and gradient, and selects the lighter-colored pixels. Pixels darker than the gradient color are replaced and pixels lighter than the gradient color remain unchanged.
Difference	Compares color information in each channel of the source and gradient. Subtracts the source color value from the gradient color value (or the reverse), depending on which color has the greater brightness value.
Multiply	Compares color information in each channel and multiplies the source color with the gradient color. This results in a darker-colored image. When a color is multiplied with black, the result is black. When a color is multiplied with white, the color is unchanged.
Hue	Produces an image that contains the hue of the gradient color and the luminance and saturation of the source image

Option	Description
Saturation	Produces an image that contains the saturation of the gradient color and the hue and luminance of the source image
Color	Produces an image that contains the hue and saturation of the gradient color and the luminance of the source image. This maintains the gray levels in the image and is useful for tinting color images.
Luminosity	Produces an image that contains the luminance of the gradient color and the hue and saturation of the source image
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).
Length	Controls the distance that the color values of pixels are shifted to create the motion blur. Increasing the length makes objects appear to be moving faster.
Angle	Controls the direction in which pixel values are shifted. An angle of 0 or 359 creates a horizontal blur occurring from right to left, while an angle of 180 degrees makes a horizontal blur from left to right.

Negative

The Negative effect reverses the colors in your image. You can also use the Negative effect in the Graphics layout as either a brush or fill effect, but it is more suited to be used as the fill.

When you apply it as a paint effect, none of the property pages are available

Neon Glow

The Neon Glow effect lets you add various types of glow to the objects in an image. This effect is useful for creating neon lighting effects, or giving objects the appearance that it is radiating light or heat. It's particularly useful for images consisting of text or simple, high-contrast graphics.

By default, this effect uses monochrome (grayscale) for the objects in an image while using the Glow Color setting for the glow. However, it uses the current foreground and background colors instead of grayscale to color the objects in an image.

The Neon Glow effect can produce both outline and inline glow variations. An outline glow is where the glow appears to be around the outside of the objects in the image, such as around the outside of a letter. An inline glow is where the glow is on the inside of the objects. When the inside areas are small, the Glow Size and Glow Brightness settings should be reduced correspondingly.

Neon Glow Property Page

The Neon Glow property page lets you adjust the size, brightness, opacity, and color of the glow.

Option	Description
Glow Size	Sets range of positive and negative values for glow effect. Positive settings create glows on the outside of dark objects and on the inside of light objects. Negative settings create glows on the inside of dark objects and the outside of light objects. The greater the setting (positive or negative), the larger the glow.
Glow Brightness	Increases or decreases brightness of glow
Glow Color	Displays current or default color. Click the color swatch to display the Mini Color Editor.
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).
Foreground	Lets you choose color of foreground
Background	Lets you choose color of background
Color swatch	Displays current or default color. Double-click color swatch to display Mini Color Editor.

Noise/Grain Remover

The Noise/Grain Remover effect lets you adjust the level of noise in an image. You can also use this effect in the Graphics layout as either a brush or fill effect, but it is better suited to be used as the fill.

You can apply the Noise/Grain Remover effect as an image or paint effect. When you apply it as a paint effect, only the parameters of the General property page are available.

General Property Page

The General property page provides filters that modify the RGB values of randomly distributed pixels to create various effects.

You can use the Add Noise option to increase the difference between the pixel values to create a “speckled” effect, such as when simulating the look of high-speed film.

With the Despeckle option, homogenize the appearance of the image (or a portion of the image) by decreasing the difference between pixel values. This is useful for touching up your image, such as removing scratches, dust, or other imperfections.

Option	Description
Type	Lets you select type of noise
Add Noise	Gives image a speckled or grainy appearance
Despeckle	Removes unwanted specks or scratches from image
Median Rank	Reduces noise in an image, similar to Despeckle. It works by analyzing the brightness of pixels in a specified radius around a pixel. It then computes the median brightness of these pixels and replaces the brightness value of the pixel with that value.

Option	Description
Selective Rank	Reduces noise in an image. Performs the same operation as the Median Rank option, except it replaces the brightness value of the pixel only if the difference between this value and the median is larger than the Threshold value set.
Distribution	Lets you select type of distribution
Uniform	Creates a harsher speckling effect. You can use this only with the Add Noise option.
Gaussian	Creates a smoother speckling effect. You can use this only with the Add Noise option.
Monochromatic	Changes only the pixels' tonal values (not their hue). You can use this only with the Add Noise option. As you increase the amount of noise, the specks tend towards gray and black only. Without this option, specks appear multicolored because their hue is being adjusted.
Radius	Specifies size of area around the pixel of interest where pixel values will be examined. You can use this only with the Despeckle, Median, and Selective Rank options. *If the radius is too high, the image will be blurred.*
Amount	Specifies amount of noise to add. You can use this only with the Add Noise option.
Threshold	Specifies how different the color values of pixels must be for the noise reduction process to be applied to them. You can use this only with the Despeckle and Selective Rank options. The lower the threshold, the more pixels are included in the process. Raise the threshold to reduce blurring.

Note Paper

The Note Paper effect lets you process an image as if it was cut from a sheet of note paper. The dark areas of the image become holes in a top layer of paper through which you can see a background paper layer. The surface is rough and appears lit from above.

Note Paper Property Page

The Note Paper property page lets you adjust the image balance, graininess of the image, height of the emboss, level of opacity, as well as choose the foreground and background colors. By default, this effect produces a monochrome (grayscale) image, but it can also use the current foreground and background colors if available.

Option	Description
Image Balance	Controls area of image that appears as background or foreground
Graininess	Adjusts graininess of effect
Relief	Adjusts amount of embossing
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).
Foreground	Lets you choose color of foreground
Background	Lets you choose color of background
Color swatch	Displays selected or default background color. Double-click color swatch to display Mini Color Editor.

To incorporate a texture other than simple grain into the image, apply the Note Paper effect with Graininess set to 0. Then apply the Texturizer effect with your choice of texture to the resulting image.

Optical Glow

The Optical Glow effect lets you define different lighting effects for images. You can adjust the overall diffusion parameters, and then fine-tune areas that contain white or black, giving the object the appearance that it's radiating light or heat.

General Property Page

The General property page lets you create and adjust a diffusion effect that is applied to the entire image. This effect can make an object look like it's radiating light or heat.

Option	Description
Overall Diffusion	Lets you create diffusion and define percentage that is applied to the entire image. Bright areas of the image glow with a diffused brightness, while other areas are softly muted.
Apply	Turns overall diffusion on or off
Level	Controls amount of diffusion. Values: 0 to 1000. Lower values apply less diffusion.
Mix	Controls percentage of diffusion (specified in the Level option) added to the entire image. Values: 0 to 100. A value of 100 outputs only diffusion.
Color Correction	Lets you color correct diffused image
Apply	Turns Color Correction options on or off
Gain	Adjusts gain of image. Values: 0 to 200%.
Brightness	Adjust brightness of image. Values: –100 to +100.
Add Original	Lets you select percentage of original image to add to diffused image.
Apply	Turns Add Original option on or off
Amount	Increase or decreases percentage of original image added to diffused image. Values: 0 to 100.

Black Diffusion Property Page

The Black Diffusion property page lets you define the diffusion effect that is applied to the black areas of an image. Once you define the image's overall diffusion using the controls on the General property page, you can adjust the diffusion further by modifying how it is applied to black areas in an image.

Option	Description
Threshold	Lets you specify luminance range of affected area. Pixels with a luminance between the Clip Low and Clip High values are affected gradually.
Clip Low	Lets you specify lower luminance limit of affected area. Any pixels with a luminance below this limit are not affected.
Clip High	Lets you specify higher luminance limit of affected area. Any pixels with a luminance above this limit are affected.
Size	Lets you increase or decrease area specified by Threshold options
Apply	Turns Size option on or off
Shrink (-)	Decreases geometry of affected area
Grow (+)	Increases geometry of affected area
Diffusion	Lets you adjust diffusion and define percentage of diffusion applied to black areas of original image.
Apply	Turns Level option on or off
Level	Controls amount of diffusion applied to black areas in image. Values: 0 to 1000. Lower values apply less diffusion.
Mix	Controls percentage of diffusion (specified in the Level option) added to black areas of image. Values: 0 to 100. A value of 100 outputs only diffusion.
Apply	Turns Black Diffusion options on or off
Output Matte	Switches Optical Glow effect output to display either the RGB channels or the internal matte used for diffusion. When selected, the internal matte is output as an RGB image.

White Diffusion Property Page

The White Diffusion property page lets you define the diffusion effect that is applied to white areas of an image. Once you define the image's overall diffusion using the controls on the General property page, you can adjust the diffusion further by modifying how it is applied to white areas in an image.

Option	Description
Threshold	Lets you specify luminance range of affected area. Pixels with a luminance between Clip Low and Clip High values are affected gradually.
Clip Low	Lets you specify lower luminance limit of affected area. Any pixels with a luminance below this limit are not affected.
Clip High	Lets you specify higher luminance limit of affected area. Any pixels with a luminance above this limit are affected.
Size	Lets you increase or decrease area specified by Threshold options
Apply	Turns Size option on or off
Shrink (-)	Decreases geometry of affected area
Grow (+)	Increases geometry of affected area
Diffusion	Lets you adjust diffusion and define percentage of diffusion applied to white areas of original image
Apply	Turns Level option on or off
Level	Controls amount of diffusion applied to white areas in image. Values: 0 to 1000. Lower values apply less diffusion.
Mix	Increases or decreases percentage of diffusion (specified in the Level option) added to white areas of image. Values: 0 to 100. A value of 100 outputs only diffusion.
Apply	Turns White Diffusion options on or off

Option	Description
Output Matte	Switches Optical Glow effect output to display either the RGB channels or the internal matte used for diffusion. When selected, the internal matte is output as an RGB image.

Outsource

The Outsource effect lets you export a portion of your timeline to a desired file format for work in another application. The effect keeps a link to the output file, so that when the file is ready to be brought back into Avid DS Nitris, you only have to update the link to the file.

General Property Page

The General property page lets output a portion of the timeline to a desired file format. You can also update the portion of the timeline that points to that file or create a link to a series of files that were created outside Avid DS Nitris. You can also quickly display the output file in the Windows explorer.

Option	Description
3rd Party Application	Contains list of presets you created. Each preset is associated with an application name and file type.
Add	Adds preset to 3rd Party Application list
Remove	Removes preset from 3rd Party Application list
File Type	Lists the file types supported for output
File Name	Specifies name of file to be output
File Path	Specifies location of file to be output. By default, the file is saved in the F:\DS Projects\ProjectName\3rdParty\ folder
...	Lets you change the File Path by browsing to a new folder on the network
Open in Explorer	Opens Windows Explorer to location where file was saved

Option	Description
Export	Outputs the portion of the timeline to file in the specified format and to the specified location
Relink	Creates link to a file or series of files created by another application. The files must be placed in a folder that has the same name as the files. For example, if you have several files called sky1.psd, sky2.psd, and sky3.psd, then the folder that holds these files must be called sky.psd.
Update	Updates link to the file that displays the latest changes to the file

Paint Daubs

The Paint Daubs effect lets you process an image in a wide variety of brush styles. You can specify a range of brush sizes to smooth and simplify images, or to capture and accentuate fine details.

Paint Daubs Property Page

The Paint Daubs property page lets you specify the type and size of brush, the sharpness, as well as the level of opacity.

Option	Description
Brush Size	Specifies brush size
Brush Type	Specifies type of brush
Sharpness	Adjusts sharpness of image
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

Use the Paint Daubs effect before applying other effects to accentuate the "painterly" look. When using large brush sizes, move the Sharpness slider all the way to the right. This brings out small color details in the resulting image. You can further accentuate the colors by applying the Paint Daubs effect again with different settings.

Most of the effects created by Paint Daubs benefit from a final application of the Texturizer effect to give them the impression of having been painted on a textured background.

Palette Knife

The Palette Knife effect lets you process an image with rough smears of color that appear to have been made with a palette knife. Although the patches of color are irregular in size and shape, the result is strongly representational.

Palette Knife Property Page

The Palette Knife property page lets you adjust the size and detail of the strokes, softness, and opacity.

Option	Description
Stroke Size	Controls size of knife strokes
Stroke Detail	Adjusts level of detail in knife strokes
Softness	Adjusts level of softness in knife strokes. Higher values give a softer image with few jagged edges. Lower values give a sharper and more jagged result.
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

***Tip**: For a variety of special effects, apply the Accented Edges effect before applying the Palette Knife effect. Alternatively, posterize the image before applying the Palette Knife effect.*

After applying the Palette Knife effect, use the Texturizer effect to add a texture (such as Canvas) for an especially realistic depiction of paint applied manually to a textured surface.

Patchwork

The Patchwork effect lets you create the appearance of quilted fabric. The small squares of color that result are shadowed to appear at differing heights.

Patchwork Property Page

The Patchwork property page lets you adjust the size and height of the quilt squares, as well as the level of opacity.

Option	Description
Square Size	Adjusts size of quilt squares
Relief	Adjusts height or thickness of quilt patches
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

***Tip**: After applying the Patchwork effect, you can accentuate the appearance of the patches by using the Texturizer effect with a fabric texture (such as Canvas or another scanned cloth texture).*

You can try increasing the image's contrast with the brightness and contrast controls before applying the Patchwork effect. When the image contrast is increased, large areas of the final image will be flat and not show any of the three-dimensional surface patches characteristic of the Patchwork effect.

Pattern

The Pattern effect lets you create one of six infinite patterns. The algorithm randomly accumulates the specified shape to create soft noise, canvas, burlap, leopard skin, snake skin, and rocky textures. You can scroll and animate the position of the pattern.

Option	Description
Translate X	Controls horizontal (X axis) location of the center of the pattern
Translate Y	Controls vertical (Y axis) location of the center of the pattern
Shape	Lets you select the basic shape of your pattern
Rhombus	Creates slanted noise pattern
Square	Creates soft canvas-like pattern
Target	Creates leopard skin pattern
Cone	Creates soft granite-like texture
Grid	Creates rough burlap pattern
Arc	Creates rocky surface pattern
Process Alpha Channel	When selected, processes the effect's alpha channel. When deselected, the clip's alpha channel is full.
Same for Every Frame	When selected, the generated pattern remains the same for each frame. When deselected, the pattern varies from one frame to the next.

Photocopy

The Photocopy effect lets you make an image appear as if it has been photocopied. Large areas of darkness tend to copy around their edges but fade somewhat to their centers, and midtones fall away to either solid black or white as they would in an actual photocopy.

Photocopy Property Page

The Photocopy property page lets you adjust the level of detail, contrast, opacity, and the foreground and background colors. By default, this effect produces a monochrome (grayscale) image, but you can also use the current foreground and background colors.

Option	Description
Detail	Controls level of detail in image
Contrast	Increases or decreases contrast of image
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).
Foreground	Lets you choose color of foreground
Background	Lets you choose color of background
Color swatch	Displays default or current color. Click the color swatch to display the Mini Color Editor.

You can simulate the effect of photocopying an image several times, where the quality of the image degrades with each pass. To do this, apply the Photocopy effect twice. The first time, use the default settings. The second time, decrease the Detail to the point where parts of the black areas (created in the first pass) begin to dissolve.

A common animation technique is to photocopy isolated movie film frames and then photograph the photocopies again on an animation stand. Frames are usually chosen from one half to one second apart to cut down on the amount of work.

To create a high contrast, cartoon, or psychedelic-color photocopy effect:

1. Separate the original RGB color image into red, green, and blue channels using the **Channel Switcher** effect.
2. Apply the **Photocopy** effect separately to each channel.
3. Recombine the three channels using the **Channel Switcher** effect.

To create the same look using the Photocopy effect:

1. Digitize frames from a video sequence. Choose frames that are equidistant (such as 30 frames apart), or vary the distance slightly between frames for a jerkier effect.
2. Apply the Photocopy effect to each digitized frame.

Picture-in-Picture

The Picture-in-Picture effect lets you transform the size and position of an image in three-dimensional space. You can apply a Picture-in-Picture effect to clips on the timeline, as a transition, or in an Effects Tree.

Plaster

The Plaster effect lets you create an image that appears to be molded from three-dimensional plaster. You can select different light positions, so that dark areas of the image appear raised, while light areas appear lower. This effect is particularly useful for images consisting of text or simple, high-contrast graphics.

Plaster Property Page

The Plaster property page lets you adjust the image balance, light positioning, smoothness of the resulting image, and the opacity level. By default, this effect produces a monochrome (grayscale) image, but it can also use the current foreground and background colors (if available) to color the final result.

Option	Description
Image Balance	Controls area of image that appears lower or raised
Light Position	Lets you select position from which to sidelight image. Different light positions enhance different areas of the image.
Smoothness	Controls smoothness of image
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).
Foreground	Lets you choose color of foreground
Background	Lets you choose color of background
Color swatch	Displays selected or default background color. Click the color swatch to display Mini Color Editor.

The Plaster effect works best when applied to high-contrast images. Try inverting the image using the Negative effect before applying the Plaster effect.

Plastic Wrap

The Plastic Wrap effect lets you alter an image, so that it appears to be shrink-wrapped or coated in shiny plastic, with the surface detail accentuated. The parameters of the effect can also be set to create images that appear to have been made from Polaroid photos that have been scratched and textured by hand.

Plastic Wrap Property Page

The Plastic Wrap property page lets you adjust the highlight strength, detail, smoothness, and opacity level.

Option	Description
Highlight Strength	Controls strength of highlights in resulting image

Option	Description
Detail	Controls level of detail in image
Smoothness	Increases or decreases smoothness of image
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

Creating Altered Polaroid Photos

You can use the Plastic Wrap effect to emulate experimental approaches to photographic image manipulation. When Polaroid photos are artistically altered by hand, they are often scratched on the back with a sharp instrument. This leaves a white mark, often along the edges of the image, and sometimes drags the color pigment along with it.

To simulate this effect, apply the Plastic Wrap effect to an image with a high Highlight Strength setting and a fairly low Smoothness setting. This gives just the right amount of detailed white lines in the image and avoids large areas of flat white reflections.

When you have the desired number of white lines, apply the Ripple effect with low Ripple Magnitude and Ripple Size settings to slightly shift and jiggle the white scratch marks and the associated image areas.

Polaroid photos tend to be highly saturated in color, so increase the brightness and contrast of the image. Blurring the image slightly, either before applying Plastic Wrap or as a final step, may also help simulate the altered Polaroid photo look.

Polar Coordinates

The Polar Coordinates effect lets you distort the image by converting rectangular coordinates to polar coordinates. This effect makes the image appear as if it has been turned inside out, and is useful on logos, shapes, and text.

Poster Edges

The Poster Edges effect lets you reduce the number of color shades in the image and add dark lines along the edges. Large, broad areas of the image are given simple shading, while fine dark detail is distributed throughout the image.

Poster Edges Property Page

The Poster Edges property page lets you adjust the thickness and intensity of the edge, and the opacity level..

Option	Description
Edge Thickness	Controls thickness of edges
Edge Intensity	Controls intensity of edges
Posterization	Controls number of colors or grays in image
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

You can smooth the pen lines by blurring the image after applying the Poster Edges effect. You can also sharpen the image and adjust the brightness and contrast before applying the Poster Edges effect.

Posterize

The Posterize effect lets you reduce the number of color samples in an image and select the channels on which the effect is applied.

You can apply the Posterize effect as an image or paint effect. When you apply it as a paint effect, only the parameters of the General property page are available.

General Property Page

The General property page lets you reduce the number of color samples used in an image. The default value of 8 reduces the color samples from 256 to 8 for each RGBA channel.

Option	Description
Red	Lets you adjust red channel
Green	Lets you adjust green channel
Blue	Lets you adjust blue channel
Alpha	Lets you adjust alpha channel
Lock	Lets you adjust R, G, B and/or alpha channels at the same time
Unlock	Lets you adjust R, G, B, or alpha channels independently
RGB	Lets you adjust RGB channels at the same time
RGBA	Lets you adjust RGB and alpha channels at the same time
Dither	Adds noise to an image, scattering neighboring pixels. The result is visually interpreted by the human eye as a new intermediate color.

Premultiplication

The Premultiplication effect lets you change a clip's premultiplication at any time. It also lets you change an outgoing image's RGB pixels by premultiplying or unpremultiplying the image as necessary.

General Property Page

The General property page lets you change a clip's premultiplication setting. By default, all clips are set to Auto, which will maintain the clip's premultiplication setting when the material was captured.

Option	Description
Auto	Maintains the premultiplication setting when the clip was captured
Modify Image	Changes outgoing image's RGB pixels by premultiplying or unpremultiplying the image according to the premultiplication setting. *If you choose Auto in the Premultiplication State box, then this option is not available.*
Premultiplied	If the Modify Image option is selected, it performs the premultiplication operation of the input's RGB channels with the alpha channel. If the Modify Image option is not selected, it simply marks this image as being premultiplied.
Not Premultiplied	If the Modify Image option is selected, it un-premultiplies the input's RGB channels with the alpha channel. If the Modify Image option is not selected, it simply marks this image as being not premultiplied.

Radial Blur

The Radial Blur property editor lets you apply a circular blur effect to an image. It works by simultaneously shifting pixel values in a circular direction and blurring them together. You can achieve various effects by applying a filter, and varying the extent and direction (angle) of the blur, as well as its opacity and its location.

Radial Blur Property Page

The Radial Blur property page lets you apply filters, and vary the extent and direction (angle) of the blur, as well as its opacity and location.

Option	Description
Composite	Changes look of effect by adding one of nine different filters
Normal	Blends source image and gradient colors equally
Darken	Compares color information in each channel of the source and gradient, and selects the darker-colored pixels. Pixels lighter than the gradient color are replaced and pixels darker than the gradient color are unchanged.
Lighten	Compares color information in each channel of the source and gradient, and selects the lighter-colored pixels. Pixels darker than the gradient color are replaced and pixels lighter than the gradient color are unchanged.
Difference	Compares color information in each channel of the source and gradient. Subtracts the source color value from the gradient color value (or the reverse), depending on which color has the greater brightness value.
Multiply	Compares color information in each channel and multiplies the source color with the gradient color. This results in a darker colored image. When a color is multiplied with black, the result is black. When a color is multiplied with white, the color is unchanged.
Hue	Produces image that contains the hue of the gradient color, and the luminance and saturation of the source image
Saturation	Produces image that contains the saturation of the gradient color, and the hue and luminance of the source image
Color	Produces image that contains the hue and saturation of the gradient color and the luminance of the source image. This maintains the gray levels in the image and is useful for tinting color images.
Luminosity	Produces image that contains the luminance of the gradient color and the hue and saturation of the source image.
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

Option	Description
Length	Controls distance that the color values of pixels are shifted to create the radial blur. As you increase the length, the blur becomes more pronounced.
Angle	Controls direction in which pixel values are shifted. An angle of 0 makes the blur occur in a regular circular direction around the center. An angle of 45º makes the blur veer outward, creating a pinwheel-like effect. An angle of 90º makes the blur occur straight outward from the center.
Translate X	Controls horizontal (X axis) location of the center of the blur
Translate Y	Controls vertical (Y axis) location of the center of the blur

Radial Gradient

The Radial Gradient effect lets you process rings of colors that are blended together. You can use this effect to create a graded background or to highlight areas of video. You can set keyframes for the radial gradient parameters to create animated gradients.

You can set the position of the gradient anywhere inside or outside the frame. You can also animate its position. Once the center is set, you can set the scale factor for the rings and animate the scale, if required. The relative distances between the rings of color are fixed, but you can set the overall height of the gradient and animate it with the Stretch option. The positioning controls are on the Properties property page.

When combined using the appropriate compositing methods, you can use this effect to accent or highlight important areas of the underlying image.

The Radial Gradient can be applied as an image effect or used as a source generator.

Properties Property Page

The Properties property page lets you adjust the size, orientation, and position of the linear gradient. You can also set the method by which the effect is combined (composited) with the original image.

Option	Description
Composite	Changes color information of the resulting image by using one of nine different composite filters. You can also change the opacity and noise level of the gradient. *This parameter is not available when the Radial Gradient is used as a source generator.*
Normal	Blends source image and gradient colors equally
Darken	Compares color information in each channel of the source and gradient, and selects the darker colored pixels. Pixels lighter than the gradient color are replaced and pixels darker than the gradient color remain unchanged.
Lighten	Compares color information in each channel of the source and gradient, and selects the lighter colored pixels. Pixels darker than the gradient color are replaced and pixels lighter than the gradient color remain unchanged.
Difference	Compares color information in each channel of the source and gradient. Subtracts the source color value from the gradient color value (or the reverse) depending on which color has the greater brightness value.
Multiply	Compares color information in each channel and multiplies the source color with the gradient color for a darker colored image. When a color is multiplied with black, the result is black; when multiplied with white, the color is unchanged.
Hue	Produces image that contains the hue of the gradient color, and the luminance and saturation of the source image
Saturation	Produces image that contains the saturation of the gradient color and the hue and luminance of the source image

Option	Description
Color	Produces image that contains the hue and saturation of the gradient color and the luminance of the source image. This maintains the gray levels in the image and is useful for tinting color images.
Luminosity	Produces image that contains the luminance of the gradient color and the hue and saturation of the source image.
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque). *This parameter is not available when the Radial Gradient is used as a source generator.*
Scale X	Controls size of gradient along the X axis
Scale Y	Controls size of gradient along the Y axis
Stretch	Stretches gradient over a portion of the frame. By default, the gradient is spread over the height of the frame. Decreasing the Stretch value concentrates the gradient in a smaller portion of the frame; increasing the value expands the gradient.
Dither	Adds noise to the color gradient. The greater the dither value, the more noise is added.
Center X	Controls horizontal (X axis) location of the center of the gradient
Center Y	Controls vertical (Y axis) location of the center of the gradient

Reticulation

The Reticulation effect lets you simulate the shrinking and distortion of photographic film emulsion. This effect processes the darker areas of the image with dense clumps of dark emulsion, and the lighter areas with a light stippling of grain.

By default, this effect produces a monochrome (grayscale) image, but you can apply separate colors to the current foreground and background colors to color the final result.

Reticulation Property Page

The Reticulation property page produces a monochrome (grayscale) image, but it can use the current foreground and background colors to color the final result.

Option	Description
Density	Controls density of light grain
Black Level	Controls amount of black (foreground color) in image
White Level	Controls amount of white (background color) in image
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).
Foreground	Lets you choose color of foreground
Background	Lets you choose color of background
Color swatch	Displays selected or default background color. Double-click color swatch to display Mini Color Editor.

Ripple

The Ripple effect lets you add randomly spaced ripples to the image's surface, making the image appear as if it is under water and being rippled by the wind.

Ripple Property Page

The Ripple property page lets you control the size, magnitude, and opacity of ripples.

Option	Description
Ripple Size	Controls size of ripples
Ripple Magnitude	Controls ripple distortion
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

For images composed of small elements, use lower settings for the ripple size and magnitude. For images composed of large elements, use higher settings.

RGB-YUV Dither

The RGB-YUV Dithering effect lets you apply a filter in order to avoid banding due to RGB-YUV conversions. This effect is useful if you're working with RGB material that you created from within Avid DS Nitris, or if you are using linked clips and banding appears after processing. Once you apply the effect, the results are automatic.

***Tip**: Banding usually appears on smooth grayscale or color gradients. Use this effect only if banding occurs after processing. Apply it as the last possible effect (topmost if you stack multiple effects). Stacking multiple RGB-YUV Dither effects will create undesirable artifacts.*

Rough Pastels

The Rough Pastels effect lets you process an image using strokes of colored pastel chalk on a textured surface. In areas of bright color, the chalk is thick and little of the underlying texture is apparent. In other areas, the chalk appears to have been scraped off, revealing more of the underlying texture. You can choose from a variety of textured surfaces, or you can create your own.

Rough Pastels Property Page

The Rough Pastels property page lets you select the texture, length, detail, and height of the strokes, and the opacity level.

Option	Description
Texture Type	Lets you choose an underlying texture (Brick, Burlap, Canvas, Sandstone) and control how it is applied using the other parameters
Light Position	Lets you choose position from which to illuminate the image. Different light positions enhance different areas of the image.
Scaling (%)	Controls size of applied texture
Relief	Adjusts height of texture
Stroke Length	Controls length of strokes
Stroke Detail	Controls detail of strokes
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).
Invert Texture	Inverts color values of texture. Each pixel's brightness value is converted to the inverse value based on a 256-color scale. A value of 0 is changed to 255.

To create a smoother pastel effect, set Relief to a low value.

Scatter Noise

The Scatter Noise effect lets you displace individual pixels that dither the original image.

Scatter Noise Property Page

The Scatter Noise property page lets you select different composite filters, set the opacity level, and choose the noise pattern.

Option	Description
Composite	Lets you change color information of resulting image by using one of nine different composite filters. You can also change the opacity and noise level of the gradient.
Normal	Blends source image and gradient colors equally
Darken	Compares color information in each channel of the source and gradient, and selects the darker-colored pixels. Pixels lighter than the gradient color are replaced and pixels darker than the gradient color remain unchanged.
Lighten	Compares color information in each channel of the source and gradient, and selects the lighter-colored pixels. Pixels darker than the gradient color are replaced and pixels lighter than the gradient color remain unchanged.
Difference	Compares color information in each channel of the source and gradient. Subtracts the source color value from the gradient color value (or the reverse), depending on which color has the greater brightness value.
Multiply	Compares color information in each channel and multiplies the source color with the gradient color. This results in a darker-colored image. When a color is multiplied with black, the result is black. When a color is multiplied with white, the color is unchanged.
Hue	Produces image that contains the hue of the gradient color, and the luminance and saturation of the source image
Saturation	Produces image that contains the saturation of the gradient color, and the hue and luminance of the source image
Color	Produces image that contains the hue and saturation of the gradient color and the luminance of the source image. This maintains the gray levels in the image and is useful for tinting color images.
Luminosity	Produces image that contains the luminance of the gradient color and the hue and saturation of the source image
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

Option	Description
Same for Every Frame	When selected, the generated noise pattern remains the same for each frame. When deselected, you can vary the noise pattern for individual frames.
Spread X	Varies horizontal distance over which to randomly scatter the pixels
Spread Y	Varies vertical distance over which to randomly scatter the pixels

***Tip**: To simulate a video signal breaking up, animate the Spread X value.*

Sharpen

The Sharpen effect lets you sharpen an image. You can sharpen the entire image or just the edges. This effect works by finding adjacent pixels with differing color values and adjusting these values to increase the difference between them.

You can use Sharpen as an image effect in an editing session, or as a brush or fill effect in a graphics session, but it is more suited to be used as the fill.

General Property Page

The Sharpen property page lets you specify the areas of an image to sharpen and by how much.

Option	Description
Sharpen	Lets you sharpen all or only the edges of an image
All	Sharpens entire image
Edge	Sharpens only the edges
Radius	Controls size of area around current pixel where Avid DS Nitris will check adjacent pixels' color values. The larger the radius, the more pronounced the effect.

Option	Description
Amount	Controls degree to which effect is applied
Edge Sensitivity	Controls how an edge is detected. Greater values require less of a color difference between adjacent pixels to consider the transition an edge, and vice versa. The greater the value, the more edges are sharpened.

Smudge Stick

The Smudge Stick effect lets you use short, diagonal strokes to smudge or smear the darker areas of the image. Lighter areas of the image are pushed to a brighter range.

Smudge Stick Property Page

The Smudge Stick property page lets you define the stroke length, highlight area and intensity, as well as the opacity level.

Option	Description
Stroke Length	Controls length of brush strokes
Highlight Area	Sets how much of the original image becomes white; that is, how much of the image is moved into the highlight range.
Highlight Intensity	Adjusts how much of the brightened image is blended into the original image. Lower values increase the transparency of the brightened image and allow more of the original image show through. Higher values increase the opacity of the brightened image and allow less of the original image show through.
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

Solarize

The Solarize effect lets you invert RGB or HLS values. When you apply this effect as a paint effect, only the options on the General property page are available.

In the following example, the Solarize effect is applied to the RGB channels with 100% mix. This means that the resulting image will use 100% of the inversed image. Whereas, if the mix was set to 75%, then 75% of the inverted image would be used and 25% of the original image.

Original image

Solarize effect (100% mix)

General Property Page

The General property page lets you invert RGB or HLS values. You can mix between the original and inverted image using the Mix slider.

Option	Description
Mode	Lets you apply effect in RGB or HLS color space
RGB	Applies effect in RGB color space
HLS	Applies effect in HLS color space
Channels	Lets you choose channels on which effect is applied. If you select RGB as the mode, you can apply the effect to the image's R, G, B, and/or alpha channels. If you select the HLS mode, you can apply the effect to the image's hue, luminance, saturation, and/or alpha.

Option	Description
Mix	The percentage of mix applied to the RGB, HLS or alpha values. Values: 0 to 100. For example, in the RGB mode if you have an image that is black and you set the mix value to 100 the result is white; if you set the mix value to 50, the result is gray.

Solid Color

The Solid Color effect generates a background with a single color. This effect is a good starting point for transitions and keys.

Option	Description
Color Picker	Picks a color from the screen. Click Color Picker and move pointer (now an eyedropper icon) around the screen. The color swatch updates and the current color values are displayed. Click to select a color.
Color swatch	Displays selected or default background color. Click the color swatch and select a color, or double-click to display the Mini Color Editor.
RGBA	Sets intensity of each color channel and alpha channel. The RGB color model is used. Values: 0 to 100.

Spatter

The Spatter effect lets you paint the image in a Pointillist painting style using a spatter airbrush technique.

Spatter Property Page

The Spatter property page lets you adjust the spray radius of the spattering, the smoothness, as well as the opacity level.

Option	Description
Spray Radius	Controls radius of spray
Smoothness	Increases or decreases smoothness of image
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

Special Filter

The Special Filter effect lets you apply a filter that creates a bubbly effect in your image. The filter calculates either the minimum or the maximum brightness value in a specified area around a pixel and applies this value to the pixel. This operation is applied to every pixel in the image.

The possible source channels include RGBA, inverted RGBA, and HLS. The possible destination channels are RGBA.

General Property Page

The General property page lets you specify whether you want the filter to calculate the minimum or maximum brightness value in the area around a pixel. You can also specify the size of the area.

Spherize

The Spherize effect lets you geometrically distort an image in a circular shape. The source image is bulged in or out.

Spherize Property Page

The Spherize property page lets you adjust the size of the sphere, the intensity of the bulge, as well as the X and Y translation of the bulge center.

Option	Description
Radius	Controls size of area around bulge center to affect. The larger the radius, the more pronounced the effect.
Bulge	Controls intensity of bulge. Higher values increase the intensity of an outward bulge. Lower values increase the intensity of an inward bulge.
Translate X	Horizontally moves center of bulge
Translate Y	Vertically moves center of bulge

***Tip**: Animate the center position of the bulge so that, as it moves around the image, it creates creates a magnifying glass effect.*

Spill Correction

The Spill Correction effect lets you remove the blue or green spill color in an image.

Spill Property Page

The Spill property page lets you adjust the amount and hue of the spill color in an image's RGB channels. This effect is useful when you have a clip that has an existing matte and you need to remove or adjust the blue or green spill color.

Option	Description
Pick Replace Hue	Lets you select a color whose hue will replace the current spill hue by picking a color in the viewer
Pick Spill Color	Lets you specify the image's spill color by picking a color in the viewer

Option	Description
Color swatch	Displays current color. Click the color swatch to display the Mini Color Editor.
Hue	Lets you modify hue of replacement spill hue
Saturation	Lets you modify replacement spill color's saturation
Luminance Offset	Lets you add or subtract luminance to or from the original luminance. A value of 0 represents the original luminance.
Threshold	Adjusts spill correction area. Increasing the Threshold value expands the pixel range to which spill correction is applied, while decreasing the threshold value contracts the pixel range.
Softness	Adjusts amount of blur applied between replacement color and adjacent colors in the RGB image
Apply	Turns Spill Correction effect on or off. When you select this option, the effect is applied to the image. When you deselect this option, you can bypass the effect to display the original image.
Reset	Resets all parameters to the default values

Sponge

The Sponge effect lets you create an image that appears to have been painted with a sponge. The resulting image has highly textured areas of contrasting color.

Sponge Property Page

The Sponge property page lets you specify the brush size, the amount of definition of the textured areas, the smoothness of the image, and the opacity level.

Option	Description
Brush Size	Controls size of sponge

Option	Description
Definition	Controls definition of textured areas
Smoothness	Increases or decreases smoothness of image
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

After applying the Sponge effect, apply the Texturizer effect to enhance the impression that the image has been painted onto a rough surface. Textures such as Sandstone or Brick work well, as would textures of rough surfaces that you create yourself.

Use the Emboss effect on the output of the Sponge effect to create an impression of depth. The combination of the Sponge effect followed by the Ink Outlines effect can create a strong impression of age and wear.

Sprayed Strokes

The Sprayed Strokes effect lets you process an image with disjointed, sprayed strokes of adjustable length and orientation.

Sprayed Strokes Property Page

The Sprayed Strokes property page contains controls that let you specify the stroke length, direction, and radius, as well as the opacity level.

Option	Description
Stroke Length	Controls length of strokes
Stroke Direction	Lets you choose direction in which to paint strokes: Right Diagonal, Horizontal, Left Diagonal, or Vertical
Spray Radius	Controls radius of spray. Move the slider to the right to spray within a wider radius and create more disjointed strokes. Move the slider to the left to spray within a smaller radius and produce more coherent strokes.

Option	Description
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

***Tip**: For an even more painterly result, apply this effect before some of the other effects, such as Dry Brush or Watercolor.*

To create the appearance of an object being reflected on a wet and shiny surface:

1. Duplicate the image.
2. Apply the **Sprayed Strokes** effect to the copy of the image.
3. Reflect the top half of the resulting image vertically onto the bottom half.
4. Darken or tint the color in the resulting image to make it look more like a reflection.
5. Combine the reflected image with objects from the original image by selecting the objects and placing them onto the reflection image background.
6. Set the Stroke Direction to horizontal.
7. Increase the Stroke Length.
8. Increase the Spray Radius.

Stained Glass

The Stained Glass effect creates an image that appears to be a piece of stained glass that is lit from behind. The strength of the light shining through the glass can be varied from a soft, even glow to a focused brilliance.

Stained Glass Property Page

The Stained Glass property page lets you specify the size of the stained glass pieces, the thickness of the lead borders, as well as the light intensity and opacity level.

By default, black is used for the color of the lead between the pieces of glass; however, this effect uses the current foreground color for the lead borders.

Option	Description
Cell Size	Controls size of stained glass pieces
Border Thickness	Controls thickness of lead borders
Light Intensity	Controls intensity of light source
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).
Foreground	Lets you choose color of foreground
Color swatch	Displays selected or default background color. Double-click color swatch to display Mini Color Editor.

To create large areas of common color that can enhance the appearance of the Stained Glass effect, first apply the Cutout effect or posterize the original image.

You can also blend the enhanced image with the original image to bring some color and detail into the flat areas of color in the stained glass image. This technique is most effective if the added detail does not appear on top of the lead borders in the stained glass image.

To give the stained glass image an antique feel, apply the Ripple effect to the result using low Ripple Magnitude and Ripple Size settings. Adding a slight amount of grain with the Grain effect prior to applying Ripple will enhance this antique effect.

Stamp

The Stamp effect lets you make an image appear as if it is created with a wood block stamp. By default, this effect produces a monochrome (grayscale) image, but it can use the current foreground and background colors, if they are available.

Stamp Property Page

The Stamp property page lets you adjust the lightness and darkness, smoothness, and opacity of the image.

Option	Description
Light/Dark Balance	Controls area of image that appears as background or as foreground. Move the slider to the right to have more areas of the image take the foreground color (black by default), or move it to the left to have more areas take on the background color (white by default).
Smoothness	Increases or decreases smoothness of image
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).
Foreground	Lets you choose color of foreground
Background	Lets you choose color of background
Color swatch	Displays selected or default background color. Double-click color swatch to display Mini Color Editor.

Apply the Texturizer effect after the Stamp effect to bring some texture (wood, gauze, or any other) into the solid areas of color. Increase the brightness and contrast of the final image to remove any texture that is visible in the lighter areas.

Sumi-e

The Sumi-e (pronounced sue-me-ay) effect lets you process an image in the Japanese sumi-e ink painting style. This effect is characterized by rich blacks with soft, blurry edges, suggesting the use of a wet brush imbued with ink on absorbent rice paper.

Sumi-e Property Page

The Sumi-e property page lets you adjust the width and pressure of the strokes, the contrast in the resulting image, as well as the opacity level.

Option	Description
Stroke Width	Specifies width of stroke
Stroke Pressure	Specifies amount of pressure in brush stroke
Contrast	Controls contrast of image
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

Texturizer

The Texturizer effect lets you integrate a surface texture with an image. You can choose from a variety of textures.

Texturizer Property Page

The Texturizer property page lets you choose the type of texture, the position from which the image is illuminated, the scale, the level of detail in the relief, the opacity level, and the option to invert the color values of the texture.

Option	Description
Texture Type	Lets you choose underlying texture (Brick, Burlap, Canvas, Sandstone) and control how it is applied using the other parameters
Light Position	Lets you select position from which to illuminate the image. Different light positions enhance different areas of the image.
Scaling (%)	Reduces or enlarges size of applied texture
Relief	Controls amount of surface detail in image
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

Option	Description
Invert Texture	Inverts color values of texture. Each pixel's brightness value is converted to the inverse value based on a 256-color scale. A value of 0 is changed to 255.

To make images appear to be painted on a textured surface, apply the Texturizer effect to images already modified by other effects. You can use the Texturizer effect to create a random textured pattern. Select the Sandstone texture type and set Texture Relief to 50. This random noise pattern can be applied to a white or black background for a fancy appearance. You can also get good results by using it on text.

Threshold

The Threshold effect lets you create a variety of posterized effects. It works by pushing pixel values up or down according to whether they fall above or below a specified threshold. Pixels with values below the minimum specified are pushed down to a lower tonal level, and those above the maximum are pushed up to a higher tonal level. A posterized effect results because the total number of tonal levels is decreased.

You can apply a Threshold effect to all or a portion of a clip or track. You can also specify a subregion of the image where the Threshold effect will be applied. You can also apply it as a paint effect.

General Property Page

The Threshold property page lets you adjust the minimum and maximum threshold levels.

Option	Description
Minimum	Controls minimum threshold; that is, the pixel level (in percentage) below which all pixel values will be pushed down to a lower tonal level. As you raise the threshold, more pixel values are affected.

Option	Description
Maximum	Controls maximum threshold; that is, the pixel level (in percentage) above which all pixel values will be pushed up to a higher tonal level. As you lower the maximum, more pixel values are affected.

Timecode

The Timecode effect lets you display the timecode overlaid on an image. You can use the Timecode effect as an image effect or as a source generator.

The Masking and Options property pages are not available when the Timecode is used as a source generator.

Timecode Property Page

The Timecode property page lets you specify how the timecode is displayed.

Option	Description
Format	Lets you specify a fixed time or sequence time
Fixed time	Specifies that the burn-in timecode starts at the time set in the Start box
Sequence time	Specifies that the burn-in timecode is the sequence time as shown in the timeline ruler
Start	Specifies the start time for the first frame when Fixed time is selected. *This parameter is only available if Fixed Time is selected.*
Drop frame	Lets you switch between drop frame and non-drop frame in the timecode display format. *This parameter is only available if Fixed Time is selected.*
Direction	Specifies whether the timecode is incremented or decremented for each consecutive frame/field

Option	Description
Count up	Starting from the start time, the timecode is automatically incremented for each consecutive frame/field. *This parameter is only available if Fixed Time is selected.*
Count down	Starting from the start time, the timecode is automatically decremented for each consecutive frame/field. *This parameter is only available if Fixed Time is selected.*
Position	Specifies position of timecode on image
Top	Positions timecode at top of image
Center	Positions timecode at center of image
Bottom	Positions timecode at bottom of image
Display field	Toggles display of odd and even fields of frame in the timecode display format. *When this parameter is selected, the Timecode effect should be processed in fields rather than frames.*
Label	Lets you add descriptive text that is appended to the front of the burn-in timecode
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque). *This parameter is not available if Fixed Time is used as a source generator.*

Torn Edges

The Torn Edges effect lets you make the edges of objects in an image appear like torn paper. This effect is particularly useful for images consisting of text or simple, high-contrast graphics.

Torn Edges Property Page

The Torn Edges property page lets you adjust the area that appears in the foreground and background colors, the smoothness in the resulting image, the contrast, and the opacity level. By default, this effect produces a monochrome (grayscale) image, but it can use the current foreground and background colors (if available) to color the final result.

Option	Description
Image Balance	Controls area of image that appears in foreground color and background color
Smoothness	Controls smoothness of image
Contrast	Controls amount of contrast in image
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).
Foreground	Lets you choose color of foreground
Background	Lets you choose color of background
Color swatch	Displays selected or default background color. Double-click color swatch to display Mini Color Editor.

Use this effect as a final touch after applying the Stamp effect or the Photocopy effect. This effect is useful for "roughening up" text.

Tracker/Stabilizer

The Tracker/Stabilizer lets you track or stabilize your clips through the Effects Tree without switching to the Compositing layout.

If you want to stabilize your clip while working in the Effects Tree, you can use the Stabilize effect, which is a preset of the Tracker.

Option	Description
< >	Starts tracking forward or backward. When In 1-layer is selected, tracking is started on layer clip. When In 2-ref is selected, tracking is started on reference clip. During tracking a motion path is generated on the selected clip.
1-point	One-point tracking ties a single tracker in the layer image to a single tracker in the reference image. The layer image simply translates along the path of the tracker.
2-point	Two-point tracking ties two trackers in the layer image to two trackers in the reference image. The layer image is translated, scaled, and rotated, so that the trackers in the layer image can follow the trackers in the reference image.
4-point	Four-point tracking ties four trackers in the layer clip to four trackers in the reference clip. The layer image is translated and distorted, so that its four trackers can follow the four trackers in the reference clip.
Output	Displays result of tracking or stabilization applied to the input of the reference and layer clips.
In 1-layer	In track mode, the layer clip is always the clip from which the tracker is applied. In stabilize mode, the layer clip is the same as the reference clip. This lets you display the layer clip, and if necessary adjust its trackers and track an area of the image.
In 2-ref	In track mode, the reference clip is the clip that you track, so that the layer trackers are aligned with the reference trackers. In stabilize mode, the reference clip is the same as the layer clip. This lets you display the reference clip, and if necessary adjust its trackers and track an area of the image.
Show	Turns motion path view on or off. When selected, it displays the motion path created by the tracker.

Option	Description
Update	Turns update view on or off. When selected, the viewer updates during tracking. Deselect this option for faster processing.

Input1/Input2/Output Property Pages

When you select an option in the Edit box, the associated property page opens. For example, if you select the In 2-ref option in the Edit box, the Input 2 property page opens.

The Input 1 and Input 2 property pages let you set the type of transformation and the start and end frames (time span) over which the transformation will occur. Additional settings let you set the tracking mode (1, 2, or 4-point tracking), display the motion path, update the viewer, and start tracking.

When tracking is started, individual trackers (R1-R4, L1-L4) sample a target area of the reference clip at each frame of the specified time span. In each subsequent frame, the motion tracker searches for the target image within the tracker's search region. When the target is found, a keyframe is set. The resulting motion path controls the tracker DVE, and the layer image is moved accordingly.

When you select the Output option, the Output property page opens and you can see the composited results of input 1 and 2.

Option	Description
Start Frame	Specifies first frame of reference/layer clip to be tracked or stabilized. To set the first frame, drag the in-point to the desired starting point on the applicable track in the timeline.
End Frame	Specifies last frame of reference/layer clip to be tracked or stabilized. To set the last frame, drag the out-point to the desired end point on the applicable track in the timeline.
Transformation	Specifies type of transformation

Option	Description
Track	Uses motion path(s) to control the tracker DVE and move the layer clip, so that it follows the motion in the reference clip
Stabilize	Uses the motion path of a reference object to create a compensating motion that “pins” the object

Advanced Property Page

The Advanced property page lets you deactivate translation when you:

- Apply 1-point tracking or
- Deactivate scaling, translation, and rotation when you apply 2-point tracking.

When you apply 4-point tracking, the Crop options become available, which let you crop the layer image to the reference tracker’s polygon, and apply a blur to the cropped image.

Option	Description
Disable	Turns off tracker results for scaling, translation, and rotation. For example, if you’re tracking a reference image that also requires stabilization, you may not want the tracker to scale, translate, or rotate the layer image while the tracking is performed. When 1-point tracking is selected, you can only disable the translation. When 2-point tracking is selected, you can disable all the options. When 4-point tracking is selected, these options are not available.
Scaling in X	Turns Scaling in X on or off
Scaling in Y	Turns Scaling in Y on or off
Translation in X	Turns Translation in X on or off
Translation in Y	Turns Translation in Y on or off
Rotation	Turns Rotation on or off

Option	Description
Crop To Tracker Polygon	Lets you crop a layer image to its tracker polygon and apply a blur to the polygon's edge. These options are only available when 4-point tracking is selected.
Blur Edges	Defines size of blur at edges of tracker polygon. Values: 0 to 1000.
Apply Blur	Turns Blur effect on or off. This lets you compare the composite's appearance with and without the blur effect.
Apply Crop	Crops layer's alpha channel to reference's tracker polygon
Crop RGB	Lets you apply the crop to the layer's RGB channels
Tool	Lets you set the tracker magnification
Magnification	Sets magnification value for tracker
Track in Fields	Tracks each field separately and sets a key on each field. The target used is the contents of the target region in field 1 of the target frame. If you track in fields, you do not need to first deinterlace, track, and reinterlace the clip. Once you track in fields, be sure to process in fields.

DVE Property Page

The DVE property page lets you apply transformations on an image. You transform images along the horizontal (X), vertical (Y), and depth (Z) axes. Avid DS Nitris computes and redraws the image as it would appear in three-dimensional space. You can enter numerical values in the corresponding text boxes or manipulate the image interactively in the viewer.

When you apply a DVE as a transition, an additional property page, Source, is available on which you can adjust the source image's opacity level and the direction in which the DVE transition will be applied.

Option	Description
Scale (%)	Lets you control size properties of image along X and Y axes. A value of 100 represents the image's original scaling. Units are percentages. For example, 200 doubles the scaling and 50 halves it.

Option	Description
X	Scales image in X direction. To scale proportionally, assign identical values to X and Y.
Y	Scales image in Y direction
Lock XY	Links X and Y values, so that if you change one value, the other value is the same. This option has no effect when you interactively manipulate an image in the viewer.
Rotate	Lets you control image's angle of rotation along X, Y, and Z axes. The Rotate options are set relative to the image plane.
X	Rotates image along X axis
Y	Rotates image along Y axis
Z	Rotates image along Z axis. Enter a negative number (in degrees) to rotate clockwise and a positive number to rotate counterclockwise.
Translate	Lets you control location of image along X, Y, and Z axes
X	Moves image in X direction. Enter a positive value to move the image to the right and a negative value to move it to the left.
Y	Moves image in Y direction. Enter a positive value to move the image up and a negative value to move it down.
Z	Moves image in Z direction. Entering a positive number moves the image closer, while a negative number moves it farther away.
Image Offset	Lets you specify how far the object's center is displaced from its original center. The center is the point around which the image revolves. The X, Y, and Z default values are 0, 0, 0.
X	Specifies center offset along X axis
Y	Specifies center offset along Y axis
Z	Specifies center offset along Z axis

Option	Description
Perspective	Changes amount of perspective applied to DVE when it has been rotated along the X or Y axis. Default angle is 45°.
Use Motion Path	Lets you switch between creating animation using motion paths or the translation controls. *If you turn this option off after creating a motion path, the X and Y transformations are stored if you need to go back to the motion path at a later time.*
Apply	Turns on/off any DVE transformation (scaling, rotation, or translation) that was applied to the current layer
Scale	Turns scale tool on or off
Rotate	Turns rotate tool on or off
Reset	Resets all parameters to the default values

Quality Property Page

The Quality property page lets you apply filters that can improve the quality of a scaled or rotated image. When an image is scaled down or rotated, small jagged lines can appear on the oblique edges of objects or sometimes within the image. You can also specify the channels on which the DVE will be applied, and the type of source material you are using.

Option	Description
Quality	Settings that control the speed of processing and affect the result of the processed image. When you scale or rotate an image, a resampling algorithm is applied to enhance the image's quality. The options are also arranged according to speed, with Unfiltered being the fastest and Pixel Summing Bicubic being the slowest. If you scale down an image, the following resampling algorithms produce a higher-quality image: Filtered, Pixel Summing Bilinear, or Pixel Summing Bicubic. If you scale up an image, the following resampling algorithms produce a higher-quality image: Bilinear (also equivalent to Filtered and Pixel Summing Bilinear) or Bicubic (also equivalent to Pixel Summing Bicubic).
Unfiltered	Applies no filter to the image (this is the fastest mode)
Bilinear	Useful when scaling a DVE up, which will improve the scaled image's quality. This is the default setting.
Bicubic	Produces a sharper image than the Bilinear option when you scale a DVE up
Pixel Summing Bilinear	Produces a less blurry image than the Filtered option when you scale an image down using pixel averaging. If you scale an image up, then a bilinear interpolation is used, producing a sharper image.
Pixel Summing Bicubic	Produces a less blurry image than the Filtered or Pixel Summing Bilinear options when you scale an image down using pixel averaging. If you scale an image up, a bicubic interpolation is used, producing a sharper image.
Filtered	Useful when you scale a DVE down, which will improve the scaled image's quality
Filter Level	Determines the strength of the filter when in Pixel Summing Blinear, Pixel Summing Bicubic, or Filtered mode. Higher settings result in a stronger filter and longer processing time.
Channels	Lets you specify the channels on which the DVE will be applied

Option	Description
Red	Applies DVE to red channel
Green	Applies DVE to green channel
Blue	Applies DVE to blue channel
Alpha	Applies DVE to alpha channel
Motion Blur	Lets you apply a motion blur to an animated DVE
Apply	Turns Motion Blur effect on or off
Duration	Sets duration of motion blur between current frame and next frame. Values: 0 to 100%; default is 50%.
Number Samples	Lets you set number of samples per frame, which can improve the smoothness of the motion blur. Values: 1 to 100. A value of 1 applies no motion blur. A value higher than 1 increases the number of samples. For example, if you set the number of samples to 2, then two images are superimposed on top of each other at the current frame. If you set the number of samples to 4, then four images are superimposed, and so on. The default value of 8 usually provides a smooth motion blur. If the animation has a large movement between frames, then you should increase the number of samples to create a smoother motion blur. *The larger the number of samples, the longer the process time.*

Twirl

The Twirl effect lets you swirl the image as though a whirlwind is sucking the image toward its center. You can animate the center, radius, and strength of the swirl.

Twirl Property Page

The Twirl property page lets you adjust the radius and angle of the swirl, as well as the X and Y translation of the swirl center.

Option	Description
Radius	Controls size of area around current pixel where adjacent pixels' color values will be checked.The larger the radius, the more pronounced the effect.
Angle	Controls direction of swirl and amount of displacement of original image. A larger angle loops the swirl around several times.
Translate X	Controls horizontal (X axis) location of the center of the swirl
Translate Y	Controls vertical (Y axis) location of the center of the swirl

Underpainting

The Underpainting effect lets you paint an image onto a textured surface. The underlying texture is visible where the paint is thin, but is obscured where the paint has been applied thickly. You can choose from a variety of textured surfaces.

Underpainting Property Page

The Underpainting property page lets you choose the type of texture, the position from which the image is illuminated, the scale, the level of detail in the relief, brush size, texture coverage, opacity level, and the option to invert the color values of the texture.

Option	Description
Texture Type	Lets you choose underlying texture (Brick, Burlap, Canvas, Sandstone) and control how it is applied using the other parameters
Light Position	Lets you select position from which to illuminate the image. Different light positions enhance different areas of the image.

Option	Description
Scaling (%)	Reduces or enlarges size of applied texture
Relief	Adjusts amount of detail in image
Brush Size	Controls size of brush
Texture Coverage	Controls size of area in which underlying texture appears
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).
Invert Texture	Inverts color values of texture. *Each pixel's brightness value is converted to the inverse value based on a 256-color scale. A value of 0 is changed to 255.*

***Tip**: Experiment with a variety of textures. Each texture creates the impression that the image has been painted on a different surface.*

Watercolor

The Watercolor effect lets you paint the image on smooth paper using a medium brush loaded with water and color. The color appears to have dried leaving dark concentrations of pigment around the edges of the daubs.

Watercolor Property Page

The Watercolor property page lets you adjust the brush detail and intensity, choose the texture, and set the opacity level.

Option	Description
Brush Detail	Controls amount of detail in brush
Shadow Intensity	Controls intensity of shadows in image
Texture	Selects desired texture level: 1 is the smoothest texture and 3 is the roughest
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

After applying the Watercolor effect, try applying the Emboss effect.

If the daubs created by the Watercolor effect are too small (especially when working with large images), first apply the Palette Knife effect with a large Stroke Size setting. Then apply the Watercolor effect for the final watercolor style.

Waterpaper

The Waterpaper effect lets you process an image with blotchy daubs that appear to have been painted onto damp paper. The painted colors blur and run along the fibers of the paper, softening and extending the original outlines of the image.

Waterpaper Property Page

The Waterpaper property page lets you adjust the fiber length, the brightness and contrast, as well as the opacity level.

Option	Description
Fiber Length	Controls length of fibers
Brightness	Controls brightness of image
Contrast	Controls contrast of image
Opacity	Controls transparency of effect. Values: 0 (completely transparent) to 100 (completely opaque).

The Waterpaper effect is an excellent choice to apply before applying other Painterly effects. Experiment with different settings of the Brightness and Contrast controls, which greatly affect the appearance of detail in the final image

You can use the Texturizer effect to further enhance the impression that the image created with the Waterpaper effect has been painted on damp paper. Any texture, such as Sandstone, when used with a small Relief value, tends to accentuate the impression that the streaks created with the Waterpaper effect were created naturally during the painting process.

Using the Ripple effect with low settings for Ripple Size and Ripple Magnitude also enhances the impression that the paint has spread unevenly on the damp paper.

Wood

The Wood effect applies a wood texture to an image. Different wood cuts are created by scaling and stretching rings and changing colors. You can also simulate certain fabrics and set parameters to create a draped effect.

Option	Description
Light Wood Color	Displays current Light Wood color. Default color is dark red.
Dark Wood Color	Displays current Dark Wood color. Default color is dark brown.
Color swatch	Displays selected or default background color. Click the color swatch and select a color, or double-click to display the Mini Color Editor.
Ring Scale	Controls size of rings. Values: 0 to 30.
Waviness	Controls strength of ring's wave
Cut Grain Opacity	Controls opacity of cut grain. Values: 0 (completely transparent) to 100 (completely opaque).
Translate X	Controls horizontal (X axis) location of the center of the ring
Translate Y	Controls vertical (Y axis) location of the center of the ring
Scale X	Horizontally scales wave (X axis) about ring origin (which you can move using the Translate controls)
Scale Y	Vertically scales wave (Y axis) about ring origin (which you can move using the Translate controls)
Same for Every Frame	When selected, the generated pattern remains the same for each frame. When deselected, the pattern varies from one frame to the next.

Chapter 8
Color Correction Reference

The Color Correction effect lets you color correct an image. It contains several levels of tabs arranged hierarchically.

HSL Property Page

Channels Property Page

Levels Property Page

Curves Property Page

Masking Property Page

Related Topics

Options Property Page

Global Controls

Color Correcting Images

The Effects Layout

HSL Property Page

The HSL property page lets you correct a wide range of problems using the three vertical tabs:

Controls Tab

Hue Offset Tab

Luma Ranges Tab

You can use the HSL properties to set black and white points, control color balance, and define the scope of the three luminance ranges of the image—highlights, midtones, and shadows, among other tasks.

Once you are comfortable working with the HSL property page and gain experience using its controls, you can use it to make most of your common corrections.

Before you begin to make color corrections on an image, make sure that the clip and/or the region of the clip is selected on the timeline.

Only the Controls and the Hue Offset tabs include the Match Color Tool.

***Tip:** To return to the default value at any time, Ctrl click the UDV button.*

Related Topics

Color Correcting Tonal Ranges in Images

Controls Tab

The Controls tab lets you adjust the values of the different luminance ranges of the image—highlights, midtones, and shadows, as well the values of four channels of the image—Red, Green, Blue, and Alpha.

Having control over different luminance ranges and color channesls is useful in many situations. For example, video images often contain chroma noise in the brightest and darkest areas. You can make adjustments to reduce the noise without affecting the midtones in the image.

You can adjust the Hue, Saturation, and Chroma contrast properties without affecting the luminance of the image.

The Controls tab is divided into the following horizontal tabs:

Option	Description
Master	Adjustments apply to the whole image
Highlights	Adjustments apply to the brightest part of the image
Midtones	Adjustments apply to the midrange of brightness values
Shadows	Adjustments apply to the darkest part of the image

Option	Description
RGB	Adjustments apply to individual Red, Green, and Blue channels and the RGB together
Alpha	Adjustments apply to the alpha channel

Master, Highlights, Midtones, Shadows

RGB

Alpha

Master, Highlights, Midtones, Shadows

Use these tabs to adjust the values of the master image and the highlights, midtones, and shadows ranges of the image.

Option	Description
Luma	These controls only adjust the luminance values of the image. Luminance is the portion of a video signal that contains the brightness (black and white) information.
Gamma	Adjusts the midtones relative to the highlights and shadows of the image. Values: 0 to 10; 1 is the default value. Lowering the value darkens the midtones and bringing the image closer to black. Raising the value brightens the midtones and bringing the image closer to white.
Brightness	Adjusts the brightness or luminance of the image by shifting the luminance value of every pixel. It is useful for setting the black point of an image. Values: -100 to 100; 100 is the default value. -100 subtracts 100 from the 8-bit luminance value of every pixel, and 100 adds 100 to the 8-bit luminance value of every pixel.
Contrast	Increases or decreases the amount of Luma contrast in the image. Values: -100 to 100; 0 is the default value. -100 represents no contrast and 100 represents maximum contrast. *You can lock the Luma and Chroma contrast sliders so their values are identical*

Option	Description
Gain	Adjusts the gain of the luma. It is useful for setting the white point of an image. Values: 0 to 200; 100 is the default value and makes no change in the image. The difference between Brightness and Gain is that Brightness adjusts by adding to the 8-bit luminance value of every pixel. Gain, on the other hand, is a multiplication factor and makes an adjustment based on the percentage of the original luminance. *You can lock the Luma Gain and Chroma Saturation sliders so their values are identical.*
Setup	Adjusts the black point for the image. Values: –255 to 255; 0 is the default value and makes no change in the image. The effect of the Setup control is very similar to that of the Brightness control. However, it interacts with the Gain and Gamma controls, while the Brightness interacts with Contrast controls. If you have made an adjustment using the Gain or Gamma controls, adjust luminance further using the Setup control. If you have made a Contrast adjustment, you should adjust luminance further using the Brightness control.
Enable Luma Clipping	Turns on or off the Luma Clipping low and high controls. **Low**: Sets the Low clip for the image. All pixels with the Low clip value or less are clipped to black. Value: 0 to 100; The default value is 0 and makes no change in the image. **High**: Sets the High clip for the image. All pixels with the High clip value or more are clipped to white. The default value is 100 and makes no change in the image. *Only available in the Master tab*
Invert	Reverses the brightness level of every pixel in the image. Dark areas become light and light areas become dark. *Only available in the Master tab*
RGB Gamma	Adjusts the midtones of the RGB values of the image. Values: 0 to 10; 1 is the default value. Lowering the value darkens the midtones and bringing the image closer to black. Raising the value brightens the midtones and bringing the image closer to white. *Adjusting this control, automatically changes the RGB Gamma control on the RGB tab.*

Option	Description
Chroma	These controls only adjust the chrominance values of the image. Chroma refers to the intensity of color in the video signal
Contrast	Increases or decreases the amount of chroma contrast in the image. Values: -100 to 100; 0 is the default value. -100 represents no contrast and 100 represents maximum contrast. *You can lock the Luma and Chroma Contrast sliders so their values are identical.*
Saturation	Adjusts the saturation or intensity of color in the image. Values: 0 to 200; 100 is the default value. 0 represents complete desaturation (monochrome image) and 200 represents maximum saturation. *You can lock the Luma Gain and Chroma Saturation sliders so their values are identical.*
Hue	Adjusts the hues in the image. Similar to the color wheel. Values: -180 to 180; 0 is the default value and makes no change in the image.
Enable Chroma Clipping	Turns on or off the Chroma Clipping low and high controls. **Low**: Sets the Low clip for the image. All pixels with the Low clip value or less are clipped to black. Value: 0 to 100; The default value is 0 and makes no change in the image. **High**: Sets the High clip for the image. All pixels with the High clip value or more are clipped to white. The default value is 100 and makes no change in the image. *Only available in the Master tab*
Invert	Replaces the color value of every pixel in the image with the opposite color value on the color wheel. This is the equivalent of setting the Hue control to 180 or –180.
Match Color Tool	Lets you make a color correction by selecting input and output colors from your images.
Match Color Chip	The chip on the left and right represent the input and output respectively. You can change the display of the units—see Match Color Chip Display Mode Menu.

Option	Description
Match Color	Determines the exact nature of the match the system makes. The options in the pop-up menu reflect the way in which color is handled in the property page in which you are working. For example, if you select HSL, the match is based on the hue, saturation, and luminance of the color selected in the output color chip.
Match Color button	Color corrects using the settings you made.
Correction Mode	Sets the Correction Mode *Only available in the Master tab*
Normal	Displays the correction in the viewer as expected
Preserve Luma	Displays the corrected image where the hue values of the image are replaced with new output values without distorting the luminance values. Previously set RGB clipping values may be invalidated when you are in this correction mode.
Natural Correction	Displays the corrected image where the hue values of the image are replaced with new output values without distorting the luminance and saturation in the image. Previously set RGB clipping values may be invalidated when you are in this correction mode.

Related Topics

Color Correcting Tonal Ranges in Images

Setting Black and White Points of an Image

Setting Legal Luma, Chroma, and RGB Values

RGB

This tab lets you adjust the values of the Red, Green, and Blue channels of the image.

Option	Description
Gamma	Adjusts the midtones relative to the highlights and shadows of the image. Values: 0 to 10; 1 is the default value. Lowering the value darkens the midtones and bringing the image closer to black. Raising the value brightens the midtones and bringing the image closer to white.
Gain	Adjusts the gain of the luma. It is useful for setting the white point of an image. Values: 0 to 200; 100 is the default value and makes no change in the image. The difference between Brightness and Gain is that Brightness adjusts by adding to the 8-bit luminance value of every pixel. Gain, on the other hand, is a multiplication factor and makes an adjustment based on the percentage of the original luminance.
Setup	Adjusts the black point for the image. Values: –255 to 255; 0 is the default value and makes no change in the image. The effect of the Setup control is very similar to that of the Brightness control. However, it interacts with the Gain and Gamma controls, while the Brightness interacts with Contrast controls. If you have made an adjustment using the Gain or Gamma controls, adjust luminance further using the Setup control. If you have made a Contrast adjustment, you should adjust luminance further using the Brightness control.
Enable Clipping	Turns on or off the R/G/B Clipping low and high controls. **Low**: Sets the Low clip for the image. All pixels with the Low clip value or less are clipped to black. Value: 0 to 100; The default value is 0 and makes no change in the image. **High**: Sets the High clip for the image. All pixels with the High clip value or more are clipped to white. The default value is 100 and makes no change in the image. *Only available in the Master tab*
RGB Gamma	Adjusts the midtones of the RGB values of the image. Values: 0 to 10; 1 is the default value. Lowering the value darkens the midtones and bringing the image closer to black. Raising the value brightens the midtones and bringing the image closer to white. *Adjusting this control, automatically changes the RGB Gamma control on the RGB tab.*

Option	Description
Lock R/G/B Clipping	Locks R/G/B clipping values while making further adjustments.

Related Topics

Setting the Color Correction Mode

Alpha

This tab lets you adjust the values of the alpha channel of the image.

Option	Description
Gamma	Adjusts the midtones relative to the highlights and shadows of the image. Values: 0 to 10; 1 is the default value. Lowering the value darkens the midtones and bringing the image closer to black. Raising the value brightens the midtones and bringing the image closer to white.
Gain	Adjusts the gain of the luma. It is useful for setting the white point of an image. Values: 0 to 200; 100 is the default value and makes no change in the image. The difference between Brightness and Gain is that Brightness adjusts by adding to the 8-bit luminance value of every pixel. Gain, on the other hand, is a multiplication factor and makes an adjustment based on the percentage of the original luminance.
Setup	Adjusts the black point for the image. Values: –255 to 255; 0 is the default value and makes no change in the image. The effect of the Setup control is very similar to that of the Brightness control. However, it interacts with the Gain and Gamma controls, while the Brightness interacts with Contrast controls. If you have made an adjustment using the Gain or Gamma controls, adjust luminance further using the Setup control. If you have made a Contrast adjustment, you should adjust luminance further using the Brightness control.

Hue Offset Tab

The Hue Offset tab lets you specify an offset for the hue and saturation of an image using the color wheels. You can adjust the master, highlights, midtones, and shadows of an image using the color wheels.

Option	Description
Hue	Adjusts the hues in the image. Values: 0 to 360 degrees.
Amount	Represents the distance from the centre. Values: 0 to 100.
Brightness	Adjusts the brightness or luminance of the image by shifting the luminance value of every pixel. It is convenient if you want to adjust the brightness or luminance of the image while adjusting the hue and saturation of the same image. Values: -100 to 100.
	Picks a color from the color wheel. Click the Color Picker button and click anywhere in the respective color wheel to select a color. The hue is displayed in the Color Picker button.
Right-click the Color Picker button and select one or both of the following options:	
3 x 3 Pixel Average	Picks an average area of 3 x 3 pixels
Pick inverse color	Picks the opposite color or hue
Match Color Tool	Lets you make a color correction by selecting input and output colors from your images.
Match Color Chip	The chip on the left and right represent the input and output respectively. You can change the display of the units—see Match Color Chip Display Mode Menu.
Match Color Type	Determines the exact nature of the match the system makes. The options in the pop-up menu reflect the way in which color is handled in the property page in which you are working—see Hue Offset Tab Match Color Type.
Match Color button	Color corrects using the settings you made.

Related Topics

Color Correcting Tonal Ranges in Images

Hue Offset Tab Match Color Type

Option	Description
Master	The system matches based on both the hue and the saturation across the full tonal range.
Highlights	The system matches based on both the hue and the saturation across the highlights portion of the tonal range as defined in the Luma Ranges tab.
Midtones	The system matches based on both the hue and the saturation across the midtones portion of the tonal range as defined in the Luma Ranges tab.
Shadows	The system matches based on both the hue and the saturation across the shadows portion of the tonal range as defined in the Luma Ranges tab.

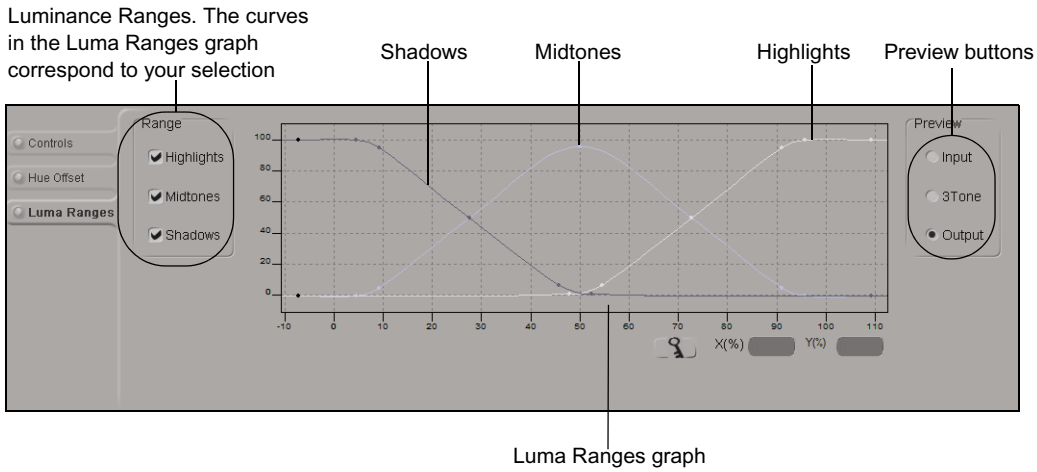
Luma Ranges Tab

The Luma Ranges tab lets you customize the luminance ranges for the highlights, midtones, and shadows (adjusted in the Controls and Hue Offset tabs) using the Luma Ranges graph. It is an advanced tool for making fine adjustments.

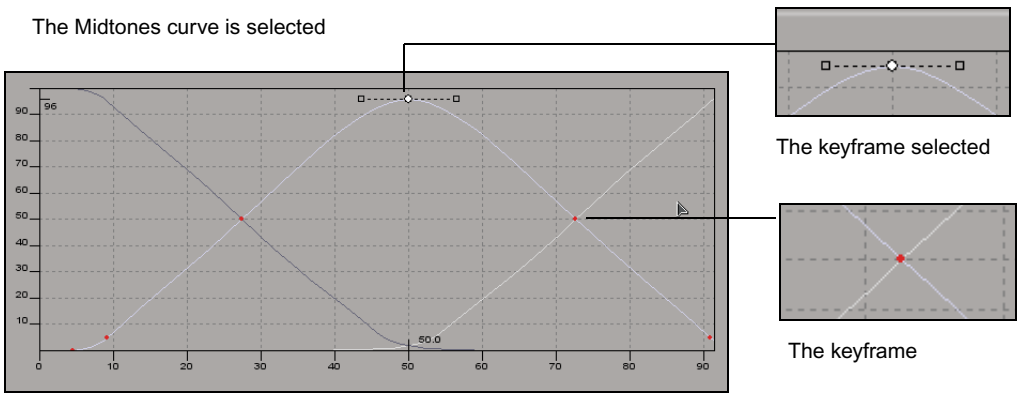
<<MORE INFO BUTTON PLACEHOLDER>>

<<Start Expand>>

You can adjust the luminance ranges before making other HSL adjustments. Alternatively, you might make HSL adjustments that affect the different ranges and then use the Luma Ranges tab to fine-tune the luminance ranges to which those adjustments apply. For example, you can make an adjustment that you like in the Highlights wheel of the Hue Offsets tab and then fine-tune the range of pixels to which that adjustment applies using the Luma Ranges tab.



When you adjust a curve, you are either reducing or expanding a luminance range. For example, when you lower the highlights of an image and increase the midtones.



<<End Expand>>

Option	Description
Range	Specifies the curve of the range that you want to display in the Luma graph. You can enable all three curves at once.
Highlights	Displays the Highlights curve in the Luma graph.

Option	Description
Midtones	Displays the Midtones curve in the Luma graph.
Shadows	Displays the Shadows curve in the Luma graph.
Function Curve	Each curve represents the range. Be sure to select the correct curve first before making adjustments.
Preview	Lets you preview your image.
Input	Displays the uncorrected image in normal color.
3Tone	Displays the uncorrected image using white, gray, and black to represent the highlights, midtones, and shadows luminance ranges respectively.
Output	Displays the image in normal color with all active corrections applied.

Related Topics

Working with the Animation Graph

Channels Property Page

The Channels property page lets you redefine each output color channel (red, green, blue) by blending different input color components in various proportions. You can also identify a color channel that is deficient in some way, such as one lacking in contrast and repairing it by “borrowing” from another color channel. For some kinds of images, borrowing is the only way to improve the appearance of the image significantly.

There are two panels on this property page: Preview and Channel Blending.

Related Topics

Correcting Inaccurate or Deficient Color Channels

Preview

Previews the individual color channels in monochrome. You can for example, use the Preview panel to determine which input channels may require color correcting. This is useful for checking the amount of contrast or noise in each channel.

Option	Description
Input	Select the input type of the input image you want to preview.
Red	Displays the uncorrected red channel in monochrome
Green	Displays the uncorrected green channel in monochrome
Blue	Displays the uncorrected blue channel in monochrome
Master	Displays the complete uncorrected image in color
Output	Select the output type of the output image you want to preview
Red	Displays the red channel in monochrome with the Channel Blending pane adjustments applied
Green	Displays the green channel in monochrome with the Channel Blending pane adjustments applied
Blue	Displays the blue channel in monochrome with the Channel Blending pane adjustments applied
Master	Displays the complete image in color with the Channel Blending pane adjustments applied

Channel Blending

Option	Description
%Blended Red	Blend being added to the Channel
%Blended Green	Blend being added to the Channel
%Blended Blue	Blend being added to the Channel
R	The input red channel

Option	Description
G	The input green channel
B	The input blue channel
Y	The input yellow channel
Cr	The red chroma channel in the component video signal
Cb	The blue chroma channel in the component video signal
Off	A constant value that adjusts all the other values in the formula
Invert	Select to subtract the component of the overall formula instead of adding it.

Levels Property Page

The Levels property page is a more refined and specialized version of the Gain, Gamma, and Setup controls in the HSL property page. It provides a great deal of control over the amount of contrast and detail in a video image. Its main use is to rebalance the color or luma range. You can use it to control the relative brightness or darkness of an image by defining the white, gray, and black points of video material. You can also adjust the white and black points for the luminance range and for the composite signal to ensure your sequence is within legal limits. Another important use for the Levels property page is linearizing film-based media.

It consists of an input histogram, a curve graph, an output histogram, and subdividing tabs that let you view and adjust levels for each color channel and the master channel. For example, to adjust levels for the red color channel, click the Red tab.

If you make adjustments in the master channel and in one or more of the other channels, the final output is the cumulative result of all the adjustments. To define the white, gray, and black points, use the histogram slider or the input and output text boxes.

Option	Description
Composite	Adjusts high and low points for the composite signal to ensure that your image remains within legal composite limits—see Working with the Composite and Luma Tabs
Luma	Adjusts levels based on luminance values only—see Working with the Composite and Luma Tabs
Master	Adjusts levels for all three color channels only
Red	Adjusts levels for the red color channel only
Green	Adjusts levels for the green channel only
Blue	Adjusts levels for the blue channel only
Enable	Enables the level adjustments made for each channel
Units	Displays the units as one of the following: • **Normalized %**: Percentage format with the black point at 0% and the white point at 100% by default • **8 bits graphics**: 8 bit format with the black point at 0 and the white point at 255 by default • **8 bits video**: 8 bit format with the black point at 0 and the white point at 255 by default • **10 bits graphics**: 10 bit format with the black point at 0 and the white point at 1023 by default • **10 bits video**: 8 bit format with the black point at 64 and the white point at 940 by default
Type	Select the type of conversion • **Gamma**: Displays the Gamma curve and lets you adjust the it value by using the Gamma setting. This is the default. • **Log > Lin**: Converts the data from log to linear and lets you adjust all RGB controls, film gamma, and softclipping settings for the highlights. • **Lin > Log**: Converts the data from linear to log and lets you adjust all RGB controls • **File LUT**: Lets you open a saved LUT file, which determines the controls you can adjust

Option	Description
Lock RGB	Locks RGB values while making further adjustments
Lock axis	Locks the XY axis while making further adjustments
Film Gamma	Adjusts the film gamma for your footage. *The value should be entered only when you know the film gamma for your footage.*
Gamma	Controls the Gamma value of the transformation curves on the page and applies to either one of the color channels. Lowering the value darkens or intensifies the selected color channel. Raising the value lightens or subtracts the selected color channel. For Gamma type: Values: 0 to 10; 1 is the default value For lin and log type: Values: 0 to 10; 1.7 is the default value
Softclip	Softclips the values for the highlights. Any color information that is beyond reference white (code value 685) is cut off. To soften the hard cut-off, apply the softclip value especially when you know that there's valuable information beyond reference white. It also helps to softclip to avoid problems later when you apply blending operations or gain and gamma to the image. Values: 0 to 50; 0 is the default value. *Only available for Log>Lin type.*
Export LUT...	Exports the LUT. Set the values in the LUT dialog box and click OK to save them.
Invert	Swaps between Lin to Log and Log to Lin

The controls in the Composite and Luma subdividing tabs work slightly different from those in the other Levels tabs—see Working with the Composite and Luma Tabs.

Related Topics

Color Correcting Tonal Ranges in Images

Analyzing Footage

Linearizing Film-Based Material

Curves Property Page

The Curves property page lets you control by adding as many keyframes as you want and adjusting them. You can therefore control color with great precision since you can make detailed adjustments to many different subdivisions of the brightness range.

<<MORE INFO BUTTON PLACEHOLDER>>

<<Start Expand>>

Similar to the Levels property page, you can control the master channel or any individual color channel. The curve shows the relationship between the input values to output values

This property page contains function curves that let you remap RGB values globally, or individually remap the values of the red, green, blue, luma, and alpha channels. The default curve is linear.

The Hue Offset controls, also found in the Hue Offset tab of the HSL property page, are conveniently part of the Curves property page. It also consists of the Curve graph which you can add an infinite number of keyframes. Therefore, you can control color with great precision since you can make detailed adjustments to many different subdivisions of the brightness range.

You can also type numerical input and output values in text boxes or use the Color Match control to automatically add control points to the curves, based on selected input and output colors.

<<End Expand>>

Option	Description
Hue Offset	See “Hue Offset Tab”.
Channels	Select the channel(s) adjust the curves until you are satisfied with the result. **Enable: T**urns on and off the adjustment made to the specific curve **Show**: Shows the curve in the graph

Option	Description
Red	Turns the Red function curve on. This function curve is represented as a red curve in the graph. When you make corrections using the Red curve, you affect the red color over the entire image.
Green	Turns the Green function curve on. This function curve is represented as a green curve in the graph. When you make corrections using the Green curve, you affect the green color over the entire image.
Blue	Turns the Blue function curve on. This function curve is represented as a blue curve in the graph. When you make corrections using the Blue curve, you affect the blue color over the entire image.
Master	Turns the Master function curve on. This function curve is represented as a black curve in the graph. When you make corrections using the Master curve, the brightness of the image is affected as adjustments are being made to all colors equally.
Luma	Turns the Luma function curve on. This function curve is represented as a black curve in the graph. When you make corrections using the Luma curve, you affect the luminance range over the entire image.
Alpha	Turns the Alpha function curve on. This function curve is represented as a black curve in the graph.
X Axis	Represents the input values or the values of the unchanged image.
Y Axis	Represents the output values or the altered values.

Option	Description
Function Curve	Each curve represents the channel you have selected. Be sure to select the correct curve first before making any adjustments. The default curve (before any adjustments have been made) is an ascending 45 straight line, since input and output values are the same across the entire range. If you make an adjustment that moves the curve **below** the 45 degree angle, you make the output values for the part of the image lower than the input values and therefore the image darkens, and vice versa. *The steeper the curve, the greater the contrast.*
Match Color Tool	Lets you make a color correction by selecting input and output colors from your images.
Match Color Chip	The chip on the left and right represent the input and output respectively. You can change the display of the units—see Match Color Chip Display Mode Menu.
Match Color Type	Determines the exact nature of the match the system makes. The options in the pop-up menu reflect the way in which color is handled in the property page in which you are working—see "Curves Property Page Match Color Type".
Match Color button	Color corrects using the settings you made

Related Topics

Adjusting Curves to Color Correct

Color Correction by Matching Clips

The Natural Match Feature

Curves Property Page Match Color Type

Option	Description
R G B	The system matches based on the values of all three color channels of the color selected in the output color chip
R G	The system matches based on the values of the Red and Green color channels of the color selected in the output color chip

Option	Description
R B	The system matches based on the values of the Red and Blue color channels of the color selected in the output color chip
G B	The system matches based on the values of the Green and Blue color channels of the color selected in the output color chip
R	The system matches based on only the value of the Red color channel of the color selected in the output color chip
G	The system matches based on only the value of the Green color channel of the color selected in the output color chip
B	The system matches based on only the value of the Blue color channel of the color selected in the output color chip
Master	The system matches based on the luminance of the color selected in the output color chip
Luma	The system matches based on the luminance of the color selected in the output color chip
NaturalMatch	Turns NaturalMatch on or off. When this command is selected, all the match types in the Curves property page use NaturalMatch when making a color correction.

Match Color Chip Display Mode Menu

This is also known as the Avid DS Nitris color display mode. It determines the color space and units used to display color values in the Match Color Chip as well as other utilities used to display color information, such as the Color Editor.

To access the Match Color Chip display mode:

- Right-click inside the color chip and select the type of display for the ratios or units.

To access the Color Editor:

1. Double-click the Match Color Chip.
2. Click **Edit**.

The range of values from reference black to reference white is in brackets except for HSL and HSV where this range is not applicable.

Option	Description
RGB	Red, Green, Blue color space display mode
HSL	Hue, Saturation, Lightness color space display mode
HSV	Hue Saturation Value color space display mode
YCC 601	YCbCr 601 color space display mode
YCC 709	YCbCr 709 color space display mode
Alpha	Alpha channel
3X3 pixel averaging	Picks an average area of 3X3 pixels
No Display	Disables the Match Color Chip.

Chapter 9
Common Property Pages Reference

This section contains information on the property pages that are shared by many different effects.

Alpha Property Page

The Alpha property page lets you select the source (alpha, luma, red, green, blue, fill, or clear) from which to map the output image's (the image coming from the Key Combiner) alpha channel.

As a clip or track effect, this effect is useful for inverting an image's alpha channel or filling the alpha channel so it's opaque. Filling the alpha channel reduces processing time and disk space.

Option	Description
From	Lets you select the source from which to map the output image's alpha channel For example, you want to combine the RGB channels of one input with a specific component(s) of a second input—R, G, B, luma, or alpha. If the second input has a mask in its alpha channel and you want to combine it with the first input, then choose alpha. Otherwise, select another source, such as luma, from which to combine with the first input. You can also fill or clear the alpha channel.

Option		Description
	Alpha	Maps output image's alpha to the second input image's alpha channel
	Luma	Maps output image's alpha to the second input image's luma
	Red	Maps output image's alpha to the second input image's red channel
	Green	Maps output image's alpha to the second input image's green channel
	Blue	Maps output image's alpha to the second input image's blue channel
	Fill	Sets the output alpha channel to 100% value. For example, if you map the alpha channel to fill, then the value of 100% creates a white alpha channel (the second input image is not used).
	Clear	Sets the output image's alpha channel to 0% value. For example, if you map the alpha channel to clear, then the value of 0% creates a black alpha channel (the second input image is not used).
Invert		Inverts output alpha (the second input image is not used)
Output		Sets the premultipled state of the output without any image modification
	Premultiplied	Premultiplies the input's RGB channels with the alpha channel. This is the default ouptut setting for Key Combiner - Luma.
	Not Premultiplied	Does not premultiplies the input's RGB channels with the alpha channel. This is the default output setting for Key Combiner - Alpha.

Border Property Page

The Border property page lets you apply a border to an image. You can also produce a soft, semitransparent edge along the image or its border.

Option	Description
Border Size	Controls size of border. Values: 0 (no border) to 100 (whole image).
Border Softness	Controls amount of softness applied between edge of image and interior edge of border
Border Fall off Size	Controls amount of softness applied to edge of image
Border Opacity	Controls transparency of the border. Values: 0 completely transparent) to 100 (completely opaque).
Border Color	Click on the color chip to pick a border color. Double-click the color chip to open the color editor—see Mini Color Editor.
Apply Effect	Turns border effect on or off

Color Property Page

The Color property page lets you change the color of the cropped region. By default, the cropped color is black.

You can pick colors from the image in the viewer or use the sliders to set Red, Green, Blue, and alpha values.

Option	Description
Color Picker	Picks a color from image in viewer. Click the Color Picker button , then move the pointer (an eyedropper icon) around the viewer. The color swatch updates and the current color values are displayed. Click to select a color.

Option	Description
Color swatch	Displays selected or default background color. Click the color swatch and select a color, or double-click to display the Mini Color Editor.
Red	Specifies red color. The intensity of red is represented by a number from 0 to 100. 0 represents no light (black) in the red channel, and 100 represents maximum light intensity (white) in the red channel. For example, 50 represents a dark red, while 100 represents a bright red. To produce a shade of gray, set all three RGB colors to the same level.
Green	Specifies green color. The intensity of green is represented by a number from 0 to 100. 0 represents no light (black) in the green channel, and 100 represents maximum light intensity (white) in the green channel. For example, 50 represents a dark green, while 100 represents a bright green. To produce a shade of gray, set all three RGB colors to the same level.
Blue	Specifies blue color. The intensity of blue is represented by a number from 0 to 100. 0 represents no light (black) in the blue channel, and 100 represents maximum light intensity (white) in the blue channel. For example, 50 represents a dark blue, while 100 represents a bright blue. To produce a shade of gray, set all three RGB colors to the same level.
Alpha	Specifies alpha color. The intensity of alpha is represented by a number from 0 to 100. 0 represents no light (black) in the alpha channel, and 100 represents maximum light intensity (white) in the alpha channel. For example, 50 represents a gray (semitransparent), while 100 represents a white (opaque).

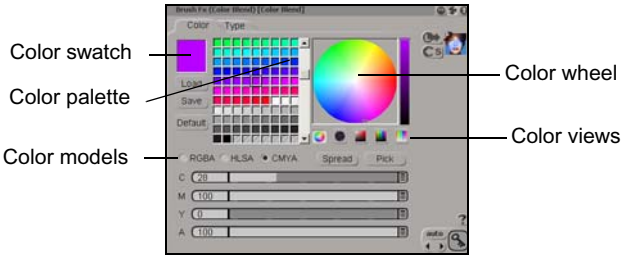
Color Property Page

The Color property page lets you pick colors from a palette or create new colors for:

- Graphics: painting, adding fills, coloring titles, and applying effects or

- Drop shadows in the Drop Shadow effect.
- Lets you pick colors from a palette or create new colors for a Picture-in-Picture effect's border.

To create new colors, you can pick them from the image in the viewer or specify their RGB, YUV, or HSL color model values. The Spread option lets you create a gradient of colors between two selected colors on the palette. Alternate palettes are available in Avid DS Nitris, and you can also save new palettes that contain your newly-created colors.



Option	Description
Color swatch	Displays selected or default color.
Color palette	Displays current color palette.
Load	Lets you load a different palette. Click a palette icon to load the palette.
Save	Lets you save current palette and create new folders in which to store customized palettes.
Default	Restores default color palette
Slider	Represents what you've selected from the Color Views menu. For example, if you selected HSV Saturation, then the slider represents the saturation.
Color Views	Lets you choose the color view. ***Tip**: Press the Shift key to fine-tune color selection.*
Color wheel	Displays a color wheel for you to select a color

Option	Description
Vectorscope	Displays an outline color wheel that resembles a vectorscope. This is useful for assessing colors in images without interference from other colored onscreen elements.
Hue	The position of a color measured in degrees on the color wheel (red, yellow, green, cyan, blue, or magenta) and the various shades between them. For example, red is 0.
Saturation	The purity of color or the amount of gray in the color. Values: 0 (most saturated color) to 100 (least saturated color).
Value	Displays a view of the value component of the HSV color model
Color Model	You can set color according to the following color models: RGB (red, green, blue), HSL (hue, luminance, saturation), or CMYK (cyan, magenta, yellow, black).
RGBA	Specifies colors using RGB (red, green, blue) additive color model. The intensity of each color is represented by a number from 0 to 100. A value of 0 represents no light (black) in a channel, and 100 represents maximum light intensity (white) in a channel. For example, (0,0,50) represents a dark blue, while (0,0,100) represents a bright blue. To produce a shade of gray, set all three RGB colors to the same level.

Option	Description
HSLA	Specifies colors using HSL (hue, saturation, luminance) color model. Hue refers to the position of a color measured in degrees on the color wheel (red, yellow, green, cyan, blue, or magenta) and the various shades between them. For example, red=0, cyan=180, and magenta=300.HSLA Luminance refers to the relative lightness or darkness of a color. A value of 0 gives the darkest result (black), and 100 gives the lightest result (white). Saturation refers to the purity of color or the amount of gray in the color. Values range from 0 (most-saturated color) to 100 (least-saturated color).
CMYA	Specifies colors using the CMY (cyan, magenta, yellow) color model. This model simulates the four-color (CMYK) process used in printing.
Spread	Defines a range of color between two colors in the palette. Click a color, Shift-click the second color, and click Spread. All the colors between the two selected colors change to the gradient of values between them.
Pick	Picks a color from the image in the viewer. Click the Pick button, then move the pointer (now an eyedropper icon) around the viewer. The color swatch updates and the current color values are displayed. Click to select a color. You can also replace a newly-chosen color in the palette by clicking an existing palette color before you pick the new one.

Colors Property Page

The Colors property page lets you blend strips of colors that can have arbitrary widths. You can create and edit intermediate colors to create a blend between several colors.

The color at the left end of the gradient "preview" bar is the color at the center of the gradient, and the color at the right end is farthest from the center. As the Stretch value is increased, this last stripe of color moves farther away from the center. Up to 20 colors can be placed in the gradient. You can move their relative positions left or right (toward or away from the gradient center) by clicking the Marker Left (<<) button or Marker Right (>>) button.

As a brush effect, you can apply a gradient effect to strokes or you can reveal the effect over specific image areas.

Option	Description
Add	Adds intermediate colors to the gradient. A new color marker is placed at the mid-point, between the current color indicator and the next marker.
Delete	Removes selected color from color gradient
Edit Last	Moves current color indicator to previous color marker
Edit Next	Moves current color indicator to next color marker
Marker Left (<<)	Moves position of current color marker to the left
Color swatch	Displays selected or default background color. Click the color swatch and select a color, or double-click to display the Mini Color Editor.
Marker Right (>>)	Moves position of current color marker to the right
Red	Lets you adjust the red channel
Green	Lets you adjust the green channel
Blue	Lets you adjust the blue channel
Alpha	Lets you adjust the alpha channel

Crop Property Page

The Crop property page lets you crop the matte in the alpha channel from the top, bottom, left, or right edges. You can use the crop controls to crop out areas for your matte in a similar fashion as when you create a garbage matte.

Option	Description
Top	Crops top edge of image by number of pixels you specify
Left	Crops left edge of image by number of pixels you specify
Right	Crops right edge of image by number of pixels you specify
Bottom	Crops bottom edge of image by number of pixels you specify
Reset	Resets all parameters to the default values. This always resets to the full image, even if you have previously entered other crop values.

DVE Property Page

The DVE property page lets you apply transformations to an image. You can transform images along the horizontal (X), vertical (Y), and depth (Z) axes. Avid DS Nitris computes and redraws the image as it would appear in 3D space. You can enter numerical values in the corresponding text boxes or manipulate the image interactively in the viewer.

When you apply a DVE as a transition, an additional property page (Source) is available on which you can adjust the source image's opacity level, and the direction in which the DVE transition will be applied.

Option	Description
Translate	Lets you control location of image along X, Y, and Z axes
X	Moves image in X direction. Enter a positive value to move the image to the right and a negative value to move it to the left. Range is -100,000 to 100,000.
Y	Moves image in Y direction. Enter a positive value to move the image up and a negative value to move it down. Range is -100,000 to 100,000.
Z	Moves image in Z direction. Enter a positive number to move the image closer, and a negative number to move it further away.

Option	Description
Scale (%)	Lets you control the size properties of the image along the X and Y axes.
X	Scales image in X direction. To scale proportionally, assign identical values to X and Y.
Y	Scales image in Y direction
Lock XY	Links X and Y values, so that if you change one value, the other value is the same. This option has no effect when you interactively manipulate an image in the viewer.
Offset	Lets you specify how far the object's center is displaced from its original center. The center is the point around which the image revolves. The X, Y, and Z default values are 0, 0, 0.
X	Specifies center offset along X axis. Range is -100,000 to 100,000.
Y	Specifies center offset along Y axis. Range is -100,000 to 100,000.
Z	Specifies center offset along Z axis
Affect	Specifies the plane(s) the offset will affect
Rotate	Lets you control the image's angle of rotation along the X, Y, and Z axes. These options are set relative to the image plane.
X	Rotates image along X axis
Y	Rotates image along Y axis
Z	Rotates image along Z axis. Enter a negative number to rotate clockwise and a positive number to rotate counterclockwise.
Order	Specifies the XYZ order in which the rotations are applied (in a counter-clockwise direction in a right-handed coordinate system)
Interpolation	Specifies the algorithm to be used for interpolation of animated rotations
FCurve	Lets you do multiple revolutions of rotation, such as winding motion. Also allows you to edit the rotation curves in the animation editor.

Option	Description
Linear Quaternion	Performs the calculation based on the shortest rotation path between keyframes. Creates a more robotic movement.
Cubic Quaternion	Similar to Linear calculation but produces smoother movement
Opacity	Controls transparency of effect. Values: 0 completely transparent) to 100 (completely opaque).
Perspective	Adjusts the field of view as you would see it through a camera lens. This applies to any rotation or to translation along the Z axis. Picture-in-Picture effect: Changes perspective foreshortening applied to the Picture-in-Picture effect when it has been translated along the Z axis. The default angle is 45º.
Use Motion Path	Lets you switch between creating animation using motion paths or the translation controls. *If f you turn this option off after creating a motion path, the X, Y transforms are stored if you need to return to the motion path at a later time.*
Scale	Turns scale tool on or off
Rotate	Turns rotate tool on or off
Crop	Turns crop tool on or off
Reset	Resets parameters on this property page to default values

External Data Property Page

The External Data property page lets you specify the file name, frame range, and resolution of the rendered .Zpic file.

The .pic and .Zpic files must have the same names. If they don't, an error message is displayed.

Option	Description
File Path	Specifies file name for rendered .Zpic files

Option	Description
Browse	Lets you navigate to folder in which .Zpic file is located
Frame Range	Specifies range of frames for .Zpic file
Start	Specifies first frame for .Zpic file
End	Specifies last frame for .Zpic file
Resolution	The resolution that matches the current project
X	Represents X resolution of current project
Y	Represents Y resolution of current project

General Property Page

The General property page lets you apply filters that improve the quality of a scaled or rotated image. When an image is scaled down or rotated, small jagged lines can appear on the oblique edges of objects or sometimes within the image. You can also specify the channels on which the DVE will be applied, and the type of source material you are using.

Command	Description
Quality	Settings that control the quality of the results, which can affect the processing speed. When you scale or rotate an image, a resampling algorithm is applied to enhance the image's quality. The options are also arranged according to speed, with Nearest Neighbor being the fastest and Bicubic being the slowest. If you scale down an image, enabling the Filtering option and adjusting the filtering level will give better results. If you scale up an image, the Bicubic option gives the highest quality, and Nearest Neighbor gives the lowest quality.
Nearest Neighbor	Applies no filter to the image (this is the fastest mode). Pixels are skipped when scaling down and duplicated when scaling up.

Command	Description
Bilinear	Applies bilinear interpolation when scaling up and some filtering when scaling down. It is useful when you scale an image up, which improves the scaled image's quality. This is the default setting.
Bicubic	Applies bicubic interpolation when scaling up and no filtering when scaling down. Produces a higher quality image than the Bilinear option when you scale an image up.
Multi Tap	Applies a larger filter than the other options to provide good interpolation and anti-aliasing quality.
Use Default (Bilinear)	Uses the default quality setting, Bilinear
Apply filter	Adds an extra level of filtering when scaling down to the selected mode
Filter Level	Determines the strength of the filter. Higher settings result in a stronger filter and longer processing time.
Transform Channels	Lets you specify the channels on which the DVE will be applied
Red	Applies the DVE to the red channel
Green	Applies the DVE to the green channel
Blue	Applies the DVE to the blue channel
Alpha	Applies the DVE to the alpha channel
Motion Blur	Lets you apply a motion blur to an animated DVE
Apply	Turns the Motion Blur effect on or off. This is useful for viewing the effect with or without the motion blur.
Duration	Sets the duration of the motion blur between the current frame and next frame. Values 0 to 100 percent. The default value is 50%.

Command	Description
Samples	Lets you set the number of samples per frame, which can improve the smoothness of the motion blur. Values range from 1 to 100. A value of 1 applies no motion blur. A value higher than 1 increases the number of samples. For example, if you set the number of samples to 2, then two images are superimposed on top of each other at the current frame. If you set the number of samples to 4, then four images are superimposed, and so on. The default value of 8 usually provides a smooth motion blur. If the animation has a large movement between frames, then you should increase the number of samples to create a smoother motion blur. *The larger the number of samples, the longer the process time.*
Background	By default, the background is automatically premultiplied
Color	Displays the selected or default color. Double-click color swatch to display the Mini Color Editor.
Apply	Applies the color when there is no other input.
Opacity	Controls transparency of effect. Values: 0 completely transparent) to 100 (completely opaque).
Force Premult	Lets you select to premultiply or unpremultiply the outgoing image. This option is useful, for example, when you are touching up a matte and want the outgoing image to be premultiplied.

Key Property Page

The Key property page lets you produce a basic matte. If your image contains transparent areas, such as glass or smoke, you can get the best results by using the Cleanup and Foreground Presence parameters.

Option	Description
Pick Key Color	Creates matte based on selected color. Click the **Pick Key Color** button and move the pointer (now an eyedropper icon) in the viewer. Click a color to select it as the key color.
Color swatch	Displays selected or default background color. Click the color swatch and select a color, or double-click to display the Mini Color Editor.
Keep Original Alpha	Applies keyer only to non-transparent areas of original alpha channel. When you have an existing matte, such as a garbage matte, use this option to ensure that the keyed matte is generated only in the opaque areas of the original matte. When you don't have an existing matte, this option has no effect because the default alpha channel is 100% opaque.
Tune	Lets you adjust threshold between what is foreground and what is background, increase or decrease semitransparent areas of a foreground object, and increase the opacity of red or blue areas in a foreground object.
Cleanup	Increases or decreases threshold between what is foreground and what is background. Lower values add more foreground and higher values remove more foreground.
Foreground Presence	Increases or decreases semitransparent areas of foreground object. Lower values decrease the semitransparent areas of the foreground and higher values increase the semitransparent areas.

Option	Description
Red/Blue Presence	Increases opacity of red or blue areas in a foreground object. If your key color is blue and a foreground object contains red, use the slider to increase the opacity of the red areas. If your key color is green and a foreground object contains blue, use the slider to increase the opacity of the blue areas.
Pre-blur	Applies blur before picking the key color, removing noise from the color picked as the key color.
Apply	Turns Pre-blur option on or off, letting you compare the composite's appearance with or without the pre-blur effect
Amount	Lets you control amount of pre-blur is applied to the matte. Values: 0 to 1000. Higher values decrease the amount of noise in the matte.
Apply Key	Turns keyer on or off. When you select this option, the keyer is applied to the image. When deselected, you can bypass the keyer to display the original image.
Output Matte	Switches keyer output to display either the RGB channels or matte. When you select this option, the matte is output as an RGB image.
Reset	Resets parameters on this property page to default values

Key Property Page

The Key property page lets you produce a basic matte. You can adjust the matte farther using controls on the Matte property page.

Option	Description
Gain	Lets you add or remove opacity from areas that are semitransparent. Values: 0 to 200.
Brightness	Lets you add brightness to all areas of the matte. Areas that are fully transparent become semitransparent and areas that are semitransparent become more opaque. Values: -100 to 100.
Pre-blur	Applies blur before picking the key color, removing noise from the color picked as the key color
Apply	Turns Pre-blur option on or off, letting you compare the composite's appearance with or without the pre-blur effect
Amount	Lets you control amount of pre-blur applied to matte. Values: 0 to 1000. Higher values decrease the amount of noise in the matte.
Reverse FG/BG	Lets you invert matte as a pre-process before you pick foreground and background areas of matte. Areas that were foreground become background and vice versa. For example, if you have a clip that contains text and you want to display the background layer through the text, select the Reverse FG/BG option to invert the matte. If you want to reverse a matte, use this option before you adjust parameters on any other property pages.
Apply Key	Turns keyer on or off. When you select this option, the keyer is applied to the image. When you deselect this option, you can bypass the keyer to display the original image.
Keep Original Alpha	Applies keyer only to the non-transparent areas of the original alpha channel. When you have an existing matte, such as a garbage matte, use this option to ensure that the keyed matte is generated only in the opaque areas of the original matte. When you do not have an existing matte, this option has no effect because the default alpha channel is 100% opaque.

Option	Description
Output Matte	Switches the keyer output to display either the RGB channels or the matte. When selected, the matte is output as an RGB image.
Reset	Resets parameters on this property page to default values

Key Values Property Page

The Key Values property page lets you create a matte based on the luminance values of an image. You can control the range of luminance within the image that will create the matte.

When you adjust the Low Clip or High Clip values, the corresponding Softness slider will also be adjusted when the Low Clip or High Clip values become equal to the Softness values. For example, if you adjust the Low Soft value until it is equal to or higher than the Low Clip value, both sliders will move to the new value.

Option	Description
Low Soft	Creates a soft transition between transparent and opaque areas keyed with Low Clip. Adjusting the Low Soft value makes the opaque areas of the matte semitransparent. Increasing the value causes more pixels to become semitransparent. You can set this value by adjusting the slider, entering a value, or by making a pixel or rectangular selection (Ctrl+Shift-drag).
Low Clip	Lets you make semitransparent areas of alpha channel transparent. Adjusting the Low Clip value to a value above 0 makes all the semitransparent areas between the new value and 0 transparent. You can set this value by adjusting the slider, entering a value, or by making a pixel or rectangular selection (Ctrl-drag) in the viewer to select a luminance range from the image.

Option	Description
High Clip	Lets you make semitransparent areas of alpha channel opaque. Adjusting the High Clip value to a value below 1 makes all the semitransparent areas between the new value and 1 opaque. You can set this value by adjusting the slider, entering a value, or by making a pixel or rectangular selection (Ctrl+drag) in the viewer to pick a luminance range from the image.
High Soft	Creates soft transition between transparent and opaque areas keyed with High Clip. Adjusting the High Soft value lets you make the transparent areas of the matte become semitransparent. Increasing the value causes more pixels to become semitransparent. You can set this value by adjusting the slider, entering a value, or by making a pixel or rectangular selection (Ctrl+Shift-drag).
Reset	Resets all the parameters to the default settings
Keep Original Alpha	Applies keyer only to non-transparent areas of original alpha channel. When you have an existing matte, such as a garbage matte, use this option to ensure that the keyed matte is generated only in the opaque areas of the original matte. When you do not have an existing matte, this option has no effect because the default alpha channel is 100% opaque.
Invert Key	Inverts alpha channel pixel values to create the “negative” of the matte
Activate	Lets you select which tool, such as a keyer or DVE is active. Since several property editors can be open simultaneously, use this button to select which one should be active while you work interactively in the viewer.

Masking Property Page

The Masking property page lets you specify on which of the image's RGBA channels an effect will be applied, and whether or not to use a mask for the effect. For example, if you select the red channel in the Process box, and the alpha channel in the Mask box, then the effect will only be applied to the red channel using the alpha channel of the input clip as a mask.

You can derive masks from the alpha of the input clip or an external matte from another clip when using an Effects Tree.

Some options on the Masking property page are not available depending on the type of effect, such as Dissolve effects.

Option	Description
Process	Lets you select the channel on which to apply the effect. *In some cases these options may appear dimmed, reflecting the requirements of the effect. However, you can still see which channels will be processed.* For example, when you use a keyer or Matte Composite effect, these options appear dimmed because all four channels must be processed.
Red	Applies effect to red component of image
Green	Applies effect to green component of image
Blue	Applies effect to blue component of image
Alpha	Applies effect to alpha component of image
Mask	Lets you use a mask for the effect
None	Applies effect to entire image. Neither the alpha channel nor matte input are used for masking.

Option	Description
Alpha	Applies effect using alpha channel of input clip as a mask. For effects with more than one input, the alpha channel of the first input is used. If the alpha is set to 0 in a region, then the original image from the first input is displayed instead of the image resulting from the effect in that region. If the alpha is full, only the result of the effect is displayed in that region. For any other values of alpha, the original image is blended with the result of the effect using the alpha value as blend factor.
Mask Input	*In some cases, these options may appear dimmed, reflecting the requirements of the effect.* Lets you apply effect using matte from another image or effect in an Effects Tree only. Amount of effect applied to a region in an image depends on value of selected component (alpha, luma, red, green, or blue) of the external matte in that region. For example, if component has a value of 25% in a region, then 25% of the effect is used and 75% of the original image in that region. To use this option, make a connection to the Mask input of the effect node in the Effects Tree.
Alpha	Applies effect using alpha component of external matte
Luma	Applies effect using luminance of external matte
Red	Applies effect using red component of external matte
Green	Applies effect using green component of external matte
Blue	Applies effect using blue component of external matte
Invert	Inverts the matte before the effect is applied
Mix	Lets you blend the result of the effect with the original input or a color
Amount	Increases or decreases the percentage of the intensity of the effect. Values: 0 to 100. The default is 100 where the effect is fully applied. At 0, the effect is disabled.

Option	Description
Apply	Applies the mix or blend
Mix to Input	Mixes the effect to the input. At the default 100, the effect is fully applied and at 0 the effect is disabled.
Mix to Color	Mixes the effect to the color that you have selected. At the default 100, the effect is visible and at 0 only the selected color is visible. Click the color swatch and select a color, or double-click to display the Mini Color Editor.

Matte Property Page

The Matte property page lets you apply post-process mapping to the matte generated from the Key property page. It also contains controls that let you blur, shrink, grow, or invert your matte.

Option	Description
Map	Lets you apply post-process mapping to the matte generated in the Key property page. You can adjust areas of the matte according to their degree of transparency, making semitransparent areas fully opaque/transparent.
Pick BG	Lets you force semitransparent areas of the matte generated by the key to become transparent. For example, if the background is moved from 0 to 20, any background matte that falls within this range will be remapped to 0. Any background matte that falls between 20 and the Pick FG setting is remapped to fall between 0 and 100.
Pick FG	Lets you force semitransparent areas of the matte generated by the key to become opaque. For example, if the foreground is moved from 100 to 80, any foreground matte that falls within this range will be remapped to 100. Any foreground matte that falls between the Pick BG setting and 80 is remapped to fall between 0 and 100.
Size	Lets you increase or decrease the size of the matte and choose the shrink/grow method.

Option	Description
Apply	Turns Size option on or off. This lets you compare the composite's appearance with and without the Size effect.
Fast	Applies a Faster shrink/grow method. However, the quality may be affected. For example, when you shrink/grow the matte using the Fast option, the edges take on a more square appearance.
Shrink/Grow	Increases or decreases size of matte
Blur	Lets you control softness of the matte
Apply	Turns Blur option on or off, letting you compare the composite's appearance with and without the blur effect
Amount	Defines size of area around each pixel that contributes to the new, averaged value. The greater the amount, the softer the blur. Values: 0 to 1000.
Invert Key Matte	Inverts resulting alpha channel pixel values to create a "negative" of the matte
Output Matte	Switches keyer output to display either the RGB channels or the matte. When this option is selected, the matte is output as an RGB image. *This option is not available in the HSL and Luminance Keyer property editors.*

Option	Description
Force Premultiplied	Lets you control how mattes are adjusted or created on incoming premultiplied or unpremultiplied images. This option is useful when you are touching up a matte and want to preserve the premultiplication setting, or when you are creating a matte and want to change the premultiplication setting. When keying an image, the following conditions affect the outgoing image's premultiplication setting: • If Force Premultiplied is on, the output is premultiplied. If the input is premultiplied, then the image color (RGB) is adjusted by the effect wherever it changes the matte. • If Force Premultiplied is off and Keep Original Alpha is on (Key property page), the output premultiplication setting is set to match the input image's premultiplication setting. This setting is useful when you're touching up an image. • If Force Premultiplied is off and Keep Original Alpha is off (Key property page), the output premultiplication setting is set to not-premultiplied. This setting is useful when you are creating a matte. • If the keyer is applied to a clip on an video track and performs an over operation, the output is always premultiplied (Force Premultiplied is ignored). • If Output Matte is on, the output is always premultiplied (Force Premultiplied is ignored).
Reset	Resets all parameters to the default values

Matte Property Page

The Matte property page lets you apply post-process mapping to the matte generated from the Key property page. It also contains controls that let you blur, shrink, grow, or invert your matte.

Option	Description
Map	Lets you apply post-process mapping to the matte generated in the Key property page. You can adjust areas of the matte according to their degree of transparency, making semitransparent areas fully opaque/transparent.
Pick BG	Lets you force semitransparent areas of the matte generated by the key to become transparent. For example, if the background is moved from 0 to 20, any background matte that falls within this range will be remapped to 0. Any background matte that falls between 20 and the Pick FG setting is remapped to fall between 0 and 100.
Pick FG	Lets you force semitransparent areas of the matte generated by the key to become opaque. For example, if the foreground is moved from 100 to 80, any foreground matte that falls within this range will be remapped to 100. Any foreground matte that falls between Pick BG setting and 80 is remapped to fall between 0 and 100.
Size	Lets you increase or decrease the size of the matte and choose the shrink/grow method.
Apply	Turns Size option on or off. This lets you compare the composite's appearance with and without the Size effect.
Fast	Applies a Faster shrink/grow method. However, the quality may be affected. For example, when you shrink/grow the matte using the Fast option, the edges take on a more square appearance.
Shrink/Grow	Increases or decreases size of matte
Blur	Lets you control softness of the matte
Apply	Turns Blur option on or off, letting you compare the composite's appearance with and without the blur effect
Amount	Defines size of area around each pixel that contributes to the new, averaged value. The greater the amount, the softer the blur. Values: 0 to 1000.
Invert Key Matte	Inverts resulting alpha channel pixel values to create a "negative" of the matte

Option	Description
Output Matte	Switches keyer output to display either the RGB channels or the matte. When this option is selected, the matte is output as an RGB image. *This option is not available in the HSL and Luminance Keyer property editors.*
Reset	Resets all parameters to the default values

Options Property Page

The Options property page lets you specify precise processing options for the selected effect.

These settings override those in the Sequence Preferences dialog box.

Option	Description
Type	
Auto	If you select Auto, Avid DS Nitris will use the global processing setting in the sequence preferences.
Frame Processing	Processing, including animation, is frame-based. Both fields in each frame are processed together using the same property values.
Field Processing	Processing, including animation, is field-based. Odd and even fields are processed separately using different property values based on the animation. This option is better for animated effects, such as dissolves, fades, and motion paths.
Source Material	Lets you specify if the source material is frame-based, or is the same as the Type setting.
Frame	Lets you indicate that the image on which an effect is applied is frame-based. If the image on which an effect is applied is a frame-based image, then select this option. *Still images are always frame-based.*

Option	Description
Same As Processing	Lets you specify that the source material is the same as the Type setting. This is the default option. If the image on which an effect is applied is field-based, then select this option, and make sure that the Type setting is set to Field Processing as well.
Precision	Choose the bit depth at which your effects will be processed. Some effects are capable of 16 and 32-bit float precision. The drop-down list shows the supported bit depths for this effect. If you select Auto, Avid DS Nitris will use the global precision setting in the sequence preferences, unless a different setting is propagated by a previous input effect. *For color correction effects, you may notice a slight shift of color between processed and unprocessed clips. To guarantee consistent output results, use a precision of 16-bit or higher.*
Use Same Precision for Inputs	All effects that are input to this effect will use the above Precision setting if their Precision is set to Auto.
Output Frame Size	Forces the effect to output pixels an image of the frame size. If the image is larger, it will be cropped. If smaller, it will be padded with black transparent pixels. For example, if you have a PAL sequence that is 720×576 and you process an image larger than the PAL frame (2000×2000), then only the pixels that fall within the PAL frame will be output from this effect. The rest will be cropped out.

Shapes Property Page

The Shapes property page lets you create a garbage matte for an image. Once you create a shape using any of the shape creation tools, it is added to the matte generated by the keyer.

You can apply the matte to the interior or exterior of the shape you create.

If you invert the matte on another property page, the shapes you create are not inverted. This is because the shapes are processed after all the other tools inside the effect. If you want to invert the shape(s), change the fill (inside or outside) value to 100 or 0 (depending on the original shape fill value).

Option	Description
Shape Creation	Lets you draw a matte using the Freehand, Polyline, Elliptical, or Rectangle tools
Shape Transformation	Lets you transform shape created with the Shape Creation tools. You can select a shape, then scale, rotate, or skew it.
Edit Shapes	Lets you modify the shape you created. When you click this button, the last shape you created becomes selected. You can then modify the shape by moving control points, or by adjusting any of the tangent handles. To select multiple shapes, press the Shift key and select each shape.
Shape Level	Lets you move shape(s) in front of or behind other shapes. ***Tip**: To view the order of each shape, ensure that the Output Alpha option is selected, or choose the alpha channel in the viewer. You can also temporarily change the fill option of each shape to help distinguish between them.*
Front	Moves selected shape in front of all other shapes (press Shift+Page Up)
Raise	Moves selected shape up one level forward (press Page Up)
Lower	Moves selected shape down one level backward (press Page Down)
Back	Moves selected shape(s) behind all other shapes (press Shift+Page Down)
Apply	Applies the shapes to the matte generated by the keyer. Select this option to activate all the shape tools.

Option	Description
Edit	Displays wireframe outline of each shape you create in the viewer. When selected, you can draw or transform shapes.
Keep Original Alpha	Applies shapes only to non-transparent areas of original alpha channel. When you have an existing matte, such as a garbage matte, use this option to ensure that the keyed matte is generated only in the opaque areas of the original matte. When you don't have an existing matte, this option has no effect because the default alpha channel is 100% opaque.
Output Matte	Switches keyer output to display either the RGB channels or matte. When selected, the matte is output as an RGB image.
Composite Method	Lets you choose how shapes are composited
Replace	Replaces existing alpha with alpha of the overlapping shape
Over	Combines original alpha with selected shape's alpha
Xor	Combines original alpha with selected shape's alpha but excludes their common values
Min	Combines original alpha with selected shape's alpha based on minimum pixel value of pixels in both mattes
Max	Combines original alpha with selected shape's alpha based on the maximum value of pixels in both mattes
Add	Combines original alpha and shape's alpha by adding their mattes
Add No Clipping (Screen)	Combines original alpha and shape's alpha by adding their alpha values in a way that legal value pixels will not cause the image to look overexposed
Difference	Creates a matte by subtracting the alpha values of the shape's matte from the original matte
Multiply	Combines the original alpha and the shape's alpha by multiplying their alpha values

Option	Description
Antialiasing	Lets you set antialiasing options
Apply	Turns antialiasing option on or off. Smooths the jagged lines that can occur when drawing diagonal or curved shapes.
Extra Filtering	Provides subpixel control of extra filtering applied to the antialiasing. This property allows a tradeoff between image sharpness and smoothness of the antialiasing.
Supersampling	Lets you choose the precision of the antialiasing; a value of 8x8 provides higher precision than 4x4.
Blur	Lets you blur shapes
Apply	Blurs edges of selected shape(s). The higher the value, the softer the blur. Values: 0 to 1000.
X	Applies blur in the horizontal (X) direction
Y	Applies blur in the vertical (Y) direction
Lock	Links the blur of the X and Y directions, so they are identical
Fill Inside	Fills interior of selected shape(s)
Fill Outside	Fills exterior of selected shape(s)

Source Property Page

The Source property page contains settings to adjust the source image's opacity level and the direction in which the DVE transition will be applied. It is only displayed when you apply a DVE or Picture-in-Picture effect as a transition or in an Effects Tree.

Option	Description
Opacity	Controls transparency of effect. Values: 0 completely transparent) to 100 (completely opaque).
DVE Source	Lets you specify if DVE is applied to incoming or outgoing clip

Option	Description
To	Applies DVE effect to incoming clip
From	Applies DVE effect to outgoing clip

Spill Matte 2 Property Page

The Spill Matte 2 property page lets you apply post-process mapping to the matte generated for the spill matte.

It also contains controls that are useful if the keyer generated a matte that has slight shades of opaque or transparent alphas in areas that you think should be fully opaque or transparent.

Option	Description
Map	Lets you apply post-process mapping to the spill matte generated in the Spill Matte 1 property page. You can adjust areas of the spill matte according to their degree of transparency making semitransparent areas fully opaque/transparent. For example, if the min range is moved from 0 to 20, then any values that fall within this range will be remapped to 0. Any values that fall between 20 and 100 are remapped to fall between 0 and 100.
Apply	Turns Map effect on or off. When you select this option, the effect is applied to the spill matte. When deselected, you can bypass the effect to display the spill matte without this effect. This lets you compare the matte with and without the effect.
Min/Max	Lets you vary transparency range of alpha channel. Values: 0 to 100. Adjusting the Min value above 0 forces all semitransparent areas between the new value and 0 to become transparent. Adjusting the Max values below 100 forces all semitransparent areas between the new value and 100 to become opaque
Size	Lets you increase or decrease the size of the matte and choose the shrink/grow method.

Option	Description
Apply	Turns Size option on or off. This lets you compare the composite's appearance with and without the Size effect.
Fast	Applies a Faster shrink/grow method. However, the quality may be affected. For example, when you shrink/grow the matte using the Fast option, the edges take on a more square appearance.
Shrink/Grow	Increases or decreases size of matte
Blur	Lets you control softness of the matte
Apply	Turns Blur option on or off, letting you compare the composite's appearance with and without the blur effect
Amount	Defines size of area around each pixel that contributes to the new, averaged value. The greater the amount, the softer the blur. Values: 0 to 1000.
Apply	Turns Spill Matte 2 on or off, letting you compare the composite's appearance with or without the spill matte.
Output Spill Matte	Switches the keyer output to display either the RGB channels or spill matte. When this option is selected, the spill matte is output as an RGB image, letting you view areas of the matte containing spill. Black areas represent total spill, gray areas represent partial spill, and white areas represent no spill.
Reset	Resets all parameters on this property page to the default values

Spill Replace Property Page

The Spill Replace property page lets you adjust the amount and hue of spill color in an image's RGB channels.

When an image contains transparency, such as glass or smoke, the selected key color is inherently displayed in the transparent image. In other cases, the key color (blue or green) may reflect on foreground elements, thereby "spilling" into the foreground. Spill correction can correct such flaws either by reducing the amount of spill or by replacing the spill color with a more desirable color.

Option	Description
Pick Hue	Lets you select color whose hue will replace the current spill hue by picking a color in the viewer
Output Spill Matte	Switches the keyer output to display either RGB channels or the spill matte. When selected, the spill matte is output as an RGB image, letting you view areas of the matte containing spill. Black areas represent total spill, gray areas represent partial spill, and white areas represent no spill.
Apply	Turns Spill Replace effect on or off. This lets you compare the composite's appearance with or without the corrected spill color.
Reset	Resets all parameters on this property page to the default values
Hue	Lets you modify hue of replacement spill hue
Saturation	Lets you modify replacement spill color's saturation
Luma Gain	Lets you multiply original luminance by value you select. A value of 100 represents the original luminance.
Luma Brightness	Lets you add to original luminance by value you select. A value of 0 represents the original luminance.

R1–R4 and L1–L4 Property Page

The R1 to R4 (Reference) and L1 to L4 (Layer) property pages let you specify the parameters of the trackers that you are using to track the reference and/or layer images. One to four tabs, displayed at the top of the Motion Tracker property editor, give you access to the tracker properties. The tabs displayed depend on the tracking mode and image that you specify. For example, if you select 2-point tracking of the reference image, tabs R1 and R2 are displayed.

Option	Description
Target	The tracker uses the target area to search for a similar region in subsequent frames. It always looks for the highest level of similarity based on the color space values you choose between the target area and the search region.
Center X	Positions tracker on X axis. The default value of 0 puts the tracker at the left edge of the image area.
Center Y	Positions tracker on Y axis. The default value of 0 puts the tracker at the bottom edge of the image area.
Offset X	Lets you position tracker on X axis. Press Shift+right-click and drag to position tracker on X axis over a new reference target. *Notice that the original tracker maintains its position.*
Offset Y	Lets you position tracker on Y axis. Press Shift+right-click and drag to position tracker on Y axis over a new reference target.
Translation Only	Increases tracking speed using a different algorithm
Color Space	Lets you choose color space in which tracking will be performed: Luma, RGB, R, G, or B
Set Target	Sets current frame as new timecode target. If this option is not selected, the timecode target is set to the frame where tracking began. When you select this option, the Update Always option becomes deselected and vice versa.
Update Always	Makes the trackers compare the pixel pattern of the current frame to that of the previous frame, rather than the first frame at the tracking start point (or the set target). Use this option when the target area changes in appearance as the clip is played. Note that this can cause cumulative tracking errors. When you select this option, the Set Target option becomes deselected and vice versa.

Option	Description
Confidence	The tracker always looks for the highest level of similarity between the target area and the search region. The default value of 85 may cause the tracker to stop unless it finds at least an 85% similarity between its target area and the search region. *A low confidence value may cause the tracker to "lose" its way by tracking a region whose pixel pattern resembles that of the actual object.*
Current	Shows default or confidence level currently being used by tracker
Threshold	Defines acceptable level of match between target and comparable area found in next frame. The option that you select for If Below Threshold determines how the tracker will proceed when the confidence value falls below the threshold value.
If Below Threshold	If the confidence level falls below the set threshold value, such as when the target becomes obscured, the following options determine how the tracker will analyze the motion path.
Update Target	The target is set to current area found, and continues to update each time the target falls below the threshold. This option is useful if you have a rotating object and are tracking corner points. Since the corner points change, updating the target will follow these changes—see Starting the Tracking Process
Continue	Continues tracking even if the target falls below the threshold. It's based on the original target area and generates a motion path regardless of the confidence level. After the tracking is complete, you can use the **Remove Keys Below Threshold** option to remove the failed keyframes. This will draw a straight line between the good keyframes and delete the bad keyframes. *If the object being tracked comes back to full view, the tracker may find it again if it is within the search region of the tracker.*

Option	Description
Stop	Stops tracking if target falls below threshold. This is the default option. Once the tracker stops, you can reposition the tracker and then restart tracking forward or backwards until the tracker is no longer below the threshold.
Predict	The motion vector created by the first two frames (based on velocity, direction, and speed) is used to predict the search area for subsequent frames. The tracker predicts the motion path of the target until it comes back into view. This option also lets you reduce the size of the search region, reducing processing time. It works best when tracking objects that are travelling in a linear path.
Remove Keys Below Threshold	This is especially useful when working with the Predict option. Select this option after the tracking is complete to remove keys that were added by prediction. The tracker interpolates between where the target disappeared from view to where it appeared again to create a smoother, more accurate motion path.

Tracker Property Page

The Tracker property page lets you track a moving object in a sequence and apply the transformation to a shape or control point of a shape.

When using the tracker, you must define the region that will undergo tracking using a drawing tool. The tracker will track for the duration of the effect.

Option	Description
Tracking Mode	Lets you choose mode in which a shape will be tracked. These options are unavailable if you choose control points instead of a shape.
1-point	Lets you track one point in a shape; useful for performing translation only.

Option	Description
2-point	Lets you track two points in a shape; useful for performing translation, rotation, and/or scaling.
Show	Displays the trackers on a selected shape or control point. You must display the trackers before you can start tracking.
Hide	Hides all trackers
Hide Selected	Hides selected trackers
Delete Selected	Deletes selected trackers
Delete All	Deletes all trackers
< >	Begins tracking (backward or forward) or resumes tracking after a tracker error has occurred
Translation Only	On by default. Increases tracking speed using a faster algorithm. It tracks targets, which translate and may also vary in contrast and brightness. When disabled, you can track targets that are translating, rotating, and scaling.
Track in Fields	Sets the tracker to track in fields
Magnification	Sets magnification value for viewing tracker region
Color Space	Lets you choose color space in which tracking is performed: Luma, RGB, R, G, or B
Tracker ID	Displays name of selected tracker
Confidence	The tracker always looks for the highest level of similarity between the target area and the search area. The default value of 70 causes the tracker to stop tracking unless it finds at least a 70% similarity between its target area and the search region. If the tracker cannot find a match based on your confidence criteria, the tracking will stop.

Option	Description
Minimum	Specifies minimum percentage of similarity the tracker will look for between pixel pattern in its target area and search area before it creates a motion path between frames. Turn off this option by specifying a value of 0. *A low or nonexistent confidence value may cause the tracker to "lose" its way by tracking a region whose pixel pattern resembles that of the actual object.*
Current	Shows confidence level currently being used by the tracker
Target	Lets you change original target position
Set	If tracker is moved to a new position while tracking, a timecode is set to indicate the last position of the tracker. By default, the timecode is set to the start frame on which the tracking began.
Always Update	Makes trackers compare pixel pattern of current frame to that of the previous frame, instead of the first frame at the tracking start point (or the set target). Use this option when the target area changes in appearance as the clip is played. This option can cause a cumulative tracking error.
Disable	Lets you turn off tracker results for scaling, translation, and rotation. For example, if you're tracking an object that scales, moves, and rotates, you may not want the tracker to rotate the object while tracking is performed. *These options only apply to 2-point tracking.*
Translation	Turns translation in X or Y on or off
Scaling	Turns scaling in X or Y on or off
Rotation	Turns rotation in X or Y on or off

Avid Glossary

This glossary contains terms used in Avid documentation. Some terms may not apply to your particular system.

Numerics A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Glossary:Numerics

10Base-T and 100Base-T

Low-cost point-to-point 10Mb/sec and 100Mb/sec Ethernet using four unshielded twisted pairs (UTP) of wire (only two pairs are actually used) with RJ-45 connectors.

1394

See *IEEE Standard 1394*.

24p

24-fps progressive media. Twenty-four full frames per second digital video progressively captured. In most cases, it refers to the HD picture format of 1920x1080, though it is also used with 1280x720 images.

25p

25-fps progressive media.

2:3 pulldown, 3:2 pulldown

See *pulldown*.

2D layer

A layer in which objects are stacked on top each other. Objects cannot intersect in this type of layer.

2D textures

Images that are mapped to the object surface. An algorithm is used for “wrapping” the texture around the object’s surface so that the pattern curves and distorts realistically. The advantage of using textures is that the complexity of appearance does not have to be modeled in the object geometry. A common use of textures is to apply a label as a texture image on a three-dimensional bottle. 2D textures can also be used as transparency, reflection, and displacement maps.

3/4-inch U-matic One of the first composite videocassette formats, in which the composite signal is recorded onto 3/4-inch tape. Used for many years, particularly in field recording, the U-matic format is slowly being replaced by more advanced and lightweight systems.

3D layer A layer in which objects are positioned based on their locations in three-dimensional space. Objects can intersect in this type of layer.

3D manipulators A set of 3D controls that allow you to manipulate primitives, properties, and operators in a viewport. Manipulators provide "handles" that can be directly moved in 3D space to modify specific parameter values associated with the objects or operators being manipulated. They provide a direct and visual way of editing properties and doing relatively complex manipulations that cannot be done as easily by changing values in property editors. For example, you can use 3D manipulators to transform geometric objects, cameras, lights, and change the parameters of light cones and texture projections.

3D objects Anything with a position and a representation in 3D space. Some objects have a special role, such as cameras and lights, while others serve as controls for other objects, such as waves and manipulators.

3D textures Also called *solid* textures. A 3D texture is created by a computer procedure with a set of parameters instead of a picture file. A 3D texture, when applied to the surface of a three-dimensional object, gives the appearance of an object that has been carved from a block of a substance, such as wood or marble. In other words, the pattern follows logically inside the volume just as wood grain carries through inside a wooden object. 3D textures avoid many of the difficulties attributed to mapping a bitmap around the surface of an irregular object. These textures have no edges and provide a continuous-looking appearance.

4:2:2 digital video A digital video system defined by the ITU-R 601 (CCIR-601) technical documentation. 4:2:2 refers to the comparative ratio of sampling of the three components of the video signal: luminance and two color channels.

Glossary: A

AAF Advanced Authoring Format. A cross-platform multimedia file format that allows interchange of media and composition information between AAF-compliant applications.

A-roll A method of conforming that requires the compositing of all multilayer effects into a single layer (including standard dissolves and fades) before assembly. Also called *single-strand editing*.

A/B-roll 1. A method of conforming that limits the amount of optical work by managing most standard dissolves and fades using two strands of film. Also called double-strand editing.

2. Alternating scenes, recorded on separate source tapes or film rolls, to perform dissolves, wipes, or other types of transitions.

A/D converter Analog-to-digital converter. A device that transforms a continuously variable (analog) signal to discrete binary bits that represent digital samples of the original signal.

absolute time The time assigned to a clip when it was encoded.

account A level of authorization assigned to individuals. This determines the types of information users can access and the actions they can perform. Account types include user, user manager, superuser, and system administrator.

activeness The sections of a clip that will be used in the final output.

academy Pertaining to specifications that meet the Academy of Motion Picture Arts and Sciences standards, such as academy leader, academy format (for film stock), academy countdown, and so forth.

add edit An edit added between consecutive frames in a sequence segment within the timeline. An add edit separates segment sections, so you can modify or add effects to a subsection of the segment.

ADAT Alesis Digital Audio Tape. A proprietary audio standard for a multichannel optical digital interface, which is used in the family of Alesis ADAT digital multitrack recorders. The standard ADAT data stream contains eight channels of digital audio data.

AES Audio Engineering Society. The primary international organization of users and producers of professional audio. The AES maintains a standards committee that supervises the work of several subcommittees and working groups covering various fields of sound reinforcements.

AES/EBU Audio Engineering Society/European Broadcasting Union. A standards-setting organization that defined a digital signal format for professional audio input to the Avid video-based editing systems using the SA 4 board. This signal format is typically used when you input sound directly to Avid video-based editing systems with a digital audiotape (DAT) machine, thereby bypassing the videotape recording or capturing process.

AFE Advanced File Exchange. A file format based on Advanced Authoring Format (AAF) technology. AFE files let you share project information among Avid applications by transferring one or more bins, their contents, and information about the contents, including master clips, subclips, titles, and sequences.

AIFF-C Audio Interchange File Format-Condensed. A sampled-sound file format that allows for the storage of audio data. This format is primarily used as data interchange format but can be used as a storage format as well.
OMF Interchange includes AIFF-C as a common interchange format for uncompressed audio data.

ALE Avid Log Exchange. A file format specifically designed to hold information about log files generated by the application. An ALE file contains information about the source material. You cannot use it to import sequences, effects, or other higher level information.

alias A code of up to 12 alphanumeric characters. It substitutes individual user names and automates the distribution of a mail story to a group of people.

alignment The position of text within a column of a text object. Alignment can be left-aligned, centered (horizontally), right-aligned, justified (flush on both the left and right sides, with equal space between words on the same line), or equally spaced (same as justified, but with equal space between characters on the same line).

alpha channel One of the four channels (or components) of information that is contained in each pixel of an image. This channel defines the transparency of each pixel, allowing portions of the foreground image to reveal or block the background image when two images are composited. You do not define the alpha channel on a pixel-by-pixel basis but, rather, per object. Different parts of the object would have different levels of transparency, depending on how much you wanted the background to show through. The grayscale image represented by the alpha channel is often referred to as the *matte*. See also *mask, matte, opacity*, and *transparency*.

ambience See *scene ambience*.

ambient A common material parameter that adds consistency to the color of an object's surface to simulate an ambient light that reaches all points in a scene. An ambient value is determined for individual surfaces. Scene ambience is multiplied with an object's ambient color. If the scene ambience is set to black, nothing alters the ambient color of an object except, of course, a light. The careful balance of ambient and direct light sources is the key to convincing lighting. See also *diffuse* and *specular color*.

A-mode A linear method of assembling edited footage. In A-mode, the editing system performs edits in the order in which they will appear on the master, stopping whenever the edit decision list (EDL) calls for a tape that is not presently in the deck. See also *B-mode, C-mode, D-mode, E-mode*, and *source mode.*

analog recording The common form of magnetic recording where the recorded waveform signal maintains the shape of the original waveform signal. All videotape source footage is analog. When recorded or captured (via telecine transfer), footage is converted from the analog format to a digital format.

ANAPA American Newspapers Publishers Association.

anchor 1. The person presenting a newscast on-air to a television audience. Also called a *presenter*.

2. The indicator that links a script to production information. Also called *grommet* or *marker*.

anchor point The location about which a rotation or scaling operation of an object occurs.

animation The movement of elements through time and space. Also, the process of creating and recording images that change over time. Everything in a scene is represented by numeric values and, as such, animation is also the process of changing these values—position, color, or any other property—over time. See also *keyframe.*

annotation A description of your material, including the author name, category, and other information you may want to save. Annotations let you quickly locate files and information about them.

answer print A print made of the final cut for review before the final release print is created. See also *work print.*

antialiasing A method of smoothing the jagged edges along the lines and curves of text or graphics. This is done by a mathematical process that supersamples pixels. Aliasing is caused by limited display resolution. Aliasing effects include staircasing along diagonal lines, moiré effects in checkerboards, and temporal aliasing (strobing) in animated scenes.

archive To back up project files or move closed projects to an external medium.

artifacts The undesired, visible effects in an image due to technical limitations. Some artifacts are caused by inherent limits in the video electronics process and some are the result of compression techniques.

ASCII American Standard Code for Information Interchange. The standard that governs the recording of characters by a sequence of binary digits. Most computers use ASCII code to represent text, which makes it possible to transfer data from one computer to another.

aspect ratio The ratio of screen width to screen height. In video and television, the standard aspect ratio is 4:3, which can be reduced to 1.33:1 or simply 1.33. HDTV video format has an aspect ratio of 16:9. In film, some aspect ratios include: 1.33:1, 1.85:1, and 2.35:1.

Digital video has rectangular pixels, and computers and HDTV have square pixels.

assemble edit An edit where all existing signals on a tape (if any) are replaced with new signals. Assemble editing sequentially adds new information to a tape and a control track might be created during the edit. The edit is made linearly and is added to the end of previously recorded material. See also *overwrite*.

ATR Audiotape recorder. A device for recording and reproducing sound on magnetic recording tape.

attenuation See *falloff*.

Attic folder See *Avid Attic folder*.

attribute clip A mechanism that applications can use to store supplemental information in a special track that is synchronized to the other tracks in a track group.

audio clip A sound file that can be added to a scene.

audio scrub See *scrubbing*.

audio sweetening The mixing of sound effects, music, and announcer audio tracks with the audio track of the edited master tape, usually during the mixing stages of a production. Also called *audio postproduction for video*.

audio timecode Longitudinal timecode (LTC) recorded on an audio track.

AudioVision A digital, nonlinear audio editing system (AudioVision) that locks digital video in sync with audio for audio editing and sweetening.

auto backup A feature that saves a backup copy of an open story to your local disk at specified time intervals.

Autokey A mode in which keyframes are set whenever you change the selected object's properties.

auto-refresh A feature that automatically redisplays the queue screen whenever changes are made to the queue.

autosave A feature that automatically saves your work to a specific location at predetermined intervals.

autoscript A mode in which the production cue area of a story is automatically displayed if production cues are in the story. If there are no production cues added to a story, the story is displayed unscripted.

AUX Auxiliary track. In a video editing system, a channel reserved for connecting an external audio device, a video device, or both.

AVI Audio Video Interleaved. A file format used for synchronizing video and audio without the use of hardware.

Avid AirSPACE A multichannel broadcast video server (Avid AirSPACE) that features digital video (DV) compression at 25 and 50 Mb/s or IMX compression at 50 Mb/s, and offers compatibility with all DV-based acquisition devices.

Avid iNEWS An integrated, digital news creation and production system (Avid iNEWS) for broadcasting that provides up-to-date news data throughout a newsroom and seamlessly links news-gathering, production processes and device control tasks.

Avid Attic folder The folder containing backups of your files or bins. Every time you save or the system automatically saves your work, copies of your files or bins are placed in the Avid Attic folder until the folder reaches the specified maximum.

Avid MediaBrowse A nonlinear video editing and browsing system (Avid MediaBrowse) for journalists, allowing them to create simple cuts-only packages or shot lists in low-resolution video, which can be conformed later to high-resolution for broadcast.

Avid Projects folder The folder containing your projects.

Avid Unity MediaManager A media database that lets you search a large number of media objects (master clips, sequences, effects and objects that reference digital media) in the Avid Unity MediaNetwork shared environment.

Avid Unity TransferManager A web-browser-based transfer utility that lets you move projects, compositions, or bins between Avid applications. You can use TransferManager by itself, peer-to-peer (Windows systems only) transfer or in an Avid Unity workgroup environment (Windows and Macintosh clients).

AVR Avid Video Resolution. The compression level at which visual media is stored by the Avid system. The system creates media in a particular AVR by using proprietary conversion algorithms to convert analog video to digital form.

axis, axes The reference for describing the origin and position of an object in space, displayed by intersecting straight lines. By using two axes, a plane is determined; for example, the XY plane is defined by placing the X and Y axes so that they intersect at the global center (point of origin). Three dimensions are determined by using three axes: X, Y, and Z.

Glossary: B

background The material used for the background or fill area of objects or the back of a DVE object. Using a background material is a simple way of having a material appear behind text without using another object. See also *edge surface*, *extrude surface*, *main surface*, and *surface*.

background image In compositing, the background image is the one on top of which all other images are placed. In 3D environments, this is an image, color, or environment rendered behind all objects in a scene.

background track A type of track whose contents appear below the contents of the tracks above it. Background tracks can be used to create simple composites.

backtiming

1. A method of calculating the IN point by subtracting the duration from a known OUT point so that, for example, music and video or film end on the same note.

2. The exact time when a story in a newscast must start in order for the show to remain on schedule. Television newscasts typically use backtime to ensure that the newscast ends precisely as scheduled. See also *slip trimming*.

backup

A duplicate copy of a file or disk in another location if the original file or disk becomes corrupted. See also *Avid Attic folder*.

bandwidth

The difference between the upper and lower frequency limits of an audio sample component.

bar code

A pattern of vertical stripes of varying width and spacing that encodes information. Bar codes can be used to encode timecode on film.

batch capture

An automated process in which groups of clips, sequences, or both are captured (recorded digitally) in one pass. Also called *batch record*.

baud

The number of electrical oscillations that occur each second. Baud was the prevalent measure for bandwidth or data transmission capacity, but bps (bits per second) is used most often now and is more accurate.

best light

A telecine transfer performed with optimum settings of the color grade controls, but without precise scene-by-scene color correction.

Betacam, Betacam SP

Two component videotape and video recording standards by Sony Electronics, Inc. Sony Betacam was the first high-end cassette-based system, recording video onto 1/2-inch magnetic tape. The SP version arrived 3 years after the first Betacam, improving on signal-to-noise ratios, frequency responses, the number of audio channels, and the amount of tape available on cassettes. SP is now the only type sold.

Bézier

A type of curve that always passes through control points. A Bézier point on a curve lets you control the smoothness or sharpness of the curve at the point. See also *Linear* and *spline*.

bin

A database in which master clips, subclips, effects, and sequences are organized for a project. Bins provide database functions to simplify the organization and manipulation of material for recording, capturing, and editing.

bit depth

1. The number of bits used to represent the color of a pixel. Black and white images use a bit depth of 1, 16-color images use a bit depth of 4, 256-color images use 8, and so on.

2. The number of bits used to represent an audio sample. The more bits there are, the more accurately you can represent the amplitude at that point in time.

bit rate

The transfer speed of data within a computer or between a computer and a peripheral.

black and code

Video black, timecode, and control track that are prerecorded onto videotape stock. Tapes with black and code are referred to as striped or blacked tapes.

black burst

A video signal that has no luminance or chrominance components (except burst), but contains all the other elements of a video signal. Black burst is the reference signal commonly used for timing audio and video samples.

black burst generator

An electronic device that emits a signal that registers as pure black when recorded on videotape.

blacked tapes

See *black and code*.

black edits

1. A video source with no image.

2. A special source you can fade into, out of, or use for other effects.

black level

See *setup*.

black point

The luminance value in a video image that is set to be equal to reference black when making a color adjustment. See also *white point*.

blue screen

A special effects procedure in which a subject is photographed in front of a uniformly lit blue or green background. A new background image can be substituted for the blue or green during the shoot or in postproduction through the use of chroma key. See also *key*.

B-mode

A “checkerboard” or nonsequential method of assembly. In B-mode, the edit decision list (EDL) is arranged by source tape number. The edit system performs all edits from the tapes currently assigned to decks, leaving gaps that will be filled by material from subsequent reels. See also *A-mode, C-mode, D-mode, E-mode*, and *source mode*.

Boolean A system of logic that allows you to combine objects using logical operators, such as And, Or, Xor, Min, and Max.

border 1. The outer edge of an object. See also *construction lines*.

2. A type of DVE object that has a colored frame with an optional soft outer edge.

bounding box The extent or rectangular enclosure of an object.

bounding box handle One of eight small boxes on the corners and sides of an object's bounding box that you use to scale the object.

bps Bits per second. The standard measure of data transmission speeds.

B-roll An exact copy of the A-roll original material, or new original material on a separate reel, for use in A/B-roll editing.

branch A subordinate segment of a directory.

brightness See *luminance*.

browse clip A low-resolution, recorded or digitalized, video segment.

browse server For Media Browse, a low-resolution video server.

browser A tool used to search (browse) through scene databases, project directories, image libraries, and other repositories whose files are required to build a project. Using the browser, you can load scene and project files, as well as perform file management tasks such as moving, copying, renaming, and deleting files.

bulletin An incoming wire story coded as high-priority by a wire service.

bumping up The transfer of a program recorded on a lower quality videotape to a higher quality videotape (such as from 3/4-inch to 1-inch videotape, or from S-VHS to MII).

burn-in A visible timecode permanently superimposed (burned in) on footage, usually in the form of white numbers in a black rectangle. Burned-in timecode is normally used for tracking timecode during previews or offline editing. A videotape with burn-in is also called a burn-in dub or a window dub.

BVB Black-Video-Black. A preview mode that displays black, newly inserted video, and then black again.

B–Y One of the color difference signals in the component color system of the NTSC video standard. The signal formula is:

B–Y = 0.299R (red) – 0.587G (green) + 0.886B (blue)

See also *R–Y*, *Y*.

bypass 1. To mute an audio effect in order to listen to the original audio signal. Bypassing an effect lets you compare your audio signal with and without the effect. See also *mute*.

2. To mute a video effect in order to view the results without the effect(s) that you bypassed.

Glossary: C

cache A media file that stores information and is generated when you process an effect, transition, composite, or container clip created in your sequence. During playback, this cache file is used instead of the source media. Accessing cashed files is quick and reduces network traffic. Computers cache at several levels of operation, such as cache memory and a disk cache.

Caching may also be implemented for Internet content by distributing it to multiple servers that are periodically refreshed. (Use of the term in the latter context is similar to the concept of a distributed information base.) See also *interactive cache*.

calibrate To fine-tune video levels for maximum clarity during capture and output (from videotape).

camera The camera is analogous to a physical camera in the real world. It is an object that has a position from which a scene can be viewed and rendered. Like most objects, the camera has properties such as its rotation, depth of field, and field of view.

camera views Let you display your scene in a viewport from the point of view of a “real” camera in your scene. All other views such as User, Top, Front, and Right are points of view that are not associated to an actual camera.

capture

1. To digitally transfer audio or video material from an external device, such as a videotape recorder, to a shared storage location or the local disk storage on your workstation.

2. To convert analog video and audio signals to digital signals.

Capture Mask effect

An effect that converts the format of source data during playback. For example, it could convert video frame data between PAL (25 fps) and NTSC (29.97 fps) formats.

Capture Manager

A software tool used to coordinate the recording of low and high-resolution video feeds to multiple devices.

capture resolution

The size and quality of the media file created when you capture source material. See also *resolution* and *working resolution*.

Cartesian coordinates

A mathematical representation of Euclidean space. Every point can be described by three coordinates (X, Y, Z) representing the position along the orthogonal X, Y, and Z axes. The point (0, 0, 0) is called the *origin*, which is the global center of the 3D world.

CCIR

Comité Consultatif International des Radio Communications. A mainly European organization similar to SMPTE (Society of Motion Picture and Television Engineers) in the United States that includes user and vendor representatives. Now called ITU (International Telecommunication Union). See also *ITU-R 601*.

CCIR-601

See *ITU-R 601*.

center

The reference point for defining an object's location, orientation, and size. When you create an object, its local center is located inside the object, at its geometric center. However, you can move this center to another location for performing different transformation tasks.

channel

1. A physical audio input or output.

2. One of several color components that combine to define a color image. An RGB image is made up of red, green, and blue color channels. In color correction, you can redefine color channels by blending color components in different proportions.

See also *track*.

character A letter, digit, or special symbol you type on a keyboard.

character generator An electronic device, or a computer device and software combination, that creates letters and numbers that can be superimposed on video footage as titles.

character spacing See *kerning*.

character style The visual enhancement, such as superscript or subscript, to the normal style of a character.

chassis The housing for removable disk modules. The chassis contains a power supply, drives, and connectors for each module.

chroma Video color. See *chrominance*.

chroma keying The process of creating a matte based on a foreground image's color. Using this matte, you can composite the image over another image.

ChromaCurve ChromaCurve graphs appear in the Color Correction tool and are used to adjust the color values in a sequence. The graphs plot input values on the horizontal axis and output values on the vertical axis. The background color in the graph represents the color adjustment in the corrected sequence, and the curve on the graph (created by the user) increases or decreases the amount of that color in the corrected sequence.

chroma key A method of combining images or parts of images from two different sources by replacing a solid color in one source with a picture from the second source.

ChromaWheel ChromaWheel controls appear in the Color Correction tool and are used to adjust hue and saturation in a sequence. ChromaWheel controls provide an adjustment method that is similar to the physical controllers on traditional color correction equipment, with the addition of a color background that graphically represents the hue and saturation values being adjusted.

chrominance The saturation and hue characteristics of a composite video signal; the portion of the video signal that contains color information. Adjust the chrominance and other video levels before recording or capturing.

chunking The transfer of media files in segments, so other workgroup users can access and use the media before complete files have been sent.

circle take A take from a film shoot that has been marked for use or printing by a circled number on the camera report.

client A workstation on which the application is installed.

clip 1. A segment of source material recorded or captured into your system at selected IN and OUT points and referenced in a project bin. The clip contains pointers to the media files in which the actual digital video and audio data is stored.

2. In a record in a log, which stands for one shot, the clip includes information about the start and end timecode for the shot, the source tape name, and the tracks selected for editing.

3. In OMFI, a general class of objects in the OMF Interchange class hierarchy representing shared properties of source clips, filler clips, attribute clips, track references, timecode clips, and edge code clips. A clip is a subclass of a component.

See also *master clip*, *media files,* and *subclip.*

Clipboard A portion of memory used to store temporary objects during copy and paste operations.

clip effect An effect that is attached to a clip and moves with it on the timeline. See also *track effect*.

clock timecode See *drop-frame timecode.*

cluster A named group of polygons defined for the purpose of being manipulated or having properties applied. The properties assigned to a cluster are shared by its members. A cluster has no geometry of its own; rather, it refers to other geometry. See also *components*.

C-mode A nonsequential method of assembly in which the edit decision list (EDL) is arranged by source tape number and ascending source timecode. See also *A-mode, B-mode, D-mode, E-mode,* and *source mode.*

codec *Co*mpressor/decompressor. Any technology for compressing and decompressing data. Codecs can be implemented in both software and hardware.

color balance The adjustment of the relative levels of color signals to produce the best quality image or effect.

color bars A standard color test signal, displayed as a video pattern of eight equal width columns (that is, “bars”) of colors. SMPTE color bars are a common standard. You adjust video levels against the color bars on your source videotape before recording or capturing.

color correction The process of adjusting the color characteristics of video material to achieve an accurate representation of color and consistency of color from one clip in a sequence to another. The term generally refers to adjustments made across all the video in a program rather than to individual color changes made as part of a single effect.

color frame A sequence of video fields required to produce a complete pattern of both field and frame synchronization and color subcarrier synchronization. The NTSC system requires four fields; PAL requires eight.

color model Any system used to specify colors. You can set color according to the following color models: RGB (red, green, blue), HLS (hue, lightness, saturation), or HSV (hue, saturation, value). See also *RGB*, *HLS*, and *HSV*.

color reference burst The color synchronizing signal included as part of the overall composite video signal. When compared with the color subcarrier signal, the color reference burst determines the hue of the video image.

color stop A key color location on a gradient between which colors are blended.

color timing The process of selecting color and density values for a film before film printing.

color weight A location on a gradient that marks the halfway point of a blend between the colors at adjoining color stops.

color wheel A circular graph that maps hue values around the circumference and saturation values along the radius. Used in the Color Correction tool as a control for making hue offset and secondary color correction adjustments.

column A vertical container within a text object. The text is positioned within a column based on the column’s text alignment. All text objects have at least one column. See also *alignment* and *gutter*.

command line A line typed in an MS-DOS Command Prompt window.

comparison buffer A portion of the system memory in Avid DS Nitris that is used to store a snapshot of a frame in the viewer.

component video The structuring of the video signal whereby color and luminance signals are kept separate from one another using the color-subtraction method Y (luminance), B–Y (blue minus luminance) and R–Y (red minus luminance), with green derived from a combination. Two other component formats are RGB and YUV.

components The parts of a geometric object that can be manipulated or selected, such as points or polygons. You can modify an object by selecting and moving, adding, or deleting components. You can group polygons to create clusters on one or more objects.

composite Two or more layered images that create a single new image. Using mattes and DVEs, you can define how the images are layered in the resulting composite image.

composite print A film print containing both picture and sound.

composite sound track A sound track containing all required sound elements—usually dialog, music, and effects mixed in correct proportions.

composite video A video signal in which the luminance and chrominance components have been combined (encoded) as in standard PAL, NTSC, or SECAM formats.

compositing The process of layering two or more images on top of one another. Examples include titles, keys, and picture-in-pictures.

composition The standard term used by OMF Interchange to refer to an edited sequence made up of a number of clips. The OMF equivalent of a sequence in an Avid system.

compound shape A single shape consisting of separate curves.

compression 1. In audio, the process of reducing the dynamic range of the audio signal.

2. In video, a lack of detail in either the black or the white areas of the video picture due to improper separation of the signal level.

3. A reduction of audio signal detail, video signal detail, or both to reduce storage requirements during transformation from analog to Avid digital format. In JPEG compression, for example, algorithms for variable frame length analyze the information in each frame and perform reductions that maximize the information retained. Compression does not remove any frames from the original material.

See also *lossless compression* and *lossy compression*.

confidence value A measurement, expressed as a percentage, of the probability that the pattern the system finds during a motion tracking operation is identical to the pattern for which the system is searching. During a motion tracking operation, a confidence value is calculated for each tracking data point it creates.

conform To prepare a complete version of your project for viewing. The version produced might be an intermediate working version or the final cut.

conformance The creation of broadcast-quality (high-resolution) video from a sequence.

conforming a film negative The mathematical process that the editing system uses to ensure that the edits made on a videotape version of a film project (30 fps) are frame accurate when they are made to the final film version (24 fps).

connect To call a service that is either local (such as an archive system) or remote.

consolidate To make copies of media files or portions of media files, and then save them on a drive. The Consolidate feature operates differently for master clips, subclips, and sequences.

constraints A way of animating one object by using the animation of another to which it is constrained. There are predefined constraints to constrain objects by position, direction, and path.

construction lines The dashed lines that outline objects, such as the scene, text objects, and decks.

container clip A type of clip that combines multiple audio or video clips to create a mixdown, composite, or special effect. When you close a container clip, it appears as a single clip on the timeline. You can reopen a container clip at any time to add, modify, or delete its components.

container mapping A mapping that applies the texture image across the surface of an object. For container objects, the surfaces of all subobjects are treated as a single continuous surface. As the object moves, scales, or rotates, so does the texture applied to the object. See also *local map* and *region of interest*.

container object An object that contains other objects called subobjects. For example, a text object is the container of its subobjects (characters). See also *subobject*.

contrast The range of light-to-dark values present in a film or a video image.

control point A location on a Bézier curve that controls its direction. Each control point has two direction handles that can extend from it. See also *corner points*, *cusp point*, and *smooth point*.

control track The portion of the video recording used to control longitudinal motion of the tape during playback. Control track can be thought of as electronic sprocket holes on the videotape.

controller With remote processing, and media and project indexing services in Avid DS Nitris, one workstation is designated as the controller where all these services will run. If you have only one Avid DS Nitris workstation, then it is the controller.

control objects Objects that represent rigs, deformations, natural forces, and particles. The control objects themselves do not render; instead, they exist to define the properties of deformations and other effects.

control points 2D (UV) or 3D (XYZ) vertices that help define a curve or free-form surface.

corner pinning A technique used to pin the four corners of one static image (usually) onto another static image.

corner points A type of Bézier control point whose tangent handles do not point in opposite directions, producing an angle or corner at the control point. See also *cusp point* and *smooth point*.

CPU Central processing unit. The main computational section of a computer that interprets and executes instructions.

crash edit An edit that is electronically unstable, such as one made using the pause control on a deck, or using a noncapstan served deck.

crash recording See *hard recording*.

crawling text Text that moves horizontally over time. Examples include stock and sports score tickers that appear along the bottom of a television screen.

credit roll Another name for a rolling credit, a list of job titles and names that scrolls vertically at the end of television programs and feature films.

cropping The redefining of image boundaries, usually by electronically removing the top, bottom, left, or right sides of the image.

crossfade An audio transition between two clips over a specified number of frames. The sound of the outgoing clip gradually becomes less audible as the sound of the incoming clip increases to the desired volume. See also *dissolve* and *fade*.

crushing the blacks The reduction of detail in the black regions of a film or a video image by compressing the lower end of the contrast range.

CU Close-up. See also *ECU*.

cue To shuttle a videotape to a predetermined location. See *production cue*.

cume (cumulative) time The amount of airtime required from the beginning of the show up to a certain point in the show in order for it to remain on schedule. Used by producers when building, ordering, or airing a newscast. Cume time is displayed with each entry in a rundown queue.

cursor Another name for the vertical bar that represents the insertion point in an active text object.

curves Curves are one-dimensional objects that have points but no thickness. They are not renderable, but can be used to modify extruded and revolved objects, create paths for objects to move along, and so on.

Curves graph An X, Y graph that plots input color values on the horizontal axis and output color values on the vertical axis. Used in the Color Correction tool as a control for changing the relationship between input and output color values.

curve point See *keyframe marker*.

cusp point A type of Bézier control point whose tangent handles are of zero length, producing an angle at the control point. A cusp point is a variation of a corner point. See also *corner points* and *smooth point*.

cut 1. An instantaneous transition from one video source to another.

2. A section of source or record tape.

cut list A series of output lists containing specifications used to conform the film work print or negative. See also *dupe list*.

cycle 1. A series of frames which may be played over and over to create the illusion of continuing, repeated action.

2. To repeat a function curve for all or part of the duration of an animation. See also *function curve or fcurve*.

Glossary: D

D1, D5

Two digital videotape recording formats that conform to the ITU-R 601 (CCIR-601) standard for uncompressed 4:2:2 digital component video. D5 is very similar to D1 in that it is a component digital recorder. However, D1 records with 8-bit accuracy and D5 records with 10-bit accuracy. See also *D2, D3*.

D2, D3

Two digital videotape recording formats for composite video. The main difference between D2 and D3 is that D2 uses 3/4-inch digital videotape, and D3 uses 1/2-inch digital videotape. See also *D1, D5*.

DAE, Digidesign Audio Engine

The application (DAE, or Digidesign Audio Engine) that manages the AudioSuite plug-ins.

dailies

Film prints or video transfers of recently shot film material, prepared quickly so that production personnel can view and evaluate the previous day's shooting before proceeding. Also called rushes, primarily in the United Kingdom.

DAT

Digital audiotape. A digital audio recording format that uses 3.8mm-wide magnetic tape.

data feed

Data received from a commercial news service, such as the Associated Press (AP), Reuters, United Press International (UPI), and others. Typically these wire services conform to one or more wire-service standards, such as ANPA and are delivered as serial data. Sometimes called a *wire feed*.

dead queue

A queue containing stories that have been either deleted by users or purged automatically by the system. These stories are recycled automatically as new space is required.

decibel (dB)

A unit of measurement for audio volume level.

deck

1. a videotape recorder (VTR)
2. A container or sequence of pages. A deck defines the location and size of the pages within it. See also *page*.

deck controller A tool that allows the user to control a deck using standard functions such as shuttle, play, fast forward, rewind, stop, and eject.

decompose To create new, shorter master clips based on only the material you have edited and included in your sequence.

deformation A way of changing the shape of objects by using another object (curve, surface, lattice) as a deforming tool, using a deforming operator such as Twist, Bend, or Push. The deformation depends on two factors: the shape of the deforming tool and the transformation (scaling, rotation, or translation) of the deformed object.

degauss To demagnetize (erase) all recorded material on a magnetic videotape, an audiotape, or the screen of a color monitor.

deinterlace The process of separating the odd and even fields in a clip. When you deinterlace a clip, each field becomes a frame and the clip's duration is doubled.

delay edit See *overlap edit*.

depth shadow A shadow that extends solidly from the edges of a title or shape to make it appear three-dimensional. See also *drop shadow*.

destructive mode See *Raster mode*.

Details A mode in the Avid Explorer where all the details pertaining to a clip are displayed, such as the date the clip was created.

device Any peripheral computer equipment, connected locally or via a network capable of receiving or sending data. Examples of devices are: printers, monitor, character generators, and video servers.

diffuse The essential color of an object. This is the color that the object reveals under pure white light. It is perceived as the color of the object itself rather than a reflection of the light. You can set the diffuse color separately from the ambient and specular colors. Diffuse color is distinguished from the color of specular reflection (highlights) off an object, which are generally the color of the light source itself. See also *ambient* and *specular color*.

digital cut The output of a sequence, which is usually recorded to tape.

digital intermediate The state between the original source and the final distribution form, where it can be digitally enhanced through the process of editing, adding visual effects, color correcting the captured film (digital master).

digital master The original source material scanned from film into digital format.

digital nonlinear accelerator Digital nonlinear accelerator (DNA) is a hardware subsystem designed to operate in conjunction with Avid software to multiply host processing performance.

digital recording A method of recording in which the recorded signal is encoded on the tape in pulses and then is decoded during playback.

digitally record To convert analog video and audio signals to digital signals.

digitize See *capture*.

dip An adjustment to an audio track in which the volume gain level decreases or "dips" to a lower level, rather than fading completely.

direct digital interface The interconnection of compatible pieces of digital audio or video equipment without conversion of the signal to an analog form.

direction handle A line extending from a control point that controls the direction of a Bézier curve. Each control point has two direction handles. These two handles together affect how the curve passes through the control point, with one handle controlling how the curve appears before the control point, and the other handle controlling how the curve appears after the control point.

directional light A light source that is very far away, so that the light rays are essentially parallel to each other, such as the sun. See also *infinite light*.

directory Like a file drawer in a file cabinet, a directory is a storage space. Directories, also known as *folders*, can contain other directories (known as *subdirectories*) or queues. Directories do not contain stories.

disk The medium used to store data in computer-readable form.

disk array Multiple SCSI drives combined to deliver fast data transfer rates, great storage capacity, and reliable data.

displacement map A representation of a nonsmooth surface described by the alpha channel of an image. Lighter shades produce bumps or convex regions, whereas darker shades produce valleys or concave regions.

display types Ways of displaying objects in a viewport. Display types are available only for geometry views. The available display types are Bounding Box, Wireframe, Depth Cue, Hidden Line Removal, Constant, Shaded, Textured, Textured Decal, and OpenGL. Display types do not affect what is shown in the render region.

dissolve A video or an audio transition in which an image from one source gradually becomes less distinct as an image from a second source replaces it. An audio dissolve is also called a *segue*. See also *crossfade* and *fade*.

Distributed Media Services (DMS) Services that may be distributed to lower cost, dedicated workstations in a networked environment, freeing computer resources to perform other tasks.

dithering The process of blending pixels of different colors to give the illusion of an intermediate color that is not usually displayable due to color depth limitations.

D-mode An A-mode edit decision list (EDL) in which all effects (dissolves, wipes, graphic overlays) are performed at the end. See also *A-mode, B-mode, C-mode, E-mode*, and *source mode*.

DMS See *Distributed Media Services (DMS)*.

DNA See *digital nonlinear accelerator*.

dolly To move the camera forward (dolly in) or backward (dolly out). A dolly physically moves the camera closer to the point of interest without changing the length of the lens; perspective distortions peculiar to the lens length may result at the edges of the scene.

dongle (Also known as the application key) A hardware device used as a key to control the use of licensed software. The software can be installed on any system, but will run only on the system that has a dongle installed.

double-perf film Film stock with perforations along both edges of the film.

double-strand editing See *A/B-roll*.

double system Any film system in which picture and sound are recorded on separate media. A double system requires the resyncing of picture and sound during postproduction.

DPX Digital Picture eXchange. A SMPTE 268M standard derived from Kodak's Cineon raster file format.

drop-frame timecode A type of SMPTE timecode designed to match clock time exactly. Two frames of code are dropped every minute on the minute except the tenth minute, to correct for the fact that color frames occur at a rate of 29.97 fps, rather than an exact 30 fps. Drop-frame timecode is recorded with semicolons between the digits; for example, 1;00;10;02. See also *non-drop-frame timecode*.

drop shadow A shadow that appears in the same form, at the same size, and on a surface parallel to the object creating it, but usually offset from the object. See also *depth shadow*, *projected shadow*, and *local shadow*.

DSU DS Unit. DSUs are the standard units used in Avid DS Nitris. They are independent of the working resolution and express absolute position or distance in a common way in all the effects.

DTV Digital television. The technology that enables the terrestrial transmission of television programs as data. See also *HDTV*.

dubbing 1. In videotape production, the process of copying video or audio from one tape to another.

2. In film production, the process of replacing dialog on a sound track. See also *foley*.

dubmaster A second-generation copy of a program master used for making additional preview or distribution copies, thereby protecting the master from overuse.

dupe Duplicate. A section of film or video source footage that has been repeated (duplicated) one or more times in an edited program.

dupe list A sublist of duplicated clips of film requiring additional prints or copies of negative for film finishing. See also *cut list*.

dupe reel A reel designated for the recording and playback of dupes (duplicate shots) during videotape editing.

duration 1. The length of time (in hours, minutes, and seconds or in feet and frames) that a particular effect, title, or section of audio or video material lasts.

2. The length of a show or story calculated by using the elapsed time in a broadcast when a story begins.

DV Digital video that is transferred through equipment conforming to IEEE Standard 1394. This equipment is sometimes called FireWire or i.LINK.

DVE Digital video effect. A type of effect used to transform the size, position, and shape of images in three-dimensional space.

dynamic range An audio term that refers to the range between the softest and loudest levels a source can produce without distortion.

Glossary: E

easing (ease-in, ease-out) The reduction in the acceleration or deceleration of motion to present a smoother, more continuous movement. The shape of a function curve can reflect this when using a spline interpolation.

EBU European Broadcasting Union. A standards-setting organization in which only users (not vendors) have a voice. See also *AES/EBU*.

ECU Extreme close-up.

edgecode See *edge numbers* and *key numbers*.

edge filter A filter that applies anti-aliasing to graphics created in the Title tool. See also *antialiasing*.

edge numbers Sequential numbers mechanically printed or optically exposed along the edge of a strip of film to assist in matching negatives to work prints.

edge surface The surface that appears as a border or edge around an object. Edges can be shaped by a variety of Edge effects, such as Bevel and Tube. See also *background*, *extrude surface*, *main surface*, and *surface*.

edit 1. To assemble film or video, audio, effects, titles, and graphics to create a sequence.

2. A numbered event in an EDL. An edit consists of source entry/exit timecodes, a transition type (cut, wipe dissolve), the edit mode (video/audio), annotations, and record entry/exit timecodes.

3. A transition point (cut, wipe, or dissolve) between two video or audio sequences.

edit controller An electronic device, often computer-based, that lets you precisely control, play, and record to various videotape machines.

edit lock A feature that prevents two people from working in a story simultaneously.

edit rate In compositions, a measure of the number of editable units per second in a piece of media data (for example, 30 fps for NTSC, 25 fps for PAL, and 24 fps for film).

edit point 1. A moment in time at which a cut occurs or where a transition starts or ends.

2. An indicator of the in and out-points of clips and transitions that appear in the clip's activeness bar.

EDL Edit decision list. A list of edits made during offline editing and used to direct the online editing of the master. See also *cut list*.

effects The manipulation of an audio or a video signal. Types of film or video effects include special effects (F/X) such as morphing; simple effects such as dissolves, fades, superimpositions, and wipes; complex effects such as keys and DVEs; motion effects such as freeze frame and slow motion; and title and character generation. Effects usually have to be rendered because most systems cannot accommodate multiple video streams in real time. See also *rendering*, *clip effect*, and *track effect*.

Effects Tree A tool that lets you composite multiple clips and apply any number of effects. An Effects Tree is made of nodes which represent the inputs, effects, and the output, as well as node connectors.

EIA Electronic Industries Association. The largest trade organization that covers the television and audio fields. EIA publishes a catalog of standards; the most important standards to the television and audio industries are the ones developed by its Parts Division and its Consumer Electronics Group.

electronic editing The assembly of a finished video program in which scenes are joined without physically splicing the tape. Electronic editing requires at least two decks: one for playback and the other for recording.

elements Anything that can be visualized in 3D space or displayed. Elements can be renderable or non-renderable. They include models, lights, cameras, geometric objects, curves, nulls, and so on.

E-mode A C-mode edit decision list (EDL) in which all effects (dissolves, wipes, and graphic overlays) are performed at the end. See also *A-mode, B-mode, C-mode, D-mode,* and *source mode.*

emissive color The color of a surface when light is not shining on the surface. See also *shininess* and *specular color*.

encode 1. To add data such as timecode, cues, or closed-captioned information to a video recording.

2. The conversion of RGB S-Video to composite video.

3. The process of converting analog video to a digital form.

ending point The moment in time that an object no longer exists. See also *starting point*.

energy plot The display of audio waveforms as a graph of the relative loudness of an audio signal.

environment map A texture that is reflected from an existing surface material. The surface has its own material (solid color, gradient, or another texture) that reflects the texture. See also *local map* and *region of interest*.

equalization The balancing of various frequencies to create a pleasing sound by attenuating or boosting specific frequencies within the sound.

Ethernet A standard for connecting computers to a local area network (LAN).

event A number assigned by the editing system to each performed edit. In most computer editing systems, an event defines an action or a sequence of actions performed by the computer in a single pass of the record tape.

export 1. To create an EDL from a sequence.

2. To conform a sequence.

external matte A matte taken from another clip. See also *matte*.

extract To remove a selected area from an edited sequence and to close the resulting gap in the sequence.

extrude To make a three-dimensional surface by giving a two-dimensional object depth in space. For example, a circle becomes a cylinder, or a square becomes a cube or block.

extrude surface The surface that connects the front and back faces of an object that has been extruded into three dimensions by extending the edges of the object along its Z axis. See also *background*, *edge surface*, *main surface*, and *surface*.

eyedropper A tool for taking a color from a screen image and using that color for text or graphics.

Glossary: F

face 1. For fonts, a variation in a font family. For example, Helvetica Bold is a face of the Helvetica font family.

2. For objects, an abbreviated name for surface. For example, the front or back face (surface) of an object.

fade A dissolve from full video to black video or from full audio to no audio, or vice versa.

falloff The diminishing of a light's intensity over distance, also called *attenuation*. Falloff options mimic the way light behaves naturally and are available for point and spotlights.

FAT File Allocation Table. A file system used on MS-DOS and Windows computers.

favorite A shortcut used for focusing the Avid Explorer tree on a specific set of files and folders.

FCC Federal Communications Commission. The United States governing body for radio and television broadcasting.

feedback A loud squeal or howl caused when the sound from a loudspeaker is picked up by a nearby microphone and reamplified. Also caused when the output of a tape recorder is fed back into the record circuit.

field One-half of the scan lines in an interlaced video frame. In most systems, the odd-numbered lines form one field, and the even-numbered lines form the second. NTSC video contains approximately 60 fields (30 frames) per second, and PAL video contains 50 fields (25 frames) per second. See also *frame*.

field dominance The order in which odd and even fields occur in time.

field of view (fov) The amount of the scene visible to the camera, which is defined as the camera's aperture divided by its focal length, or the total area (in degrees) to the left and right of the line of sight to an object in the scene. Wide-angle lenses have a large field of view, while telephoto has a small field of view.

file system A way of organizing directories and files on a disk drive, such as FAT or NTFS for Windows computers.

filler clip A segment of a sequence that contains no audio or video information. Filler can be added to the Source monitor (or pop-up monitor) and edited into a sequence. See also *filler proxy*.

filler proxy The result of a composition specifying media to be played for the filler clips in each track.

film timecode Timecode added to the film negative during the film shoot via a film timecode generator. Film timecode numbers are synced to the film key numbers on the dailies during the telecine transfer process. A special key link reader is required for viewing the film timecode.

filters Tools for defining the information displayed or manipulated in different types of views, thereby avoiding cluttering these views with unnecessary data.

flash frame After a long, complex piece is edited, small bits of video might be accidentally left in a sequence. When the Timeline is zoomed to 100 percent, these small, unwanted pieces might not be visible. An editor can use the Find Flash Frame command to find these bits.

flipbook A way of displaying animation in real time in a floating window. Flipbooks can be exported in a variety of standard formats, such as AVI, MPEG, and QuickTime. Also used for displaying and converting still images.

float To temporarily suspend a story. The story's time is removed from the show timing. Float time is also ignored by the teleprompter and machine control. Floating is used when you are not sure whether or where to put a story in a rundown.

flow A sequence of paragraphs that makes up the content of a text object.

focal length The distance from a camera lens to its focal point.

folder A directory in which you organize clips, sequences, and presets into smaller more manageable groups. A folder points to the location of your media files. It can be an area on a media disk, a network drive, or a hard drive on your workstation. When you select a folder, the Avid Explorer tree updates to show your project folders, sequences, clips, or media.

foley The background sounds added during audio sweetening to increase realism.

font A specific typeface.

form A preformatted layout (template) containing the fields and the field positions (such as presenter and writer) required for a story. The form serves as a copy master when creating a new story.

formatting The transfer and editing of material to form a complete program, including any of the following: countdown, test patterns, bars and tone, titles, credits, logos, space for commercial, and so forth.

fps Frames per second. A measure of the film or video display rates (NTSC = 30 fps; PAL = 25 fps; SECAM = 25 fps; film = 24 fps).

frame One complete video picture. A frame contains two video fields, scanned at the NTSC rate of approximately 30 fps or the PAL rate of 25 fps. A frame is a combination of interleaved even and odd fields. Different video formats display frames at different rates. See also *field*.

frame offset A way of indicating a particular frame within the group of frames identified by the edge number on a piece of film. For example, a frame offset of +12 indicates the twelfth frame from the frame marked by the *edgecode*.

frame pulse A pulse superimposed on the control track signal. Frame pulses are used to identify video track locations containing vertical sync pulses.

frame size The dimensions of a digital image in Avid DS Nitris. These measurements are based on DSUs (Avid DS Nitris units) so that they provide a common unit of measure between video images and computer-generated graphics.

frame synchronizer A device that allows a nonsynchronous video source, such as a satellite or microwave feed, to be used in a timed-video environment by capturing entire frames.

freeze frame A video effect that appears to stop the action. Freeze frames can be created during recording, capturing, or during an editing session. Compositions can create this effect by using a track repeat object that can specify the display of a single frame for a period of time.

front porch The portion of the composite video signal that starts at the trailing of the picture information and ends at the leading edge of the horizontal sync.

function curve or fcurve A graphic representation of the relationship between time and property values (animation). Function curves are represented as a curve with points in an XY grid, where time is on the X, or horizontal, axis and values are on the Y, or vertical, axis. You can edit the function curves that represent your animation in the animation editor.

Glossary: G

gain 1. A measurement of the amount of luminance in a video image.

2. In audio, gain is a measurement of the change between two audio levels.

See also *waveform* and *white point*.

gamma A measurement of the midpoint in the luminance range of an image. Used in color adjustments to control the proportions of brighter and darker areas in an image. Also called the gray point.

gang Any combination of multiple tracks that are grouped. An edit that is performed on one track is also performed on tracks that are ganged together.

garbage matte A matte that you create in an image's alpha channel to remove unwanted objects.

generation The number of times material has been rerecorded. The original videotaped material is the first generation. A copy of the original is a second-generation tape, and so on. Each generation shows a gradual loss of image quality. With digital copies, there is little or no loss in quality.

genlock In Broadcast, a system whereby the internal sync generator in a device (such as a camera) locks onto and synchronizes itself with an incoming signal.

geometry The control points of an object. These control points are usually seen with objects that can be rendered. For example, a cube's geometry is composed of eight control points. By this definition, a curve has geometry since it is also composed of one or more control points, whereas nulls have no geometry.

gigabyte (GB) Approximately one billion bytes (1,073,741,824 bytes) of information.

global coordinates A coordinate system that is used to locate an object in relation to a world origin. See also *Cartesian coordinates*.

gradient A smooth ramp between multiple colors. See also *color stop*.

graphics object Any object that you create in the Graphics layout or floating Graphics combo view, such as strokes or titles.

graphics session The time span over which graphics objects appear. You can create a graphics session by applying the Graphics effect to a clip or track, or by applying graphics on a layer inside a composite container clip.

GPI General-purpose interface. In computerized editing systems, GPIs allow the computer to control various remote components.

gray point See *gamma*.

green screen See *blue screen*.

grid A visual representation of equally spaced horizontal and vertical intervals, along which objects can be aligned. A grid appears as dots at these intervals.

grommet The indicator that links a script to production information. Also called *anchor* or *marker*.

GUID Globally Unique Identifier. A unique value that is created by running a software utility.

gutter The space between columns of text.

Glossary: H

handle 1. Material outside the IN and OUT points of a clip in a sequence. The handles are used for dissolves and trims with the new, shorter master clips.

2. A direction handle on a Bézier curve.

3. One of the eight handles on a selected object's bounding box. See also *bounding box handle*.

hard disk A magnetic data recording disk that is permanently mounted within a disk drive.

hard recording The immediate recording of all audio, video, timecode, and control tracks on a magnetic recorder. Because hard recording creates breaks in any existing timecode or control track on the tape, this procedure is often performed on blank tape when an edit is not required or in emergency circumstances. Also called crash recording.

hard out A story in a newscast that has a fixed start time, usually at the end of a segment or show.

HDTV High-definition television. A digital video image having at least two times the resolution of standard NTSC or PAL video. The HDTV aspect ratio is 16:9. (Analog TV has a ratio of 4:3.)

head frame 1. The first frame in a clip or in a segment of video.

2. The starting point or time of an object. See also *tail frame*.

headroom 1. In video, the room that should be left between the top of a person's head and the top of the frame when composing a clip.

2. In audio, the amount of available gain boost remaining before distortion is encountered.

heads out Film or tape wound on a reel with the tail on the inside next to the hub and the head end on the outside.

hertz (Hz) The SI unit of frequency equal to one cycle per second. See also *kilohertz (kHz)* and *megahertz (MHz)*.

Hi Con A high-contrast image used for creating matte keys.

hidden Any element that is not shown in the current rendering of the scene but still exists.

hierarchy A way of defining objects in relationship to each other (using a parent-child or tree analogy). This relationship means that transformations, deformations, and any other property of the parent object affect all child objects. This allows separately modeled objects to be used in a scene as a single functional unit. The movement of a parent affects the movement of the child, but you can move the child without affecting the parent.

high resolution Digital video of a resolution suitable for broadcast.

HIIP Host Image Independence Protocol. HIIP allows the Avid system to import and export files in various standard formats. Also called Image Independence.

HIIP folder The folder containing files that support the Host Image Independence Protocol. See also *HIIP*.

histogram In color correction, a graph that plots the distribution of pixels in an image based on their brightness. Provides a visual guide to the makeup of a video image in terms of relative luminance.

HLS Hue, Lightness, Saturation: the three components of the HLS color model. Hue refers to the position of the color in the spectrum, such as red, yellow, or green. Lightness is the amount of white mixed in a color, such as the difference between a pure red and pink. Saturation is the purity of the color, such as the difference between a pure red and a dusty rose—low saturation means that there is more gray in the color. See also *hue, luminance*, and *saturation*.

H phase Horizontal phase. The horizontal blanking interval used to synchronize the timing of two or more video signals.

HSB Hue, Saturation, Brightness. See *HSV*.

HSV Hue, Saturation, Value: the three components of the HSV color model. This color model defines the hue and saturation similar to the HLS model. Value is similar to lightness, as in HLS; however, a value of 1 represents a pure color when saturation is 1, while a lightness of 1 yields white no matter what the saturation. In both systems, 0 is black. See also *hue, saturation*, and *value*.

hue An attribute of color perception. Red, green, blue form the color model used, in varying proportions, to produce all the colors displayed in video and on computer screens. Also called a *color phase*.

Hue is expressed as a degree from 0 to 360 on a standard color wheel. For example, a value of 0 represents red, a value of 180 represents cyan, and a value of 300 represents magenta. See also *vectorscope, luminance,* and *saturation*.

Glossary: I

IEEE Standard 1394

The international hardware and software standard for transporting data at 100, 200, or 300 megabits per second (Mb/s).

image clip

A copy or instance of a source image. Each time you use a source image, an image clip of it is created. You can have as many clips of the same source as you need. You can then manipulate the clip without affecting the original source image. See also *source or source clip*.

Image Independence

A registered trademark of Avid Technology, Inc. See *HIIP*.

in-betweening

See *keyframing*.

iNEWS ControlAir

A machine control system for on-air operations (iNEWS ControlAir), which can be integrated into the iNEWS newsroom computer system or operate as a standalone environment. It is used to run a show's production devices, such as character generators, still store machines, and video servers.

infinite light

A light source that is very far away, so that the light rays are essentially parallel to each other, such as the sun. See also *directional light*, *local light, and spot light*.

initializing

The setting of the computer edit program to proper operating conditions at the start of the editing session.

ink numbers

The frame identification numbers used to conform a film work print. Film Composer cut lists and change lists reference ink numbers.

IN point

1. The place where an edit, clip, or effect starts. Also called mark IN.

2. A point in the timeline, represented by a locator, where material is inserted. See also *mark IN/OUT* and *OUT point*.

Input icon

A graphical representation of the input to a node. You can make a connection to this icon from the output icon of another node.

See also *Output icon*, *node*, and *Effects Tree*.

insert Placing new material in an existing video sequence by moving the existing material to accommodate the new or overwriting the existing material. See also *overwrite*.

insertion point The location in a body of text where new characters will be inserted. It is indicated by a blinking vertical cursor.

interactive cache A cache that is created each time you view an image with an effect applied to it. Avid DS Nitris automatically processes the effects on the frame on which the position indicator is currently positioned and saves it to disk, so that you can improve your interaction time when viewing the results of effects on a frame-by-frame basis.

interface 1. The computer software or hardware used to connect two functions or devices.

2. The program access level at which a user makes selections and navigates a given system.

interlace To combine the odd and even fields in a clip. When you interlace a clip, each frame becomes a field and the clip's duration is halved.interpolation

The process used to estimate an unknown value between two or more known values. In animation, interpolation is the process used to calculate values at frames between two keyframes in a sequence. See also *keyframing*.

I/O device See *device*.

IP address Internet Protocol address. A 32-bit numeric identifier usually expressed as four groups of 8-bit decimal numbers (0-256) separated by periods, such as: 192.168.0.1.

IPTC International Press Telecommunications Council. A group established to safeguard the telecommunications interests of the world press.

IRE A unit of measurement of the video waveform scale for the measurement of video levels, originally established by the Institute of Radio Engineers. The scale is divided into 140 IRE units, 100 above the blanking reference line and 40 below it.

ISO 1. International Organization for Standardization.

2. Isolation reel. In multicamera production, the source reel for the separate (isolated) recording of a single camera, alongside simultaneous recordings of the other cameras and a switched line feed.

ITU-R 601 The standard for standard-definition component digital video, published by the International Telecommunication Union as ITU-R BT.601-5 (formerly CCIR-601). This standard defines digital component video as it is derived from NTSC and PAL. It forms the basis for HDTV formats as well.

ITU-R 709 The standard for high-definition television formats, published by the International Telecommunication Union as ITU-R BT.709. ITU-R 601 and ITU-R 709 share some information: for example, for 8-bit components, black is mapped to 16 and white is mapped to 235. However, color values can change when converting from SD to HD, and vice versa. Avid HD systems automatically compensate for these differences.

Glossary: J

jaggies The rough edges around computer-generated graphic objects and titles.

jam syncing The process of synchronizing a secondary timecode generator with a selected master timecode.

JBODS Just a bunch of disks.

JFIF JPEG File Interchange Format. A file format that contains JPEG-encoded image data, which can be shared among various applications. JFIF resolutions store data at a constant rate; for example, JFIF 300 uses 300 KB for each frame it stores. JFIF resolutions comply with the ISO-JPEG interchange format and the ITU-R 601 standard.

jogging To move through a clip or sequence, frame by frame, forward and backward. See *stepping* and *scrubbing*.

JPEG Joint Photographic Experts Group. Also, a form of compression developed by Avid Technology, Inc.

justified text Text that is both left- and right-aligned in a column.

Glossary: K

KEM roll The roll of film used on a KEM flatbed editing system. A KEM roll combines multiple takes onto a single roll (a work print, not a negative). The maximum length of a KEM roll is 1000 feet (35mm).

kerning The amount of spacing between text characters, such as titles. See also *leading*.

key 1. To combine a selected image from one source with an image from another source. See also *chroma key*.

2. A special alphanumeric code that a user assigns to a queue or story to lock it. To open, or unlock, a queue or story, a user must have the key. See also *lock*.

keyboard shortcuts The keys or key combinations that, when pressed or held down, provide quick access to frequently performed commands or operations. A keyboard shortcut is the keyboard equivalent of a command, tool, or operation that is also available elsewhere in the application. In some cases, an object, such as a clip on the timeline, must be selected first.

key color The color used in the keying process. See also *keying*.

keyframe The value of an animated parameter that you set at a given point in time. Parameter values between keyframes are obtained by interpolating between keyframe values.

keyframing The process for animating values over time. Each keyframe is a frame that explicitly defines one or more parameter values. Values for frames between two keyframes are computed by interpolating (averaging) the values at the keyframes.

keyframe marker The visual representation of a keyframe.

keying The process of creating a matte from a foreground clip to composite it over a background clip. You can create a key based on HLS, YUV, or RGB color values. See also *matte*.

Keykode A trademark of Eastman Kodak Company. A film-marking system that applies optical information identifying the film stock and footage at the edge of the film during manufacture.

key numbers The original frame identification numbers applied by the film manufacturers to the film stock. Key numbers are used by the negative cutter to conform the film negative. Film Composer cut lists and change lists reference key numbers.

kill To delete a story.

kilobyte (KB) Approximately one thousand bytes (1024 bytes) of information.

kilohertz (kHz) One thousand cycles per second. See also *hertz (Hz)* and *megahertz (MHz)*.

kissing A method in which you can connect nodes in an Effects Tree. You can drag a node's input icon over the output icon of another node, so that it "kisses" the edge of the second node. A connector joins the two nodes. See also *ripping*, *sticky connections, and twanging*.

Glossary: L

lattice A box made up of points that surrounds an object for the purpose of deforming it. Every point on a lattice is associated with a number of points on the object: when a point on the lattice is moved, the points on the object are also moved which changes the object's shape.

layback The process of transferring a finished audio track back to the master videotape. See also *audio sweetening*.

layer 1. An object in the Layers view that you can composite over another layer using a matte.

2. An object that defines how its contents are drawn. Layers are the size of and the same duration as the scene.

3. An object in the Effects Tree that you can composite over another input using a matte.

4. The clip that follows the motion path extracted from the reference clip in a Tracker effect. See also *2D layer* and *3D layer*.

layered tracks The elements of an effect created by combining two or more tracks in a specified way, such as nesting one track as a layer within another.

L-cut See *overlap edit*.

leader A length of film, tape, or a digital clip placed at the beginning of a roll, reel, or sequence to facilitate the cueing and syncing of material.

leading The vertical distance between lines of word-wrapped text in a single paragraph. See also *paragraph spacing*.

level A quantitative measure of a video or an audio signal. A low level indicates the darker portions in video and the soft or quieter portions in audio; conversely, a high level indicates a brighter video image or a louder audio signal. The level of audio signal correlates directly with the volume of reproduced sound.

library 1. A storage area that contains library elements.

2. A collection of pictures, materials, textures, tools, shaders, and so on from which you can select.

library element A piece of information stored in a library that you can use to simplify or automate the creation of titles. A library element might be a collection of property values used as a style or material, a graphics or animation file used as a texture, a collection of title objects and their behaviors used as a template, or a script.

lift To remove selected frames from a sequence and to leave black or silence in the place of the frames.

light source lluminates the objects in a scene. A light source can be an infinite light, point light, or spotlight. Lights affect the way all objects' surfaces appear, including their color. Lights can also be set to cast shadows. See also *infinite light*, *local light*, and *spot light*.

Linear A type of curve that consists of straight line segments between control points. See also *Bézier* and *spline*.

linear editing A type of tape editing in which you assemble the program from beginning to end. If you require changes, you must rerecord everything downstream of the change. The physical nature of the medium (for example, analog videotape) dictates how you place material on the medium. See also *nonlinear editing*.

line feed A recording or live feed of a program that switches between multiple cameras and image sources. Also known in sitcom production as the director's cut.

line of sight The path from the viewer to an object in the scene. See also *field of view (fov)*.

line spacing See *leading*.

lineup See *rundown*.

linked clip A representation of a media file located outside your disk array. As the media associated with a linked clip does not reside within the current project, you must process it before you can play it back in real time.

lit material A material whose appearance is affected by light sources. See also *emissive color*, *shininess*, *specular color*, and *tinted material*.

load 1. A roll of film stock ready to be placed in the camera for photography. A 1000-foot load is a common standard.

2. A group of multicamera reels shot at the same time, sharing the same timecode, and numbered accordingly.

3. To open a clip in preparation for viewing or editing.

local coordinates An object's coordinate system with its own center as the reference point (origin) as compared to global coordinates, which includes an origin for all objects in the world space. For example, if you animate a child object in a hierarchy using local coordinates, the animation is relative to its parent, not the global origin.

local light A light source whose light rays extend from a single point evenly in all directions, such as a candle. See also *infinite light and spot light*.

local map A texture image that is applied across the surface of an object. For container objects, the surface of each subobject is treated as a separate surface. As the object is moved, scaled, or rotated, so is the texture. See also *reflection map*.

local shadow A shadow that is attached to a side of an object, and moves in relation to the object. See also *drop shadow and projected shadow*.

locator A mark added to a selected frame to qualify a particular location within a sequence. User-defined comments can be added to locators.

A mark that is used to set reference points or areas of interest on the clips or the timeline.

lock To protect data, such as a queue or story, from access by unauthorized users.

log To enter information about source material into bins at the beginning of the editing process. Logging can be done automatically or manually, before capturing, or at the same time as capturing. See *shot log*.

loop 1. The recording of multiple takes of dialog or sound effects.

2. To repeatedly play back a section of the timeline or a clip or an animation sequence.

lossless compression A compression scheme in which no data is lost. In video compression, lossless data files are usually very large.

lossy compression A compression scheme in which data is thrown away, resulting in loss of image quality. The degree of loss depends on the specific compression algorithm used.

lower third A title that appears in the lower-third horizontal region of the video frame. An example of a lower-third title is the name of a person who is speaking on the background video. Lower-third titles are usually left-justified, centered, or right-justified within the region.

low resolution The digital video of a resolution suitable for edits or distribution over a network, but not for broadcast.

LS Long shot.

LTC Longitudinal timecode. A type of SMPTE timecode that is recorded on the audio track of a videotape. LTC can be easily read when the tape is moving forwards or backwards but not at freeze frame. See also *VITC* and *timecode*.

luminance The measure of the intensity of the combined color (white) portion of a video signal. The relative lightness or darkness of a color. The values range from 0 (darkest/black result) to 1 (lightest/white result). See also *hue* and *saturation*.

Glossary: M

M & E track The common designation for a single sound track containing music and sound effects but not dialog.

main surface The front and back faces of an object, or the front face of a DVE or 3D DVE object. See also *background*, *edge surface, extrude surface,* and *surface*.

magnetic track A sound track recorded on magnetic sound recording film.

magnetism An object's ability to "snap" or align to other objects on the timeline when they are in close proximity of each other. As you drag an object on the timeline, it snaps to any of these elements: locators, clip in/out-points, cuts and transitions, and the position indicator.

manipulators See *3D manipulators*.

marker 1. A mark added to a selected frame to qualify a particular location within a video sequence. Also called *locator*.

2. An indicator that links a script to production information. Also called *grommet* or *anchor*.

mark IN/OUT 1. To enter the start and end timecodes for a clip to be edited into a sequence.

2. To mark or log timecode numbers to define clips during a logging, recording, or capturing session. See also *IN point* and *OUT point.*

mask 1. In film, a border placed over an image with a 3:4 aspect ratio to create the look of an another aspect ratio, such as wide-screen.

2. An image, portion, or component of an image that defines which pixels, paint strokes, and titling characters affect the image. See also *alpha channel* and *matte*.

master The tape resulting from editing. The finished program.

master clip 1. The media object that refers to the media files recorded or captured from tape or other sources.

2. The first clip selected in a sync group. Clips selected or added subsequently are slave clips. See also *clip, subclip,* and *sync lock.*

master shot The shot that serves as the basic scene, and into which all cutaways and close-ups will be inserted during editing. A master shot is often a wide shot showing all characters and action in the scene.

master/slave A video-editing process in which one or more decks (the slaves) are set to imitate the actions of another deck (the master).

A relationship between synchronized clips in which the position of the slave clips is calculated relative to the master clip.

material A collection of values that defines the appearance of a surface of an object. These values generally control how the surface interacts with light in the scene to create the object's color, specularity (highlights), reflective qualities, transparency, and, if the surface is at all transparent, refraction. Basically, they are those qualities that suggest the material that an object is made of, whether wood, plastic, or metal. See also *gradient* and *texture*.

matchback The process allowing you to generate a film cut list from a 30-fps video project that uses film as the source material.

matchback conversion The conversion from film to video frame rates.

match-frame edit An edit in which the last frame of the outgoing clip is in sync with the first frame of the incoming clip, such that the incoming clip is an extension of the outgoing clip.

material The appearance of a surface of an object. A material can be a solid color, a gradient, or a texture. In addition, gradients and textures can have an optional tint.

matte A grayscale image that defines the transparency of an image when it is composited over another. A matte can be part of the image itself (alpha channel) or derived from another image (external matte). See also *external matte*.

matte key A video effect comprised of three components: the background video, the foreground video, and the matte or alpha channel (black and white or grayscale silhouette) that allows one portion of the image to be superimposed on the other.

media 1. The video, audio, graphics, and rendered effects that can be combined to form a sequence or presentation.

2. The digitized form of source material after it has been captured and imported from tape or file into the application.

media data Data from a media source. Media data can be:

- Analog data — film frames, Nagra tape audio, or videotape video and audio

- Digital data — either data that was recorded or captured such as video frame data and audio samples, or data created in digital form such as title graphics, DAT recordings, or animation frames

media disk The physical device where you store media, such as a disk array.

media files Files containing the compressed digital audio and video data needed to play Avid clips and sequences. See also *clip* and *compression*.

media sample data See *safe color limiting*.

megahertz (MHz) One million cycles per second. See also *hertz (Hz)* and *kilohertz (kHz)*.

mental ray rendering software A high-quality, photorealistic raytracing renderer. The mental ray rendering software provides an extensive set of built-in functions and can create procedural textures (including bump and displacement maps), materials, atmosphere, and other volume rendering effects, environments, camera lenses, and light sources.

metadata "Data about data" that describes the content, quality, condition, and other characteristics of data.

MIDI Musical Instrument Digital Interface. A standard protocol that allows a user to control electronic music equipment from a PC.

MII A component videotape format created by Panasonic in an effort to compete with Sony Betacam. MII is an extension of the VHS consumer format as Sony Betacam is an extension of the Betamax home video technology.

mirroring A fault tolerance method that keeps identical copies of data on disk partitions located on different physical hard disks and servers.

mix 1. A transition from one video source to another in a switcher.

2. The product of a recording session in which several separate sound tracks are combined through a mixing console in mono or stereo.

mixdown audio The process that allows the user to combine several tracks of audio onto a single track.

models A powerful way of organizing objects in your scenes and projects. Models contain not just the geometry of hierarchies, but also the function curves, shaders, and other properties that have been applied to it. They can also

contain internal constraints; that is, those constraints that refer only to elements within the model's hierarchy. Models can be easily reused in other scenes and projects.

This term also loosely refers to objects and characters.

monitor 1. In video, a picture tube and associated circuitry without tuner or audio sections. The monitor includes the display of source media, clips, and sequences. In Avid products, virtual monitors are displayed on the screen in which source media, clips, and sequences can be edited.

2. In audio, to monitor specific audio tracks and channels, or another name for the speakers through which sound is heard.

mono A single channel of audio data.

morph A technique that lets you transform one image or a sequence of images into another over a sequence of frames. See also *warp*.

MOS Media Object Server.

See also *MOS device*, *MOS protocol*.

MOS device A product that stores media objects and supports the MOS protocol.

See also *MOS protocol*.

MOS protocol An XML-based protocol for communication between a newsroom computer system and a MOS device.

See also *MOS device*.

motion blur The blurring of objects that move while the camera shutter is open, creating the illusion of movement. Motion blur also prevents strobing caused by too-rapid movement.

motion effect An effect that speeds up or slows down the presentation of media in a track.

motion path 1. The path that is drawn when a tracker tracks the movement of an object in a reference image. The path is comprised of a series of control points or keyframes, representing the position of a tracker on each frame. This path is then used to move the image of another layer.

2. The path that is drawn when a DVE is translated and animated. See also *DVE*.

motion tracking The process of generating position information that describes motion in a clip, for example, the changing position of a moving vehicle. You use motion tracking data to control the movement of effects. Motion tracking also lets you stabilize an image by compensating for unwanted camera movement. See also *stabilization*.

MU/FX or MUFX See *M & E track*.

multicamera A production or scene that is shot and recorded from more than one camera simultaneously.

muticamera editing Creating a video sequence of a single scene using material recorded with multiple cameras.

multiple B-roll A duplicate of the original source tape, created so that overlays can be merged onto one source tape.

multitrack A magnetic tape or film recorder capable of recording more than one track at a time. Placing clips on different tracks and creating cuts between them.

mute 1. To turn off the sound on an audio track or the visibility of a layer when compositing. See also *bypass*.

2. Temporarily turning off an operator which prevents it from affecting the objects on which it is applied. All operators can be muted. This can be useful for improving the speed of interaction in large scenes, or to make other selections and adjustments.

3. Mute also means to temporarily disable a viewport by middle-clicking its letter identifier in the upper-left corner. Middle-click it again to reactivate the viewport.

Glossary: N

namespace A unique identifier for models; each model maintains its own namespace. Each 3D object in a model's hierarchy must have a unique name, but 3D objects in different models can have the same name. For example, two characters in the same scene can both have chains named "left_arm," "right_arm," and so on.

NAB National Association of Broadcasters.

Nagra A brand of audiotape recorder widely used in the film production and postproduction industries.

negative 1. A film element in which the light and dark areas are reversed compared to the original scene; the opposite of a positive.

2. A film stock designed to capture an image in the form of a negative.

neighborhood effect See *spatial filtering effect*.

network address A network number that uniquely identifies a network cable segment. It is also referred to as the IPX external network number.

NewsML NewsML is a compact, extensible and flexible structural framework for news, based on XML and other appropriate standards and specifications. It supports the representation of electronic news items, collections of such items, the relationships between them, and their associated metadata. It allows for the provision of multiple representations of the same information, and handles arbitrary mixtures of media types, formats, languages and encodings. It supports all stages of the news life cycle and allows the evolution of news items over time. Though media-independent, NewsML provides specific mechanisms for handling text. It allows the provenance of both metadata and news content to be asserted.

News Story Markup Language The XML-compliant data structure of stories in the iNEWS NRCS newsroom system.

node 1. Any type of data that is represented in an explorer or a tree view.

2. The graphical representation of the inputs, effects, and output in an Effects Tree. Each node in the tree is identified by an icon and a name. See also *Effects Tree*.

noise 1. In video, an aberration that appears as very fine white specks (snow) and that increases over multiple generations.

2. In audio, a sound that is usually heard as a hiss.

nondestructive editing A method of editing whereby the captured source material is always left unchanged.

noncomposite video — A video signal that does not contain horizontal and vertical sync pulses.

non-drop-frame timecode — An SMPTE timecode format that continuously tracks NTSC video at a rate of 30 fps without dropping frames to compensate for the actual 29.97-fps rate of NTSC video. As a result, non-drop-frame timecode does not coincide with real time. Non-drop-frame timecode is recorded with colons between the digits; for example, 1:00:10:02. See also *drop-frame timecode*.

nonlinear — Pertaining to instantaneous random access and manipulation of any frame of material on any track and on any layer of an edit sequence.

nonlinear editing — A type of editing in which you do not need to assemble the program from beginning to end. The nature of the medium and the technical process of manipulating that medium do not dictate how the material must be physically ordered. You can use nonlinear editing for traditional film cutting and splicing, and for recorded or captured video images. You can make changes at the beginning, middle, or end of the sequence. See also *linear editing*.

NRCS — Newsroom Computer System. Used to generically describe the newsroom database system.

NTFS — New Technology File System. A file system used on Windows computers.

NTSC — National Television Standards Committee. The organization that defined the color broadcasting standard used in North America, Japan, and parts of South America. It is now used in reference to a video signal that conforms to the NTSC guidelines. The NTSC signal uses 525 horizontal lines per frame with two fields per frame of 262.5 lines. Each field refreshes at 59.94 Hz. See also *PAL* and *SECAM*.

nulls — Points in space. Although simple, they have many uses, such as setting constraints, organizing objects in hierarchies, and so on. A null is displayed in the viewports as three intersecting lines, and is not visible in a rendered scene.

Glossary: O

object — A distinct item within a title created by using the Text, Rectangle, Ellipse, or Shape tool. A container object can contain subobjects. See also *3D objects*.

offline — Pertaining to items that are unavailable to the computer, such as offline disks or media files.

offline edit The preliminary or rough-cut editing that produces an *EDL* (edit decision list). A rough cut or preliminary edit usually performed using low-cost equipment, which can then be conformed on a high quality online system.

offscreen rendering A method of rendering the scene in the background so that you can work on other tasks during rendering.

OMF Open Media Framework.

OMFI Open Media Framework Interchange. A standard format for the interchange of digital media data among heterogeneous platforms. The format is designed to encapsulate all the information required to interchange a variety of digital media, such as audio, video, graphics, and still images as well as the rules for combining and presenting the media. The format includes rules for identifying the original sources of the digital media, and it can encapsulate both compressed and uncompressed digital media data. An advanced form of an edit decision list. In addition to the instructions for transitions and timewarps, it also preserves layering information in a sequence.

omni-directional light See *local light*.

one light A telecine transfer or film print produced with a single setting of color correction values. One light is the simplest, fastest, and least costly type of transfer.

one-sided transition A transition or other effect applied to a clip's in point or out point. See also *transition*.

onion skinning Blending the current frame with preceding and/or successive frames at a specified percentage.

online edit The final edit using the master tapes and an edit decision list (EDL) to produce a finished program ready for distribution; usually associated with high-quality computer editing and digital effects.

opacity A property of an image or object that controls how much objects behind them are obscured. For images, it can be controlled by the alpha channel or by an external opacity control. See also *transparency*.

OpenGL Open Graphics Library. An interface to graphics hardware that allows for the creation of high-quality images, especially three-dimensional representations of objects.

operator A node that processes inputs to produce an output. An operator modifies an object, geometry, cluster, or property.

opticals The effects created in a film lab through a process called A-roll and B-roll printing. This process involves a specified manipulation of the film negative to create a new negative containing an effect. The most common opticals used in film editing are fades, dissolves, and superimpositions.

order lock A temporary lock placed on a queue when a user changes a sequence of stories in that queue. Order locking does not prevent other users from accessing the queue, but does prevent them from ordering the queues simultaneously.

orientation grid The visual representation of the frame size, location, and orientation in three-dimensional space. The orientation grid appears as equally spaced horizontal and vertical lines, with X, Y, and Z axis arrows extending from the center of the frame.

origin A reference point for measuring sections of recorded or captured sample data. A file mob value for the start position in the media is expressed in relation to the origin. Although the same sample data can be rerecorded or recaptured, and more sample data might be added, the origin remains the same, so that composition source clips referencing it remain valid.

original negative The actual film stock used in the camera to photograph a scene.

orphan file See *unreferenced media files*.

orthographic projection A type of projection whereby objects are not distorted to make depth more realistic. With orthographic projection, it is as if the object is very far away from the viewer, and distortion is not apparent. Although this type of projection is not realistic, it is sometimes useful to have an undistorted texture on an object rotating around the X or Y axis. See also *perspective*.

OUT point The end point of an edit, or a mark on a clip indicating a transition point. Also called *mark OUT*. See also *IN point*.

output 1. The result of inputs and effects in the Effects Tree.

2. The result of all layers and effects applied to each layer in a composite.

Output icon A graphical representation of the output of a node in an Effects Tree. You can make a connection to this icon from multiple input icons of other nodes. See also *Input icon*, *node*, and *Effects Tree*.

output pixel aspect The title's pixel aspect, which describes the aspect ratio of the final display, such as a video monitor. See also *square pixels*.

outtake A take that is not selected for inclusion in the finished product.

out time The total length of time for a show (shown in hours, minutes, and seconds) or the actual time by which the show must end (shown in 12-hour clock time). See also *backtiming*.

overlap edit An edit in which the audio and video signals are given separate IN points or OUT points, so the edit takes place with one signal preceding the other. This does not affect the audio and video synchronization. Also called L-cut, delay edit, or split edit.

overwrite An edit in which existing video, audio, or both is replaced by new material. See also *splice*.

oxide A metallic coating on videotape or magnetic film that is magnetized during the recording process.

Glossary: P

page An object that exists within a deck object for a specific part of the deck object's duration. A page object is a container for other objects, even other decks. You create transitions between pages. See also *deck*.

page curl A type of DVE that bends the edge or corner of the surface and pulls it across the surface, similar to turning a page of a book.

PAL Phase Alternate Line. The video signal standard used in Western Europe, the United Kingdom, China, Australia, New Zealand, the Middle East, and parts of Africa. Video products destined for these areas must be compatible with this standard as opposed to NTSC standards.

PAL is based on the 50 Hz power system and displays 625 scan lines interlaced at 50 fields per second (25 frames per second), with two fields per frame of 312.5 lines each. Conversion between PAL and NTSC is possible but the standards are incompatible. See also *NTSC* and *SECAM*.

palette A central location for user-selectable buttons, which you can map to various functions for ease of use. The Command palette houses all the user-selectable buttons that allow you to perform a wide range of commands with a single click of the mouse.

pan A camera technique in which the focal point is adjusted by pivoting the camera direction, usually slowly across a scene.

paragraph spacing The vertical distance between paragraphs in a text object. See also *leading*.

parent timeline Any level of the timeline containing subordinate levels. For example, container clips are placed on the parent timelines of their contents. See also *top timeline*.

parallel projection See *orthographic projection*.

parameters Also known generally as properties, parameters are the "atomic" elements of a property set whose values determine the behavior of something. You can set parameters in property editors. See also *property*.

particles A point-based particle generation system that simulates types of natural phenomena that contain many particles. The particles system simulates particle dynamics by applying forces and recreating events, such as decay (disintegration) and obstacles, that affect natural particles. This allows you to animate particle streams, such as sparks rising from a campfire, fireworks, or the tail of a comet trailing off into space.

partition A method of assigning disk space that creates two or more virtual disks from a single physical disk (similar to creating a directory/folder).

patching The routing of audio or video from one channel or track in the sequence to another.

path 1. A user-defined curve along which you can fit text, scroll text, or animate objects. Paths can be linear or nonlinear.

2. The path to a certain file in the operating system's folder structure. Path names always start from the root folder. Each operating system has its own rules for specifying paths. On Windows systems, the root folder is named backslash (\) and each subfolder is separated by an additional backslash.

path name The hierarchical name of the directory and sub-directories in which a file is located.

path text Text that fits on or moves along a user-defined path.

pedestal See *setup*.

perspective A traditional art method of creating the illusion of three-dimensional form and distance on a two-dimensional surface. Perspective provides a three-dimensional view of the scene that indicates depth. In a perspective view, objects appear to converge toward a central vanishing point, and objects closer to the camera appear larger than those farther away. A perspective view is in contrast to an orthogonal view. See also *orthographic projection*.

picking A way of selecting an object when in a certain mode of action.

pinning To mark the function curves of different objects, so that they can all be viewed simultaneously in the animation editor.

player controls The electronic equivalent of tape deck controls. Also called *transport controls*.

pointer The onscreen pointer that is controlled by mouse movements.

point light See *local light*.

point(s) 1. The mark IN and mark OUT entered in the timeline.

2. A fundamental building element of an object in 3D space with an XYZ location. Point coordinates are the minimum information from which the geometry of an object can be calculated.

PortServer A high performance communications server that allows the connection of clusters of high-speed serial ports to any TCP/IP Ethernet network.

pop-up monitor An ancillary monitor used to view and mark clips and sequences.

position bar The horizontal rectangular area beneath the Source monitor, Record monitor, Playback monitor, Composer monitor, and Source pop-up monitor that contains the position indicator.

The horizontal rectangular area below the viewers/monitors that lets you view the location of the position indicator, locators, animation keys, and timecode as well as set an in point and an out point.

position indicator A vertical colored line that moves in the position bar and in the timeline to indicate the location of the frame displayed in the monitor.

postroll A preset period of time during a preview when a clip will continue to play past the OUT point before stopping or rewinding.

polygon A geometric primitive consisting of a closed non-intersecting set of contiguous line segments joining points.

polygon mesh A 3D object comprising a “quilt” of polygons joined at their edges and vertices.

precomputed media A computed effect stored in a file and referenced by a composition or sequence. Applications can precompute effects that they cannot create during playback.

preference set A file containing customized layouts, toolbars, command maps and script commands. You can create new preference sets, as well as importing and exporting existing ones.

prelay The phase of audio postproduction during which music, sound effects, dialog replacement, and announce tracks are added to the master multitrack before the final mix.

premultiplied image An image in which the RGB values of pixels have been multiplied by their corresponding alpha channel values. Only the color information is required to composite the image onto a different image; the alpha channel information is not required because it has already been incorporated into the color information. See also *straight alpha*.

preroll The process of rewinding videotapes to a predetermined cue point (for example, 6 seconds) so the tapes are stabilized and up to speed when they reach the selected edit point (during recording or capturing of source material from a video deck).

presenter The person presenting a newscast on-air to a television audience. Also called an *anchor*.

preset A customized set of properties for an effect, Effects Tree, transition, graphics tool, or attribute. Using the object’s property editor, you can modify any of these properties, and save them as a new preset.

preview To rehearse an edit or effect without actually performing (recording/exporting) it.

preview code

An additional reference numbering system, like key numbers, supported by Film Composer for comparing digital sequences with evolving work print versions using change lists.

primary color correction

Color correction that applies to every part of a video image, or to every part of a video image that falls within a defined luminance range. See also *secondary color correction*.

primitive

Primitives are basic predefined 2D and 3D shapes, such as circles, spheres, cubes, spirals, multi-sided figures, and so on. These primitives can be used "as is" or modified. Typically, you select a primitive form and then transform it or combine it with other modified pieces.

Primitives can be polygon mesh objects, surfaces, or curves.

print

A positive copy of the film negative produced in the laboratory. See also *answer print*, *release print,* and *work print*.

priority queue

1. An area where copies of wire stories are placed.

2. A queue designated to be read first by a server program for new stories.

process

To create a final image or sequence of images. Most of the effects, transitions, composites, or container clips in your sequence must be processed before they can be viewed during playback. Avid DS Nitris can play some effects in real time if you have the real-time, multi-stream workstation. The results are stored in a new media file (cache), so that your source media remains unaltered.

process shot

A shot photographed specifically to be part of a special effects composite.

production cue

A prompt to start a story element, such as a video playback. It is typically on the left of a scripted story, and provides information for other devices being controlled in the rundown. Production cues are usually prefaced by an asterisk (*). See also *marker*.

profile material

The material used for the profile surface of an object.

Program side

In color correction, the second of two available levels of color adjustment. Corrections made on the Program side typically apply a final look to a finished sequence, for example, by fine-tuning the color values to enhance the mood of a dramatic program. See also *Source side*.

progressive media Media composed of single frames, each of which is vertically scanned as one pass.

projected shadow A shadow that is produced by a light source shining on the object and projecting the obscured region onto a shadow plane. See also *drop shadow and local shadow*.

projection The method of representing three-dimensional objects on a two-dimensional surface, such as a computer display. See also *orthographic projection and perspective*.

property A collection of parameters whose values can determine the appearance, behavior, or simply provide information about an element in a scene or sequence. Properties define the visual aspect of objects; some provide motion information, such as time, and others are used internally to control the way specific operations are performed. The parameters of most properties can be edited and animated in property editors. Related parameters are usually displayed as a property page within a property editor.

property curve A curve that describes how a property's value changes over time.

property editor A tool similar to a dialog box that allows interactive editing of the properties that define the objects and models in a scene. As you make changes, the scene is updated to reflect these changes. A property editor contains tabs that indicate property pages and keyframing icons for animating parameters.

Protection master A copy (dub) of a master tape, usually made immediately after the master has been recorded. It is used as a backup if the master is damaged.

PsF Progressive segmented frames. A progressive format where the frames are displayed one after the other, but are transported as two separate fields.

pulldown A process in which extra fields are added or "pulled down" during the conversion of 24-fps material to 30-fps NTSC or 25-fps PAL videotape. This conversion can be a telecine film-to-tape transfer or a 24p high-definition (HD) downconversion. Special procedures are required when recording or capturing to eliminate the extra pulldown fields and to achieve true 24-fps editing. (PAL video with pulldown is not currently supported in Avid editing systems.)

pulldown phase In a project based on an NTSC 24-fps to 30-fps transfer, the video frame at which a master clip starts: A, B, X, C, or D. The pulldown phase represents the pulldown-to-timecode relationship. Also called pullin frame.

pullin An Avid term that combines two words — pulldown and IN point. The pullin is the column where the user logs the pulldown phase of the start timecode as either A, B, X, C, or D. The user can modify this field before or after output or capture.

pullout An Avid term that combines two words — pulldown and OUT point. The pullout is the column where the user logs the pulldown relationship at the sync point of the OUT point (end timecode) as either A, B, C, or D. This field cannot be modified by the user and is calculated by the system based on the pullin and the duration of the clip.

purge 1. To delete source or cached media. Source media is associated with master clips, while cached media is generated from processed effects, graphics and composites in a sequence.

2. To remove stories from queues (based on age or specified interval). Purged stories are recycled as needed as new space is required.

Python The programming language used when writing Marquee scripts.

Glossary: Q

quadraphonic A surround sound configuration that uses four channels of audio data.

queue An area of the database that contains stories related to a general topic. Queues are storage places within a system's file structure that allow you to organize information in detailed categories. See also *directory*.

quickstretch An animated deformation that changes an object's shape automatically, based on its motion. It calculates deformations on the fly according to the object's speed and acceleration. Quickstretch uses four types of motion—linear velocity, linear acceleration, rotational velocity, and rotational acceleration—to calculate the deformation. For each type of motion, you can deform by flexing, stretching, or yielding.

Glossary: R

radio frequency (RF) The high-frequency portion of the electromagnetic spectrum used for transmitting television and radio signals. See also *UHF* and *VHF*.

RAID Redundant Array of Independent Disks. The storage device standards that provide fault tolerance, which helps to recover a system if a drive malfunctions. RAID is also used to enhance throughput of stored data.

RAM Random-access memory. Computer memory that is volatile and unsaved; information in RAM clears when the computer is turned off.

Raster mode A mode that lets you perform tedious rotoscoping tasks quickly. Also called *destructive mode*.

raytracing A rendering method that plots a view of every pixel in a scene through a virtual camera's lens. The mental ray rendering software is a raytracing renderer. Rays are cast from the camera, taking into account the location, strength, and quality of all light sources, along with the surface characteristics of each object in the scene including transparency, reflectivity, refraction, and shadows. Shiny objects reflect other objects, and realistic shadows are cast. Raytracing bounces the light through the model rather than terminating light values when they first intersect an object. The color and direction of light is changed by the object's reflective and spectral properties.

read rate The number of words per minute at which a presenter can read a news story. The total running time of a newscast is based on the read rate of the presenter.

real time During play back, events occur at actual clock time.

real-time effect An effect that you can apply to your sequence and play without having to process it first.

record To convert analog video and audio signals to an Avid compressed digital signal format.

reel A spool with a center hub and flat sides on which magnetic tape is wound. Generally, a spool of tape is referred to as a reel, and a spool of film is referred to as a roll.

re-encode To find and automatically convert high-resolution editing media to low-resolution browse media. The browse media is used for multiple purposes, including content creation, re-purposing, archive browsing, and story review. Also known as *scavenge*.

reference The clip that is tracked to construct a motion path.

See also *search region*, *target area,* and *tracker*.

reference background An image or animation file used to help position objects in a scene. The reference background appears behind all objects.

reference clips A clip that points to another sequence within the current project. Because reference clips only *point* to a sequence, they consume less memory and load faster than container clips. This improves performance on complex timelines. Using a reference clip also allows you to work on that portion of your sequence separately. Once updated, the changes are automatically reflected in sequences that contain this reference clip.

reference object The object that all other selected objects will be aligned to when you perform an object alignment operation.

reflection A surface characteristic used to determine the extent at which a material reflects other objects in the scene like a mirror.

reflection mapping A method of mapping an image onto an object in which the image is a rendering of the object's environment. The resulting mirror effect adds realism and takes much less time to calculate than raytracing. See also *local map, container mapping, and environment map*.

refraction The bending of light as it passes through a transparent or translucent object. See also *refractive index*.

refractive index The degree to which light bends (refraction) when passing through a transparent or translucent object. For example, the refractive index of air is 1 and water is 1.33.

refresh To update information shown on the monitor.

region of interest The part of an image that the user identifies as the target for a motion tracking operation. Also called the search pattern.

rehearse To play a sequence in the Timeline from the preroll through the postroll.

rehearse postroll To play a sequence in the Timeline from the current position to the postroll.

rehearse preroll To play a sequence in the Timeline from the preroll to the current position.

relative-to-mark time Time is displayed as though the start of the clip is at the locator mark.

relative-to-start time Time is displayed as though the start of the clip is at 00:00:00:00.

release print A film print ready for presentation to an audience. Release prints generally include both picture and sound tracks. See also *answer print, work print,* and *YUV*.

remote processing station A workstation that has only the Avid DS Nitris RP software installed on it. It handles processing requests from the client workstation.

remote service An archival system, bulletin board, or any information service that allows you to establish a connection to another service.

rendering The process of creating a final image or sequence of images from a scene description. The process of taking a geometric model, a lighting model, a camera view, and other image generation parameters, such as maps, and computing an image. Rendering techniques such as shading, light source, or depth cueing are sometimes used to make the image look realistic. See also *raytracing*.

repeat effect A type of effect for repeating a frame so that it appears to "freeze" or stop the frame, or for repeating a series of frames, such as a series of animation frames.

replace edit An edit in which a segment in the sequence is overwritten or replaced with source material of matching duration.

resolution The amount and degree of detail in the video image, measured along both the horizontal and vertical axes. Usually, the number of available dots or lines contained in the horizontal and vertical dimensions of a video image. Also, the number of color or grayscale values that can be added, usually stated in bits, such as 8-bit or 24-bit. Sometimes dots per inch (dpi) is referred to as the resolution, although it is more properly called the screen density. See also *capture resolution* and *working resolution*.

resolution independence The ability to capture, work with, and output the same material at various predetermined resolutions. The working resolution, capture resolution, and output resolution can be totally independent from one another in Avid DS Nitris. See also *working resolution* and *capture resolution*.

revolution A modeling term defining a surface made by rotating a curve around the axis of another curve.

RF See *radio frequency (RF)*.

RGB Red, Green, and Blue. In computer systems, the additive primary colors used to create all other colors on a computer monitor. See also *YUV*.

RIFF wave See *WAVE*.

right-hand rule A method of remembering the direction of positive rotation of objects around the X, Y, and Z axes. Take your right hand and wrap it around the positive end of one of the axes, with your thumb pointing away from the origin of the axis. Your other fingers will point in the direction of positive rotation around the axis.

ripple 1. The process in edit decision list management of adjusting the times of all edits following a length-altered edit.

2. A type of DVE that produces parallel ridges or waves across the surface.

ripping A method in which you can disconnect nodes in an Effects Tree. You can click on a node and "shake" or "rip" it away from the other nodes. See also *kissing*, *twanging*, and *sticky connections*.

ripple A mode that propagates the changes that you make to the edit points of clips to all successive clips. You can ripple clips on the entire timeline or just clips on specific tracks.

RMAG Removable magnetic disk. RMAGs are used in conjunction with chassis; each chassis can hold two of these removable disk modules.

roll To play a video. The digital equivalent of starting the tape deck.

rolling text Text that moves vertically across an area over time. The most common example of rolling text is credits at the end of feature films and television programs.

root 1. The parent node of any hierarchy. Transformations affecting the root affect the rest of the hierarchy. See also *hierarchy* and *models*.

2. A root is also the root directory in the operating system's directory structure. In Windows, the root directory is named backslash (\), and each subdirectory is separated by an additional backslash.

rotation sphere The control for a selected object that allows you to rotate an object around the X, Y, or Z axis, as well as set the anchor point around which the object rotates.

rotoscoping Creating imagery or mattes on a frame-by-frame basis.

rough cut A preliminary edit of a program, usually the result of an offline edit. See also *work print*.

RS-170A The Electronic Industries Association timing specification for NTSC broadcast video equipment. RS-170A specifies the timing of scans and blanking required to decode color signals.

RS-232C The Electronic Industries Association standard interface for connecting serial devices. Usually referred to by the original standard name of RS-232. The standard supports two types of connectors: a 25-pin D-type connector and a 9-pin D-type connector. The maximum permissible line length under the specification is approximately 15 meters.

RS-422 The Electronic Industries Association standard interface for connecting serial devices. The RS-422 is an enhancement of the RS-232C standard. It allows for higher data rates and an extended line length to approximately 1200 meters.

rundown A lineup or timed-out list of stories indicating the order in which they will be aired during a news program.

rushes See *dailies*.

R–Y One of the color difference signals in the component color system of the NTSC video standard. The signal formula is:

R–Y = 0.701R (red) – 0.587G (green) – 0.114B (blue)

See also *B–Y*, *Y*.

Glossary: S

S/PDIF Sony/Phillips Digital Interface Format. A consumer variation of the AES/EBU digital audio interconnection standard. The standard S/PDIF data stream contains a stereo pair (two channels) of digital audio.

safe action area, safe title area The regions of the video image considered safe from cropping for either the action or on-screen titles, taking into account variations in adjustments for video monitors or television receivers. Safe action is 90 percent of the screen measured from the center, and safe title is 80 percent.

safe color limiting The process of adjusting color values in a finished program so that they meet broadcast standards for luminance, composite signal, or RGB gamut.

sample data The media data created by recording or capturing from a physical source. A sample is a unit of data that the recording or capturing device can measure. Applications can play digital sample data from files on disk.

sample plot The representation of audio as a sample waveform.

sample rate The frequency at which an analog signal is captured during recording. The higher the sampling rate, the more accurate the digital representation of the signal becomes.

sample unit A unit of measure used in recording or capturing media data from a physical source, such as a videotape. Media data contains its own sample rate and the size of each sample in bytes.

sampling The process of measuring the value of an analog signal at regular intervals during recording or capturing. These measurements ("samples") are used to construct a digital representation of the signal.

satellite mode Recording using LTC timecode of live events, multicamera shows, and video material coming in on routers. Allows you to record to the NewsCutter system from multiple external sources at the same time they are recording to tape.

saturation The purity of a color (hue) in the video signal. The saturation of a color is diluted by gray (for example, pink is less saturated than red). A color that is 100 percent saturated contains no gray. See also *HLS*, *HSV*, *hue*, *luminance*, and *vectorscope*.

scale bar A control in the timeline window that allows you to expand and contract the timeline area centered around the position indicator.

scaling A transformation that changes the size of an object by moving all the points outward from the object's center (enlarging it), or shrinking it by drawing them all in toward that center.

scavenge See *re-encode*.

scavenge channel A channel that allows the Media Browse user to see a low-resolution copy of the media created in the high-resolution editor environment. Also known as *re-encode channel*.

scavenge path The path used to specify a source that provides editorial browse material for Media Browse. Also known as *re-encode path*.

scene 1. The area of a title that will be visible in the title's finished form.

2. A file containing all the information necessary to identify and position all of the models and their animation, lights, and cameras for rendering.

scene ambience The lighting or illumination in a scene which is assumed to come from any direction and is thus independent of the presence of objects, the viewer position, or the actual light sources in the scene. Without ambient light, objects in shadow would be completely black.

SC phase Subcarrier phase. The method used to calibrate the colorburst portion of a composite video signal.

SC/H phase Subcarrier to horizontal phase. The phase relationship between the burst and the horizontal blanking reference point for a video signal. Used to synchronize the timing of two or more video signals.

scratch pad A buffer in which text or notes are stored until the appropriate recovery procedures are performed. Deleted text and notes are stored in the scratch pad. It is separate from the Windows Clipboard and allows clippings to be accumulated.

screening A showing of a film program, a video program, or raw footage.

script 1. A block of code, written in the Python programming language. Scripts contain instructions for performing tasks, such as animation and title creation automatically.

2. A story that is read on the air. Typically, a script also contains production cues and references to the related media annotations.

scroll bar A rectangular bar located along the right side or the bottom of a window. Clicking or dragging in the scroll bar allows the user to move or pan through the file.

scrubbing 1. To shuttle through audio or video at various speeds. See also *jogging*.

2. To enter information by gestural input. Click and drag the mouse pointer in a circular motion over a text box that supports numeric values. To increase the value, “scrub” in a clockwise direction; to decrease the value, scrub in a counterclockwise direction.

SD See *standard definition (SD)*.

search pattern See *region of interest*.

search region The vicinity in which the tracker looks for its target. See also *tracker* and *target area*.

SECAM Séquential Couleur à Memoire. A color television standard developed in France and used throughout Eastern Europe. The SECAM standard uses 625 lines per frame. See also *NTSC* and *PAL*.

secondary color correction Color correction that applies to specific parts of an image defined by hue and saturation values. A secondary color correction can change the green parts of an image to yellow without altering other colors in the image. See also *primary color correction*.

SEG Special effects generator. A section of a switcher that provides the capability to perform wipes of various patterns.

segment 1. A section of a track or clip within a sequence in the Timeline that can be edited.

2. A portion of a curve. Also, a component with one dimension, such as an edge, knot curve, or boundary.

sequence 1. An arrangement of clips on the timeline that contains includes audio and video clips, and information about edit decisions, applied graphics and effects, animation settings, and working preferences.

2. A series of images or frames, usually in an animation.

serial timecode See *LTC*.

session The way in which an iNEWS Workspace is customized. Toolbars, workspace layout, and preferences can be customized and saved with a session.

setup A reference point in the video signal that is the blackest point in the visible picture. Also called black level or pedestal.

shadow The projection of an object onto a surface. A shadow is created by the object obscuring rays of light shining on it. See also *drop shadow*, *local shadow*, *projected shadow*, and *waveform*.

shape An object created by using a drawing tool.

shared volume segmentation See *chunking*.

shape tracking A technique that lets you create shapes in a garbage matte for areas that are difficult to key out, and then track them to match the moving image.

shelf The effect produced by a shelving equalizer in which the response curve for a certain range of the frequency spectrum (high or low frequency, for example) flattens out or "shelves" at the limits of the audio spectrum. In audio equalization, adjustments to the shelf affect all frequencies within the range of the response curve.

shininess The visual glossiness or dullness of a material. See also *emissive color* and *specular color*.

shot log A listing of information about a roll of film or a reel of videotape, usually in chronological order.

shuttle To view footage at speeds greater than real time.

SI Système International d'Unites. The French version of the International System of Units. SI is roughly equivalent to the metric system.

sifting The displaying of clips that meet specific criteria in a bin.

signal-to-noise ratio The ratio of a wanted signal to an unwanted signal.

silence Blank (black) space in the audio tracks in a Timeline that contains no audio material.

single-perf film Film stock that is perforated along one edge only.

single-strand editing See *A-roll*.

slate

1. An identification board held briefly in front of the camera at the beginning of a take that displays information about the take. A smart slate also includes a timecode display that is fed from the sound recorder for synchronization purposes.

2. A single page, usually containing no animated elements.

slewing

The synchronizing of decks in computerized editing systems.

slide trimming

The outgoing (A-side) and incoming (B-side) frames change because the clip remains fixed while the footage before and after it is trimmed. To change a clip's location on the timeline, while retaining its duration and active frames.

slip trimming

The head and tail frames of the clip change because only the contents of the clip are adjusted. The frames that precede and follow the clip are not affected. To move the contents of a clip while its edit points remain fixed. Slipping a clip does not change the position or duration of the active area of a clip.

smart slate

See *slate*.

smooth point

A type of control point whose tangent handles point in opposite directions, producing a smooth curve through the control point. See also *control point, cusp point, and corner points*.

SMPTE

Society of Motion Picture and Television Engineers. A frame numbering system used for electronic editing and timing of video productions. Each frame of video is assigned a number. Timecode denotes the hours: minutes: seconds: frames (00:00:00:00) elapsed on videotape. There are two types of timecode: drop frame and non-drop frame. See also *SMPTE timecode*, *timecode*, and *time-of-day timecode*.

SMPTE timecode

A frame-numbering system developed by the Society of Motion Picture and Television Engineers that is used primarily for electronic editing and timing of video programs. It assigns a number to each frame of video, telling the elapsed number of hours, minutes, seconds, and frames; for example, 01:42:13:26. See also *time-of-day timecode*.

snapshot curves

Temporary backup copies of function curves. Snapshot curves allow you to edit a function curve and then revert to the snapshot function curve if you're not satisfied with the change.

soft wipe

A wipe effect from one image to another that has a soft, diffused edge.

solo

1. To single out the sound on an audio strip.

2. To single out the visibility of a layer when compositing.

3. To single out the image on a video track. 4. A way of speeding up the refresh rate of a single viewport by hiding (or *muting*) the contents of all other viewports. See also *mute*.

sorting

The arranging of clips in a bin column in numerical or alphabetical order, depending on the column the user selects.

sorted queue

A queue in which stories are sorted according to criteria specified by the system administrator.

Sound Designer II

An audio file format (Sound Designer II) used for the import and export of digital audio tracks.

source or source clip

The original image, video, or audio file. See also *clip, master clip,* and *subclip.*

source mode

A method of assembly that determines the order in which the edit controller reads the edit decision list (EDL) and assembles the final tape. There are five different types of source mode: *A-mode*, *B-mode*, *C-mode*, *D-mode*, and *E-mode*.

source queue

A queue from which stories are copied or moved.

Source side

In color correction, the first of two available levels of color adjustment. Corrections made on the Source side typically seek to restore the original color characteristics of a clip or to achieve basic clip-to-clip color consistency among the clips in a sequence. See also *Program side*.

source generator

A type of effect that lets you create new clips based on the region or track you've selected. You can specify an effect for the new clip, such as a solid color or wood grain, and then use the clip as the background in your compositing session.

source material

The original unaltered material in the form of videotapes, film reels, digital recordings, etc. used for editing.

spatial filtering effect

A type of effect that modifies every pixel in an image based on a calculation that involves adjacent pixels.

specular color The color that appears at or near the area of a lit surface closest to a light source. By default, the specular color is white. See also *ambient*, *diffuse*, *emissive color*, and *shininess*.

speed The point at which videotape playback reaches a stable speed, all servos are locked, and there is enough preroll time for editing, recording, or capturing.

spill correction A method of correcting a keyed image's foreground color where the background color has not been fully removed through the keying process.

splice An edit in which the material already on the video or audio track is lengthened by the addition of new material spliced in at any point in the sequence. See also *overwrite*.

spline A curve that is defined by control points, but does not pass through them. With function curves, a spline indicates a fluctuating value between two points in time. See also *Linear* and *Bézier*.

split edit See *overlap edit*.

split-screen The video special effect that displays two images separated by a horizontal or vertical wipe line.

spot color correction A color adjustment made to a specific part of a video image that is identified using drawing tools. See also *secondary color correction*.

spot falloff The decrease in intensity for a spot light from the center of the light source to the edges of the area defined by the spot size. See also *spot light* and *spot size*.

spot light A light source whose light rays extend from a single point in a cone shape, casting light on a specific oval or circular area of a scene. See also *infinite light*, *local light*, *spot falloff*, and *spot size*.

spotlight view Sets the point of view in the active viewport relative to the chosen spotlight. The point of view is set according to the direction of the light cone defined for the chosen spotlight.

spot size The circular area, expressed as an angle, covered by a spot light. A small angle produces a small, focused spot size. A large angle produces a large, wide spot light, similar to a local light. See also *spot falloff*.

SRT An abbreviation for the three types of coordinate transformations: scaling, rotation, and translation.

square pixels A display using 1:1 pixel aspect. See also *output pixel aspect*.

stabilization A form of motion tracking used to eliminate unwanted motion, such as camera movement from a clip. Stabilization works by tracking an inherently unmoving object in the clip and by repositioning each frame or field of video to keep that object stationary. See also *motion tracking*.

stacking The action of positioning object tracks in front of or behind other tracks. Objects in higher tracks appear in front of objects in lower tracks.

standard definition (SD) An interlaced video format consisting of 480 active lines (NTSC) or 576 active lines (PAL).

starting point The moment in time when an object begins to exist. See also *ending point*.

startup disk The disk that contains the operating system files. The computer needs operating system information in order to run.

static text Text that does not move across its text box over time. The most common example of static text is a single line of text, such as a lower-third title.

stepping The movement forward or backward one frame at a time. Also called *jogging*.

sticky connections A method in which you can connect nodes in an Effects Tree. You can click on an node's output icon and release the mouse button. The connector becomes "stuck" to the pointer. You can then move the pointer over another node's input icon and click on it to make the connection. See also *kissing*, *twanging*, and *ripping*.

sticky mode A mode for using supra keys where you do not need to hold the key down to activate the tool. Tools can be activated by supra keys in one of two modes: "sticky" and "temporary." In temporary mode, you must hold down the key for the tool to remain active. See also *supra key* and *temporary mode*.

story 1. A uniquely identified file that contains text.

2. The Avid term for an edited piece. A story is created by editing clips and sequences together.

storyboard A series of pictures (traditionally sketches) designed to show how a production will look. Comic books are essentially storyboards. Storyboards and subsequent sequences can be created by manipulating images from the recorded or captured footage in a bin.

straight alpha Another name for nonpremultiplied alpha, it is the description of an image in which each pixel's color (RGB) values have not been multiplied by the pixel's alpha channel level. The color and alpha channel information are used to composite the image onto a different image. See also *premultiplied image*.

streaming A technology that allows users to watch a video clip or movie over the Internet while the video is being copied to their computers. See also *video stream*.

striped stock Film stock to which a narrow stripe of magnetic recording material has been applied for the recording of a sound track. See *black and code*.

stroke A single drawing gesture made in the viewer to create a graphics object, such as titles, freehand strokes, and geometric shapes.

style A collection of object properties that you can apply to any number of objects.

subcarrier (SC) The sine wave used as a color reference signal.

subclip 1. An edited part of a clip. In a sequence, a subclip can be bound by any variation of clip beginnings, endings, and mark points.

2. A subclip created by marking IN and OUT points in a clip and by saving the frames between the points. The subclip does not contain pointers to media files. The subclip references the master clip, which alone contains pointers to the media files.

subobject An object within a container object. For example, a character is a subobject of a text object, the character's container. See also *container object*.

surface 1. An area of an object onto which you can apply a material.

2. A 2D parametric shape that defines the boundary or "skin" of an object in three dimensions. See also *face*.

Super 16 The 16mm film stock produced for a special format with an enlarged picture area. Super 16 is designed to be printed to 35mm film for release.

supra key A shortcut key activated in supra mode. See also *keyboard shortcuts*, *sticky mode* and *temporary mode*.

swatch A small visual sample of a color or texture.

sweetening See *audio sweetening*.

sync (synchronization)
1. The pulses contained within a composite video signal to provide a synchronization reference for signal sampling. Also, a separate signal that can be fed to various pieces of equipment.

2. The sound recorded on a separate audiotape but synchronized with videotape or film shot simultaneously.

sync group
Two or more clips sync-locked together.

sync lock
To lock two or more clips together after they have been synchronized, so that when one clip is moved, all connected clips move with it.

sync master
The first clip selected when creating a sync group.

sync offset
The number of frames difference between the original position of a slave clip relative to the master clip, and its new position once you move it independently of its sync peers.

sync peer
Any clip in the same sync-group as another clip.

sync slave
Clips selected after the master clip when creating a sync group, or added to an existing sync group.

sync word
The portion of SMPTE timecode that indicates the end of each frame and the direction of tape travel. See also *timecode* and *time-of-day timecode*.

Glossary: T

tail frame
The last frame in a clip of film or a segment of video.

tail slate
The slate information recorded at the end of the take instead of at the beginning; usually recorded upside down.

tails out
Film or videotape wound on a reel with the head next to the hub and the tail on the outside of the reel.

tangent
A line that extends from a control point that determines the slope of a curve or surface at a given point. Tangent handles also control key points on function curves when the curve point's type is set to Bézier.

target area
The pixel pattern that the tracker looks for in each frame. See also *tracker* and *search region*.

TBC Time-base corrector. An electronic device that improves video signal stability by correcting time-base errors inherent in mechanical videotape recorders.

TCP/IP Transmission Control Protocol/Internet Protocol. A platform-independent protocol for inter-computer communication.

text body A group of words, lines, and paragraphs that together constitute a single graphics object. You can select, edit, and add text within a text body.

telecine A device that transfers motion picture film images onto videotape.

telnet Telnet is a way access someone else's computer, assuming they have given you permission. (Such a computer is frequently called a host computer.) More technically, telnet is a user command and an underlying TCP/IP protocol for accessing remote computers. With telnet, you log on as a regular user with whatever privileges you may have been granted to the specific application and data on that computer.

template A collection of information that represents one or more title objects, together with their properties and behaviors. When you apply a template to an existing title, you add the title objects from the template to the title.

temporary mode A mode for using supra keys where you need to hold down the key to keep the tool active. Tools can be activated by supra keys in one of two modes: “sticky” and “temporary.” In sticky mode, you don’t need to hold down the key for the tool to remain active.

You can activate a tool in temporary mode by holding down its key for longer than half a second. The tool is deactivated after you release the key. See also *sticky mode* and *supra key*.

tessellation The way that the surface of an object is divided into triangles for the purpose of rendering. More complex regions require more triangles. The number of triangles is determined by the surface approximation properties of an object. See also *undertessellation*.

text body A group of words, lines, and paragraphs that together constitute a single graphics object. You can select, edit, and add text within a text body.

text file See *ASCII*.

texture An image that you can apply on an object to change its appearance. See also *2D textures* and *3D textures*.

texture mapping The way a picture file is mapped onto an object to be used as a 2D texture. When a picture is mapped onto an object, the correspondence between the picture's pixels and points on the object's surface is calculated. You can map a picture file to the object's XY, YX, or YZ coordinates. You can also map cylindrically, spherically, or by an object's UV coordinates.

three-button play To use the J-K-L keys on the keyboard to play, step, and shuttle through footage at varying speeds. This feature, also referred to as variable-speed play, lets you use three fingers to manipulate the speed of playback for greater control.

three-perf film Film stock generated via a modified camera gate that creates a frame size three perforations in height rather than the standard four perforations. Therefore, the same roll of film lasts 25 percent longer. Three-perf format is popular with multicamera film-based shows because the extra 25 percent of negative stock is similar to having a free camera.

three-point editing The basic principle that an edit event requires only three marks between the source and record sides to automatically calculate the fourth mark and complete the edit.

three-stripe Magnetic film stock containing three rows of magnetic oxide coating.

TIFF Tag Image File Format. A format used for storing and interchanging raster images.

time bar A graphical representation of the duration of a clip, including an indication of the current position and the In and Out marks.

time-base error A variation in the stable relation of picture information, color information, and video sync pulse during VTR playback. See also *sync (synchronization)*.

timecode An electronic indexing method used for editing and timing video programs. Timecode denotes hours, minutes, seconds, and frames (00:00:00:00) elapsed on a videotape. Address track timecode is recorded simultaneously with the video picture. Longitudinal timecode (LTC) is recorded on an audio track. Vertical interval timecode (VITC) is recorded in the vertical blanking interval of the video track. SMPTE timecode is the prevalent standard.

Other timecodes exist that include film timecode and audio timecode used during film projects. During editing, the Avid system can display and track several types of timecode. See also *SMPTE timecode* and *time-of-day timecode*.

timecode window See *burn-in*.

timeline The graphical representation of every macroscopic and microscopic edit made to a sequence or animation. This includes nested effects and layered tracks in sequences.

Displays the current frame of the animation and lets you manually move between different frames. The current frame is indicated by the position of the playback cursor in the timeline display box. The current position of the animation can also be controlled using the playback controls.

timeline effect track A type of track that is used to apply effects on top of all other effects on the video and background tracks.

time-of-day timecode The timecode that approximately matches the actual time of day (clock time). See also *SMPTE timecode*.

timewarp An effect that is used to change the duration of a clip. The action in the clip is speeded up or slowed down by decreasing or increasing the number of frames.

tinted material A material that is enhanced or tinged by color. See also *lit material*.

title bar The name given to a project or bin, located at the top of a window.

tone A constant audio frequency signal recorded at the start of a tape at 0 VU (volume units) to provide a reference for later use. Usually recorded in conjunction with color bars.

top timeline The topmost level of the timeline; this is where you can see all the clips that comprise your sequence. See also *parent timeline*.

track 1. The section of tape on which a signal is recorded. Also called a channel.

2. The sound portion of a video program.

3. A region of a clip or sequence on which audio or video is placed.

4. A playback channel represented in a sequence as either a video track or an audio track. Tracks are composed of one or more segments connected by transitions.

tracker In motion tracking, a structure associated with a specific region of interest and containing one set of data points. You can use multiple trackers on the same clip to define complex motion.

tracking 1. The positioning of video heads during playback of a tape so that the heads reproduce the strongest possible signal. Tracking is adjusted on the deck before recording or capturing.

2. To pan the camera to follow the movement of an object.

tracking edit A zero duration edit used as a reference during transition edits (dissolves, wipes, and so forth) on computerized editing systems.

track effect An effect that is attached to a track. See also *clip effect*.

track reference A way of making one track play another track's data. The referencing track points to the source clip in the referenced track. See also *layered tracks*.

track selector A method of selecting one of the tracks from a track group; only the selected track is to be played. For example, a track selector can indicate which of four alternate views of the same scene is to be played.

TransferManager An Avid application that allows you to transfer media from one workgroup to another. A Fibre Channel network connects the Avid systems and the TransferManager to the Avid Unity MediaNetwork environment.

transformation The movement of points by changing their coordinates. The transformation of coordinates permits you to perform translation (change the location), rotation (change the orientation), and scaling (change the size) of objects. Transformations can be applied on a single clip, or used to create an effect between two clips, such as a push-wipe or a picture-in-picture.

transition A change from one clip to the next. The simplest transition is a cut, which occurs in video when the first frame of the starting segment directly follows the last frame of the segment that is ending. A transition can also be a dissolve, wipe, fade, or DVE.

transition effect A wipe, dissolve, or digital video effect (DVE) applied to an edit transition. See also *effects*.

transition play loop The loop that plays in Trim mode.

translation A transformation in which the position of an object is changed (moved) without changing its shape, size, or orientation.

transparency A property of an image or object that controls how much objects behind them are displayed. For images, it can be controlled by the alpha channel or by an external opacity control.

The amount of light that travels through a surface. Complete transparency allows all light through; no transparency makes the surface completely opaque. See also *opacity*.

TraceLog A text-based file list of actions that have occurred.

tree A hierarchy of nodes starting from a root.

tree effect An effect that is applied in an Effects Tree.

trim The process of adjusting transitions in a sequence.

TrueType A typeface format designed by Microsoft Corporation and Apple Computer, Inc.

turnover point In audio equalization, the point at which the parametric curve for a particular shelf starts to return to zero.

twanging A method in which you can connect nodes in an Effects Tree. You can drag a node over an existing connector and the connector snaps or “twangs” to the input and output icons of the node. See also *kissing, ripping*, and *sticky connections*.

Type 1 A typeface format designed by Adobe Systems Incorporated, Type 1 is an international standard for digital type. Type 1 fonts are also commonly referred to as PostScript fonts.

typeface The style or design of a font within a type family of correlated designs. Examples include bold and italic versions of a font, such as Times Bold and Times Italic.

Glossary: U

UHF Ultrahigh frequency. One of the television signals for broadcasting in the United States per FCC standards. UHF is the frequency between very high frequency (VHF) and super high frequency (SHF).

U-matic See *3/4-inch U-matic*.

uncompressed video A recorded or captured video stream that is not processed by a data compression scheme. The video signal remains uncompressed at all stages of the process: input, storage, and output. Uncompressed video conforms to the ITU-R 601 standard. A video stream whose data content has not been modified by a data compression scheme. The video signal remains uncompressed during input, storage, and output. Uncompressed video conforms to the ITU-R 601 standard.

undertessellation The appearance of triangular patterns on lit materials, which occurs when the polygons that form an object cannot be adequately subdivided to accurately sample the light source.

unreferenced media files Media files on the media disk that are not referenced by any clip or sequence.

Undo/Redo The process that allows a return to the state of the edit immediately preceding the last edit or a repeat of an “undo” edit.

up cut In editing, to cut the end of the previous scene, often by mistake. In general, to cut short.

user bits The portion of the timecode data available for encoding data chosen by the user; for example, footage count or Keykode numbers.

user ID Individual who has a valid user account in the computer system.

user manager A user account given the authority to add, modify, delete, and search for information about user accounts. User manager status can be assigned by a system administrator only.

user profile A file which contains your user preferences, such as screen layout, save, user, and backup preferences. Each user has a separate profile that is associated with their user name and recalled each time you log on to the system.

user name A word established to identify the individual user. Enter your user name and your password to log in. User names are alphanumeric and are up to 20-characters long.

user view A user-defined viewpoint that shows objects in a scene from a virtual camera's point of view. This view can be either perspective or orthographic. The User point of view can be placed at any position and at any angle within the global 3D coordinate system. You can orbit, dolly, zoom, and pan in this view.

U-type VTR A recorder format that uses 3/4-inch videotape.

UV coordinates Two-dimensional coordinates that describe the position of any point on surfaces in terms of direction (U and V). UV coordinates are useful for mapping two-dimensional textures onto objects.

Glossary: V

value 1. Lightness or darkness of a color.

2. A component of the HSV (Hue, Saturation, Value) color model. See also *hue* and *saturation*.

variable-speed play A process, or an editing-system feature that enables the process, of shifting easily between the playing, stepping (jogging), and shuttling of footage.

VBV Video-Black-Video. A preview mode that shows a previously recorded scene, a black segment, and then the previously recorded scene again.

VCR Videocassette recorder. A video recorder that uses consumer-grade videotape formats such as VHS, Betamax, and Hi8.

vector In color correction, a subdivision of the full color spectrum defined by hue and saturation values. Secondary color correction uses vectors to define specific areas of an image to receive color adjustments.

vectorscope A visual display that shows the electronic pattern of the color portion of the video signal. It is used to adjust the color saturation and hue by using a stable color reference such as color bars. The Avid Vectorscope monitor uses a single-line display. See also *waveform*.

vertex, vertices See *point(s)*.

vertical blanking interval The period during which the television picture goes blank as the electron beam returns (retraces) from scanning one field of video to begin scanning the next. The vertical blanking interval is sometimes used for inserting timecode, for automatic color tuning, or for captioning information into the video signal.

vertical sync Sync pulses that control the vertical field-by-field scanning of the video picture by the electron beam.

VHF Very high frequency. One of the television signals for broadcasting in the United States per FCC standards. VHF is the frequency between high frequency (HF) and ultrahigh frequency (UHF).

VHS Video Home System. The 1/2-inch videocassette format developed by JVC for consumer and industrial use.

video 1. A recording produced with a device that captures full motion.

2. Refers to recording, manipulating, and displaying moving images, especially in a format that can be presented on a television.

3. The visual portion of a program or sequence.

video clip See *clip*.

videocassette A plastic shell containing two reels and a length of videotape.

video-safe color Colors that are not too saturated for video broadcasts. A video-safe color does not exceed the maximum composite video signal allowed by the broadcast standard.

Video Slave Driver A hardware component (Video Slave Driver) that synchronizes signal inputs, outputs, and conversions; selects audio frame rates; and selects pulldown of video frames.

video stream 1. In analog editing systems, also called a video playback source.

2. In digital editing systems, a stream of data making up a digital video image.

videotape Oxide-coated, plastic-based magnetic tape used for recording video and audio signals.

viewer Part of the Avid DS Nitris interface that displays the output of your sequence at the location of the position indicator.

viewpoints Allows you to see a scene in a viewport in a specific way, but is not a camera. You can choose from four default viewpoints in the viewport: User, Front, Top, and Right. In many ways, cameras and viewpoints are similar except that viewpoints, unlike cameras, are not actual objects: they are only tools for viewing your scene. You cannot animate a viewpoint, nor can you render from a viewpoint as you can from a camera. See also *views*.

viewport-navigation controls A set of basic "camera" controls that allow you to view a scene in different ways in a geometry view in the viewport. You can orbit, zoom, dolly, pan, tilt, roll, frame all, and frame selection with the camera.

views The means by which you view a scene in a viewport. Views can be geometry views, camera views, or spotlight views. Geometry views are Front, Top, Right (all orthographic) and User (perspective or orthographic).

visibility Properties that determine whether an object appears in the viewports and when rendering.

VITC Vertical interval timecode. The timecode inserted to the vertical blanking interval of a TV signal. See also *LTC* and *timecode*.

V-LAN An industry-standard software protocol for video device control. The V-LAN network allows a computer application to control and synchronize all connected VTRs, switchers, DATs, mixers, and DVEs.

VLX*i* A series of controllers that control and synchronize professional video equipment for animation, video editing, HDTV, and broadcast television production.

VTR Videotape recorder.

VU meter Volume unit meter. An instrument used to measure audio levels.

VVV Video-Video-Video. A preview mode that shows a previously recorded scene, the new insert video, and then the previously recorded scene again.

Glossary: W

warp A technique that lets you transform an image or part of an image from one shape to another over time. See also *morph*.

WAVE RIFF Waveform Audio File Format. A widely used format for audio data. OMF Interchange includes it as a common interchange format for audio data.

waveform 1. In video, a visual display that shows the electronic pattern of the video signal. It is used to adjust the setup and gain by using a stable reference such as color bars. The Avid waveform uses a single-line display. See also *vectorscope*.

2. In audio, a visual representation of changing frequencies. See also *energy plot* and *sample plot*.

waves Animated deformations that travel in both time and space. You can create shock waves, water waves, and other types of natural disturbances with wave deformations.

whip A horizontal picture disturbance at an edit point, usually caused by timing misadjustments in the edit system.

white point The luminance value in a video image that you set to be equal to reference white when making a color adjustment. See also *black point*.

wild sound, wild track A recording of sound on either videotape or audiotape made without an accompanying picture.

window dub See *burn-in*.

Windows Explorer An application that lets you view and manage the files and folders on your workstation, and make network connections to shared resources.

wipe A shaped transition between video sources in which a margin or border moves across the screen, wiping out the image of one scene and replacing it with another.

wire bulletin See *bulletin*.

wire dump A binary file containing the raw data of a wire service.

wire feed See *data feed*.

wireframe A mode in which an object appears to be made of wire. This lets you easily see the outline of objects.

Wire Ingest The process by which a wire feed is received by a system and conformed to the data structure and requirements of the receiving system.

word wrap A property that allows a long line of text to continue on multiple lines of a text object, instead of being truncated at the end of the visible width of the text object.

working resolution The resolution that defines the quality at which media is displayed in the viewer and processed by Avid DS Nitris. See also *resolution* and *capture resolution*.

work print A film print made from the original negative that is used during the editing process to produce a cut list or an edit decision list for final program assembly. Work prints are typically low-cost, one-light prints that receive heavy wear through repeated handling. See also *answer print*, *print*, and *release print.*

workspace The area where users can create, view, add, edit, and delete information.

Glossary: X

X axis The horizontal axis in a three-dimensional system. See also *Y axis* and *Z axis*.

XYZ axes The three axes in the Cartesian coordinate system that represent three-dimensional space: the X axis is horizontal space, the Y axis is vertical space, and the Z axis is depth. The point at which these three axes intersect is called the origin. All three axes have positive and negative values, depending on which side of the origin they are.

XYZ coordinates With the Cartesian coordinate system, you can locate any point in space using three coordinates called X, Y, and Z. For example, a point with X = +6, Y = –6, Z = +6 would be located at 6 units to the right of, 6 units below, and 6 units in front of the origin.

XZ, XY, YZ planes The perpendicular axes that extend as 2D planes. In the viewports, these planes correspond to three of the parallel projection views: Top, Front, and Right. Imagine that the XZ, XY, and YZ planes are folded together like the top, front, and right side of a box.

Glossary: Y

Y The luminance signal of the component color system in the NTSC video standard. The signal is composed of the following proportions of red, green, and blue:

0.299R + 0.587G + 0.114B

See also *B–Y, R–Y*.

Y axis The vertical axis in a three-dimensional system. See also *X axis* and *Z axis*.

Y, B–Y, R–Y The luminance and color difference signals of the component color system in the NTSC video standard. Also called YCrCb.

YCrCb See *Y, B–Y, R–Y*, and *YUV*.

YUV The letter designations for luminance, luminance minus red, and luminance minus blue. YUV are the luminance and color difference signals of the component video standard for PAL. Also called YCrCb.

A color standard that describes color space in Y (luminance) and UV (chrominance) in which the luminance and chrominance are separate. The Y component specifies the brightness of each pixel, while the U and V, or chrominance, components specify the color of pixels. YUV is a commonly accepted term for YCrCb, where Y represents luminance and Cr and Cb represent chrominance. See also *RGB*.

Glossary: Z

Z axis The axis that is perpendicular to the X and Y axes in a three-dimensional system.

zero duration dissolve The method of editing two scenes end-to-end simultaneously. Also called a *cut*.

zoom Increases the length of the camera lens, magnifying an aspect of a scene. The results of a zoom and a dolly are different. A dolly physically moves the camera closer to the point of interest without changing the length of the lens; perspective distortions peculiar to the lens length may result at the edges of the scene. Zoom increases the size of the point of interest by increasing the lens length; depth is not as well perceived as with a shorter lens.

Keyboard Shortcuts

Global
Editing
Compositing and Effects
Graphics
3D DVE

Global

Layouts
Animation
Media Input/Output
Viewer
Scripting

Tool name	Shortcut
New Sequence	Ctrl+N
Open Sequence	Ctrl+O
Save Sequence	Ctrl+S
Maximize View	F12
Close Window	F3
Help	F1
Quit Avid|DS	Ctrl+Q
Copy	Ctrl+C

Tool name	Shortcut
Cut	Ctrl+X
Paste	Ctrl+V
Delete	Delete
Undo	Ctrl+Z
Redo	Ctrl+Y
Select All	Ctrl+A
Display Calculator	R+click
Enable Slider	C
Set Keyframe	Ctrl+Enter
Next Keyframe	Shift+Right Arrow
Previous Keyframe	Shift+Left Arrow
First Keyframe	Alt+Left Arrow
Last Keyframe	Alt+Right Arrow
Remove Animation	Ctrl+Alt+Enter
Remove Keyframe	Ctrl+Shift+Enter
Set Autokey Mode	Shift+Enter
Nudge 1 <<<	[(open bracket)
Nudge 1 >>>	] (close bracket)
Nudge 10 <<<	Ctrl+[(open bracket)
Nudge 10 >>>	Ctrl+] (close bracket)

Layouts

Tool name	Shortcut
3D DVE	F7
Compositing	F6

Tool name	Shortcut
Editing	F3
Effects	F4
Graphics	F5

Animation

Tool name	Shortcut
Autokey Mode	Shift+Enter
Add Key	A
Delete Key	D
Delete All Keys from Selected Curve	Backspace
Delete Selected Keys	Delete
Edit Key Tool	E
Frame	F
Grid	G
Pan Tool	X
Pan & Zoom Tool	S
Zoom	Z
Incremental Zoom	Alt+Z
Select & Move Tool	T
Select Region Tool	Q
Select Tool	W
Select Multiple Keys/Curves	Shift
Translate Keys Selected Horizontally	Middle mouse button
Translate Keys Selected Vertically	Right mouse button
Priority to Tangents	H

Tool name	Shortcut
Break Slope	B
Unify Slope	U

Media Input/Output

Tool name	Shortcut
Capture Tool	F8
Cycle Capture/Log	C
Output Tool	Shift + F8
Capture Settings	Ctrl + F8
Deck Configuration	Alt + F8

Viewer

Tool name	Shortcut
Zoom	Z or Ctrl+F2
Zoom to Mouse	Alt+Z
Unzoom to Mouse	Alt+X
Quick Zoom	Alt+Q
Pan	X or Ctrl+F3
Reset Zoom & Pan	Z+X+click
Onion Skin	Alt+O
Scrub with Mouse	N
Recently Used Items	Alt+M
S/W Display	Ctrl+Shift+B
Maximize the viewer	Click the Viewer+F12

Tool name	Shortcut
Maximize the viewer from anwhere on the desktop	Ctrl+F12
Switch Viewer	Tab
Use Comp Buffer	Alt+1
Grab Comp Image	Alt+2
Reset Comp Crop	Alt+3
Reset Comp Pan	Alt+4
Viewer - Red	Shift+1
Viewer - Green	Shift+2
Viewer - Blue	Shift+3
Viewer - Alpha Full	Shift+4

Scripting

Tool name	Shortcut
Clear Selection	Delete
Copy Selection	Ctrl+C
Cut Selection	Ctrl+X
Help	F1
New Script	Ctrl+N
Open Script	Ctrl+O
Paste Selection	Ctrl+V
Run Script	F5
Save Script	Crtl+S
Select All Script	Ctrl+A
Undo Modification	Ctrl+Z

Editing

Timeline
Transport Controls

Timeline

Tool name	Shortcut
Maximize the timeline	Click the timeline+F12
Modes	
Selection Mode	Scroll Lock
Trim Mode	Y
Ripple	R
Global Audio Mute	Ctrl+Shift+M
Clips	
Insert Clip	V
Overwrite Clip	B
Preview Clip	Enter
Activate clip	A
Deactivate clip	Ctrl+Shift+A
Cut To clip	C
Fill Activeness	Shift+A
Snap In	Page Up
Snap Out	Page Down
Backtime	E
Snapshot to Clip	Shift+V
Snapshot to File	Ctrl+Shift+V
Tracks	

Tool name	Shortcut
Create Video Track	Alt+Y
Create Audio Track	Alt+U
Go To	
Next Locator	Ctrl+. (period)
Previous Locator	Ctrl+, (comma)
Next Edit	. (period)
Previous Edit	, (comma)
Nearest Edit	N
Go to Start of Selection	Shift+Home
Go to End of Selection	Shift+End
Go to Top Timeline	Ctrl+Shift+U
Go to Parent Timeline	Ctrl+U
Match Bin	Ctrl+\ (backslash)
Match Frame	\ (backslash)
Mark	
Add Locator	M
Add Global Locator	Ctrl+M
Mark In/Out	/ (forward slash)
Add Edit	Ctrl+R
Set Ripple End	Shift+E
J-K-L Editing	
Start Backward Playback	J
Stop playback (and move selected objects there)	K
Start Forward Playback	L
Variable-speed Backward	J (press J again to increase the speed)

Tool name	Shortcut
Variable-speed Forward	L (press L again to increase the speed)
Stop/Slow Play (and Move selected objects there)	K
Audio Scrubbing	Ctrl+Shift+S
Select	
Select Clip Forward	Ctrl+Tab
Select Clip Backward	Ctrl+Shift+Tab
Select Incoming Handle	F11
Select Outgoing Handle	F9
Select Edit Point	F10
Select Marked Region	Ctrl+/ (forward slash)
Link Edits	Ctrl+L
Change to Edit Points	Ctrl+E
View	
Frame Clip in Overview	Ctrl+F
Constrain Drag	U
Zoom All (toggle)	Ctrl+Shift+Minus (pad)
Zoom In	Ctrl+Plus (pad)
Zoom Out	Ctrl+Minus (pad)
Zoom to Frame	Ctrl+Shift+Plus (pad)
Containers	
Create Audio Container	Ctrl+9
Create Background Container	Ctrl+7
Create Composite Container	Ctrl+8
Add Effects	
Add Clip Effect	

Tool name	Shortcut
Add Track Effect	; (semicolon)
Generate Clip	Ctrl+G
Dissolve/Crossfade	D
DVE (transition)	Ctrl+D
Wipe	Shift+D
Timewarp	T
Freeze Frame	Shift+F
Extend Timewarp	G
Change Timewarp In/Out	F
Process	P
Synchronize	
Resync	Shift+R
Ignore Sync Peers	W
Select Sync Peers	Q
Sync Lock	S

Transport Controls

Tool name		Shortcut
Play		
Play		Enter
Stop		Spacebar
Play Backward		Shift+Enter
Play Every Frame		Ctrl+Up Arrow
Play From In to Out		Shift+Up Arrow
Play Every Frame	From In to Out	Ctrl+Shift+Up Arrow

Tool name	Shortcut
Play Preview	` (grave accent)
Degraded Preview	Shift+` (grave accent)
Go To	
Go to In	Shift+I
Go to Out	Shift+O
Go to Start	Home
Go to End	End
Frame Backward	Left Arrow
Frame Forward	Right Arrow
10 Frames Backward	Ctrl+Left Arrow
10 Frames Forward	Ctrl+Right Arrow
Mark	
Set In	I
Set Out	O
Clear In	Ctrl+Shift+I
Clear Out	Ctrl+Shift+O
Clear In and Out	Ctrl+Shift+B

Compositing and Effects

Layers
Effects Tree
DVE
Tracker
Shape Tools

Layers

Tool name	Shortcut
Bring to Front	Shift+Pg Up
Send to Back	Shift+Pg Dn
Lower	Pg Dn
Raise	Pg Up
Next Layer	Shift+Right Arrow
Previous Layer	Shift+Left Arrow

Effects Tree

Tool name	Shortcut
Add Effect	‘ (apostrophe)
Rename Node	Alt + click the node
Add Cache node	C
Process Cache node	Ctrl + double-click Cache node
Bypass node	B
Add Transform	T
Select All	Ctrl + A
Inverse Selection	I
Frame Selected	F
Frame All	Shift + F
Organize All Nodes (Sparse)	Shift + [(open bracket)
Organize All Nodes (Dense)	Shift +] (close bracket)
Organize Nodes (Sparse)	[(open bracket)
Organize Nodes (Dense)	] (close bracket)
Fold Minimal	9

Tool name	Shortcut
Fold All	Shift + 9
Select Preceding Nodes	, (comma)
Select Subsequent Nodes	. (period)
Attract	- (minus)
Repel	= (equals)
Use Input Name	P
View	V
Reset All	Ctrl + Shift + D
Add Effect	‘ (apostrophe)
Rename Node	Alt + click the node
Add Cache node	C
Process Cache node	Ctrl + double-click Cache node
Add Transform	T
Select All	Ctrl + A
Inverse Selection	I
Frame Selected	F
Frame All	Shift + F
Organize All Nodes (Sparse)	Shift + [(open bracket)
Organize All Nodes (Dense)	Shift +] (close bracket)
Organize Nodes (Sparse)	[(open bracket)
Organize Nodes (Dense)	] (close bracket)
Fold Minimal	9
Fold All	Shift + 9
Select Preceding Nodes	, (comma)
Select Subsequent Nodes	. (period)

Tool name	Shortcut
Attract	- (minus)
Repel	= (equals)
Use Input Name	P
View	V
Reset All	Ctrl + Shift + D

DVE

Tool name	Shortcut
Crop	F
Rotate	D
Scale	S
Tool Properties	T
Translate in X or Y	P+drag
Translate/Rotate on Z Axis	/ (forward slash)
Convert to Bézier Segment	‘ (apostrophe)+click
Convert to Linear Segment	; (semicolon)+click
Lock Selected DVE for manipulation	Ctrl+L
Snap DVE to Clip Duration	Shift+D
Additional Shortcuts for Motion Path	
Display Selection Rectangle (Select Multiple Vertices)	Shift+R+drag
Add Control Point	A+click
Delete a Selection	Delete
Break Tangent	B+drag
Unify Tangents	U+drag

Tool name	Shortcut
Keep Tangent Length Ratio	R+drag
Priority to Tangent Handle	H+drag
Move Control Point in Image Plane	I+drag
Move Control Point in Z	/ (slash)+drag
Move Control Point in X or Y	Shift+drag

Tracker

Tool name	Shortcut
Move both trackers	Drag
Offset Search Area	Shift+right-click+drag
Offset Target	Shift+left-click+drag

Shape Tools

Tool name	Shortcut
Ellipse	E
Freehand	W
Polyline	Q
Rectangle	R
Select	Ctrl+A
Edit Shape	Shift+A
Join Shapes (Warp/Morph)	J
Next object	. (period)
Previous object	, (comma)
Raise	Page Up
Lower	Page Down

Tool name	Shortcut
Bring to Front	Shift+Page Up
Send to Back	Shift+Page Down
Add Vertex	A
Edit Correspondence Points (Warp/Morph)	C
Break Tangent	B
Keep Tangent Angle	N
Keep Tangent Length Ratio	Crtl+R
Priority to Handle Selection	H
Unify Tangents	U
Cut Stroke Piece	K
Rotate	D
Scale	S
Skew	F
Translate Selection Down 1 Unit	2 (pad)
Translate Selection Down 10 Units	Ctrl+2 (pad)
Translate Selection Left 1 Unit	4 (pad)
Translate Selection Left 10 Units	Ctrl+4 (pad)
Translate Selection Right 1 Unit	6 (pad)
Translate Selection Right 10 Units	Ctrl+6 (pad)
Translate Selection Up 1 Unit	8 (pad)
Translate Selection Up 10 Units	Ctrl+8 (pad)

Graphics

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General

Tool name	Shortcut
Freehand	W
Resize Brush	Ctrl+drag
Close Stroke	C
Polyline	Q
Close Polyline	Ctrl+click
Constrain to 45°	Alt
End Drawing	Esc
Rectangle	R
Ellipse	E
Magic Wand	Y
Confirm	Esc
Edit Shape	Shift+A or Enter
Reshaper	P
Text	T
Edit Text	Shift+P or Enter
Import Image	Ctrl+I
Import Clip	Ctrl+Shift+I

Tool name	Shortcut
Stroke Preset	Shift+C
Text Preset	Shift+X
Select	A
Rotate	D
Scale	S
Scale Proportionally	Shift+drag
Skew	F
Interactive Update - Move, Scale, Skew, Rotate	Ctrl+drag
Show/Hide Bounding Boxes	Ctrl+H
Copy Shape	Alt+C
Paste Shape in Place	Alt+V
Paste Shape at Origin	Ctrl+Alt+V
Express Tool #1	1 (hold down)
Express Tool #2	2 (hold down)
Express Tool #3	3 (hold down)
Express Tool #4	4 (hold down)
Express Tool #5	5 (hold down)
Pick Color	6
Snap to Duration	Shift+D
Use Fill	N
Use Brush	B
Increase Brush Size 1 Unit	] (close bracket)
Increase Brush Size 10 Units	Shift+] (close bracket)
Decrease Brush Size 1 Unit	[(open bracket)
Decrease Brush Size 10 Units	Shift+[(open bracket)

Tool name	Shortcut
Duplicate	Ctrl+K
Wireframe Mode	Ctrl+W
Wireframe Preview	Ctrl+Shift+W
Refresh	V
Go to Start	Home
Go to End	End
Go to Next Edited Frame	Ctrl+. (period)
Go to Previous Edited Frame	Ctrl+, (comma)
Bring to Front	Shift+Pg Up
Send to Back	Shift+Pg Dn
Lower	Pg Dn
Raise	Pg Up
Burn Frame	Ctrl+F
Clone: Go Back	Ctrl+ L
Clone: Go to Source Frame	Shift+L
Clone: Pick	6

Selection and Deletion

Tool name	Shortcut
Select	A
Select All	Ctrl+A
Select Next	. (period)
Select Previous	, (comma)
Multiselect - Next	Shift+. (period)
Multiselect - Previous	Shift+, (comma)

Tool name	Shortcut
Deselect All - Frame	Ctrl+J
Deselect All - Session	Ctrl+Shift+J
Delete All - Frame	Ctrl+Del (pad)
Delete All - Session	Ctrl+Shift+Del (pad)

Transformation

Tool name	Shortcut
Absolute Align Top	Alt+8 (pad)
Absolute Align Bottom	Alt+2 (pad)
Absolute Align Left	Alt+4 (pad)
Absolute Align Right	Alt+6 (pad)
Absolute Align Horizontal Center	Alt+5 (pad)
Absolute Align Vertical Center	Alt+9 (pad)
Relative Align Top	Ctrl+Alt+8 (pad)
Relative Align Bottom	Ctrl+Alt+2 (pad)
Relative Align Left	Ctrl+Alt+4 (pad)
Relative Align Right	Ctrl+Alt+6 (pad)
Relative Align Horizontal Center	Ctrl+Alt+5 (pad)
Relative Align Vertical Center	Ctrl+Alt+9 (pad)
Translate Up 1 Unit	8 (pad)
Translate Up 10 Units	Ctrl+8 (pad)
Translate Down 1 Unit	2 (pad)
Translate Down 10 Units	Ctrl+2 (pad)
Translate Left 1 Unit	4 (pad)
Translate Left 10 Units	Ctrl+4 (pad)

Tool name	Shortcut
Translate Right 1 Unit	6 (pad)
Translate Right 10 Units	Ctrl+6 (pad)

Rectangle Tool

Tool name	Shortcut
Increase Corner Radius	]+drag
Decrease Corner Radius	[+drag

Edit Text

Tool name	Shortcut
Zoom	Alt+Ctrl+drag
Mouse Zoom	Alt+Z
Mouse Unzoom	Alt+X
Quick Zoom	Alt+Q
Pan	Alt+Shift+drag
Kern left	Alt+Left Arrow (normal)
	Alt+Shift+Left Arrow (minor)
	Alt+Ctrl+Left Arrow (major)
Kern right	Alt+Right Arrow (normal)
	Alt+Shift+Right Arrow (minor)
	Alt+Ctrl+Right Arrow (major)
Increase font size	Alt+Up Arrow (normal)
	Alt+Shift+Up Arrow (minor)
	Alt+Ctrl+Up Arrow (major)
Decrease font size	Alt+Dn Arrow (normal)

Tool name	Shortcut
	Alt+Shift+Dn Arrow (minor)
	Alt+Ctrl+Dn Arrow (major)
Move Text Box	Alt+drag
Edit Text Body	Alt+click
Edit Next Text Body	Alt+ . (period)
Edit Prev Text Body	Alt+ , (comma)
Find	Ctrl+F
Exit Edit Text	Esc

Edit Shape

Tool name	Shortcut
Edit Shape	Shift+A or Enter
Exit Edit Shape	Esc
Select/deselect shape	Alt+click
Add Vertex	A
Delete Vertex	Delete
Cut Stroke Piece	K
Break Tangent	B or Alt
Keep Tangent Angle	N
Keep Tangent Length Ratio	R
Constrain to 45 degrees	V
Priority to Handle Selection	H
Unify Tangents/Join Stroke Pieces	U
Set Keyframe	Ctrl+Enter
Delete Keyframe	Ctrl+Shift+Enter

Tool name	Shortcut
Delete All Keyframes	Ctrl+Alt+Enter
Next Keyframe	Shift+Right Arrow
Previous Keyframe	Shift+Left Arrow
First Keyframe	Alt+Left Arrow
Last Keyframe	Alt+Right Arrow
Select Next Tracker	. (period)
Select Previous Tracker	, (comma)
Translate Up 1 Unit	8 (pad)
Translate Up 10 Units	Ctrl+8 (pad)
Translate Down 1 Unit	2 (pad)
Translate Down 10 Units	Ctrl+2 (pad)
Translate Left 1 Unit	4 (pad)
Translate Left 10 Units	Ctrl+4 (pad)
Translate Right 1 Unit	6 (pad)
Translate Right 10 Units	Ctrl+6 (pad)

Reshaper

Tool name	Shortcut
Reshaper	P
Trace	Drag shape edge
Trace Straight Line	Alt+drag
Trace Without Moving Existing Control Points	Shift+drag
Chop Control Points	C+drag
Move Shape	A

Tool name	Shortcut
Rotate Shape	D
Scale Shape	S
Scale Shape Proportionally	Shift+S
Skew Shape	F
Move Origin	S, D, or F+drag
Center Origin	S, D, or F+right-click shape
Position Stretch Limits	G+drag stretch limits
Stretch Shape	G+drag shape edge
Change Shape Opacity	O+drag
Exit Reshaper	Esc

Clusters

Tool name	Shortcut
Build Cluster 1	Ctrl+7
Build Cluster 2	Ctrl+8
Build Cluster 3	Ctrl+9
Build Cluster 4	Ctrl+0
Build Cluster 5	Ctrl+– (minus)
Build Cluster 6	Ctrl+= (equals)
Select Cluster 1	7
Select Cluster 2	8
Select Cluster 3	9
Select Cluster 4	0
Select Cluster 5	– (minus)
Select Cluster 6	= (equals)

Tool name	Shortcut
Build Vertex Cluster 1	Ctrl+7
Build Vertex Cluster 2	Ctrl+8
Build Vertex Cluster 3	Ctrl+9
Build Vertex Cluster 4	Ctrl+0
Build Vertex Cluster 5	Ctrl+– (minus)
Build Vertex Cluster 6	Ctrl+= (equals)
Select Vertex Cluster 1	7
Select Vertex Cluster 2	8
Select Vertex Cluster 3	9
Select Vertex Cluster 4	0
Select Vertex Cluster 5	– (minus)
Select Vertex Cluster 6	= (equals)

Properties

Tool name	Shortcut
Brush Properties	Ctrl+B
Brush Fx Properties	Shift+B
Fill Fx Properties	Shift+N
Graphics Properties	Ctrl+G
Masks Properties	Shift+M
Paint Style Properties	Shift+Y
Time Span Properties	Shift+T
Transformations Properties	Shift+U

3D DVE

General
Camera
Alignment
3D DVE Object View

General

Tool name	Shortcut
Add DVE Node	U
Direct View Mode	V
Edit	Q
Ellipse	E
Light	Y
Rectangle	R
Rotate	D
Shape	W
Text	T
Lock	Ctrl+L
Select All	A
Deselect All	Shift+A
Select Single Character	Alt+click
Add to Selection	Shift+click
Toggle Selection	Ctrl+Click
Multiselect Text in Text Box Container	Shift+Arrow Key
Resize Text Box Container	Alt+drag
Translate 1 Pixel	Ctrl+Arrow Key

Tool name	Shortcut
Translate - Constrain to Axis	Shift+drag
Translate Rotated Object - Constrain to Local Plane	Ctrl+Alt+drag
Translate Rotated Object - Constrain to Local Axis	Ctrl+Alt+Shift+drag
Scale	Ctrl+drag
Relative to Anchor Point	Shift+Ctrl+drag
Constrain to Aspect Ratio	Shift+drag
Rotate in 15° Increments	Shift+drag
Insert Point	Alt
Delete Point	Delete
Multiselect Point	Shift+click
Bring to Front	Shift+Pg Up
Send to Back	Shift+Pg Dn
Lower	Pg Dn
Raise	Pg Up

Camera

Tool name	Shortcut
Dolly	P
Roll	L
Pan	I
Toggle Camera	Shift+X
Zoom	K
Reset Current Camera	J
Tumble	Shift+Z

Tool name	Shortcut
View Front	Shift+D
View Left	Shift+F
View Right	Shift+S
View Top	Shift+R

Alignment

Tool name	Shortcut
Align Bottom	Shift+B
Align Horizontal	Shift+Y
Align Left	Shift+G
Align Right	Shift+J
Align Top	Shift+U
Align Vertical	Shift+V
Position Bottom Center	Shift+. (period)
Position Bottom Left	Shift+, (comma)
Position Bottom Right	Shift + / (forward slash)
Position Middle Center	Shift+; (semicolon)
Position Middle Left	Shift+L
Position Middle Right	Shift+’ (apostrophe)
Position Top Center	Shift+[(open bracket)
Position Top Left	Shift+P
Position Top Right	Shift+] (close bracket)

3D DVE Object View

Tool name	Shortcut
Pan	X
Zoom	Z
Go to Next Edit	. (period)
Go to Previous Edit	, (comma)
Cancel	Esc

Hardware Setup for the Avid Nitris System

This section includes information for setting up your Avid DS Nitris system.

- Using the Avid Nitris
- Avid Nitris Dual Boot System Setup
- Dual Boot Software Installation for Avid DS and Avid Symphony

Using the Avid Nitris

Important Information

Avid® recommends that you read all the information in these installation instructions thoroughly before connecting or using your new hardware and software.

This document explains how to use and to connect cables and devices to the Avid Nitris™ Digital Nonlinear Accelerator (DNA) and how to connect specific devices to an Avid-supported system to which the Avid Nitris is connected. Avid-supported systems for your Avid Nitris can change at any time.

Make sure to look at the ReadMe file that installs with the application. It contains important information that is used in conjunction with the information presented in this document.

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If You Need Help

If you are having trouble using Avid Nitris:

1. Retry the action, carefully following the instructions given for that task. It is especially important to check each step of your workflow.
2. Check this ReadMe file for the latest information that might have become available *after* the documentation was published.
3. Check the documentation that came with your Avid application or your hardware for maintenance or hardware-related issues.
4. Visit Avid Online Support at www.avid.com/onlineSupport/. Online support is available 24 hours per day, 7 days per week. Search the Knowledge Base to find answers, to view error messages, to access troubleshooting tips, to download updates, and to read/join online message-board discussions.

Symbols and Conventions

These installation instructions use the following symbols and conventions:

Symbol or Convention	Meaning or Action
	A note provides important related information, reminders, recommendations, and strong suggestions.
	A caution means that a specific action you take could cause harm to your computer or cause you to lose data.
	A warning describes an action that could cause you physical harm. Follow the guidelines in this document or on the unit itself when handling electrical equipment.
>	This symbol indicates menu commands (and subcommands) in the order you select them. For example, File > Import means to open the File menu and then select the Import command.
▶	This symbol indicates a single-step procedure. Multiple arrows in a list indicate that you perform one of the actions listed.
Italic font	Italic font is used to emphasize certain words and to indicate variables.
`Courier Bold font`	Courier Bold font identifies text that you type.
Ctrl+*key* or *mouse action*	Press and hold the first key while you press the last key or perform the mouse action. For example, Ctrl+drag.

Overview

The Avid Nitris is designed to capture and output analog and serial digital media using decks, cameras, and audiotapes.

The Avid Nitris is powered by an autosensing power supply connected by a standard power cord to a wall plug or power strip.

The Avid Nitris accepts video and audio in different formats and resolutions, and changes these formats and resolutions to Avid-specific data for transfer to the Avid editing system over a Digital Interlink cable. The data transfer uses an Avid-specific protocol that describes the format and resolution of the media being captured.

You then edit the media on the Avid editing system and send it back to the Avid Nitris. You can change the format and resolution as needed for video and audio output.

The Avid Nitris consists of:

- The Avid Nitris enclosure, backplane, power supply, and power cord
- A standard-definition (SD) video I/O board
- A high-definition (HD) video I/O board
- A eight-channel audio I/O board

Three audio cables are provided with the Avid Nitris; analog in, analog out, and AES/EBU I/O. The audio cables have a DB25 connector at one end that plugs into the Avid Nitris and the other end of the cables have eight separate XLR connectors supporting eight channels of audio. For more information, see “Connecting Audio” on page 42.

The Avid Nitris is shipped with the *Using the Avid Nitris* CD-ROM that includes this online document. Refer to the Avid Customer Support Knowledge Base http://www.avid.com/ for recent updates to this document.

Site Planning

When preparing your site, you must consider the environmental, electrical, and space requirements for your Avid Nitris workstation, as well as any additional equipment. Before setting up your system, see the ReadMe provided with the Avid editing application to make sure that there are no changes to the information in this document. The required expansion boards are installed and configured for Avid Nitris. Do not remove or modify these boards.

For instructions on setting up the computer hardware, see the setup documentation provided with the HP Workstation. For a rackmount workstation, you must install the computer into a standard rack before connecting the hardware.

To prevent equipment damage that may be caused by static electricity, do all of the following before making any connections:

- Turn off all devices.
- Always use anti-static prevention.
- Always connect devices to a properly grounded outlet.
- Touch the metal casing of the device before handling any circuit boards.

Environmental Requirements

The site you choose for your Avid Nitris workstation should meet the following environmental requirements:

- Clean and dust free
- Free from significant temperature or humidity changes
- Sturdy, level, and not subject to vibration
- Away from radio frequency emissions, high-traffic, or high-noise areas
- Provides adequate space in front of and behind the workstation components, so that you can connect cables and service your workstation. This also provides adequate airflow for cooling.
- A minimum clearance of 3 inches (7.6 cm) for the side and back panels of the deskside base unit
- A table (or other surface) that is at least 60 inches wide by 48 inches deep (150 cm × 120 cm) for the editing workstation

Electrical Requirements

Your site should meet the following electrical requirements:

- Adequate power for each workstation component, so that extension cords are not needed.
- At least two 15-amp circuits available: one for the workstation, Nitris, and accessories and one for the Avid storage system.
- Site is away from major electrical equipment, such as motors, air conditioners, or elevators.
- Site is not subject to static electrical buildup.
- Uses an uninterruptible power supply (UPS) to protect your workstation from sudden power surges or losses, and to save you from the resulting loss of work.

Plug only your Avid Nitris equipment into the power strip. Do not plug in coffee makers, radios, lights, or other such devices.

The following table describes the electrical specifications for the Avid Nitris editing system.

Electrical Specifications

Component	Voltage	Frequency
HP Workstation	100 to 240 V ac auto-ranging	50 to 60 Hz
Avid Nitris	100 to 240 V ac	50 to 60 Hz
Monitors	100 to 250 V ac	50 to 60 Hz
Avid Nitris DNA	100 to 240 V ac	50 t0 60 Hz
Avid MediaDock LVD and Avid MediaDock Ultra320 storage systems	90 to 264 V ac	50 to 60 Hz
Avid VideoRAID	90 to 230 V ac	50 to 60 Hz

The following table lists the dimensions of the major hardware components.

Hardware Component Dimensions

Hardware component	Dimensions (Inches)	Dimensions (Centimeters)
HP Workstation Rackmount configuration — Rack Units: 5	Height: 17.9 Depth: 20.7 Width: 8.3	Height: 45.4 Depth: 52.5 Width: 21.0
Avid Nitris Rackmount configuration — Rack Units: 3	Height: 5.3 Width: 17.6 Depth: 13	Height: 13.5 Width: 44.7 Depth: 33.02

Rack Mounting the Avid Nitris Enclosure

This section provides the information for mounting the Avid Nitris in a 19-inch (483-mm) National Electrical Manufacturers Association (NEMA) or Electronics Industries Association (EIA) rack. Avid recommends that you mount your Avid Nitris in a rack before you connect any cables.

If you need to rack mount the HP workstation, a rack-mount kit is available from HP. Installation instructions are included with the kit. The HP Workstation system requires 5 rack units.

See the following sections for more information:

- Equipment Environmental and Safety Guidelines
- Installing the Avid Nitris in a Rack

Equipment Environmental and Safety Guidelines

When you install the Avid Nitris in a rack, you must take the following precautions:

- **Elevated Operating Ambient Temperature** — When the Avid Nitris is installed in a closed or multiunit rack assembly, the operating ambient temperature of the rack environment might be greater than the room ambient temperature. Therefore, consider installing the equipment compatible with the manufacturer's maximum ambient temperature of 104°F (40°C).
- **Reduced Airflow** — Do not compromise the amount of airflow required for safe operation of the equipment.
- **Mechanical Loading** — Avoid a hazardous condition due to an uneven mechanical loading.

- **Circuit Overloading** — Consider connecting the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring. Use appropriate equipment nameplate ratings.
- **Reliable Earthing** — Maintain reliable earthing of rack-mount equipment. Give particular attention to supply connections other than direct connections to the branch circuit (for example, the use of power strips).

Installing the Avid Nitris in a Rack

The Avid Nitris is designed for 19-inch (483-mm) rack enclosures and requires three EIA rack units (3U), or 5 ¼ inches (133.4 mm) of rack space. The Avid Nitris is shipped with rack-nut clips for those rack enclosures that do not have threaded holes. Rack-nut clips are clipped in the holes of the rack that are used to secure the rack components in place.

To ensure the stability of the rack enclosure, start from the bottom when you install the rack components in the rack enclosure.

Positioning the Avid Nitris in the Rack

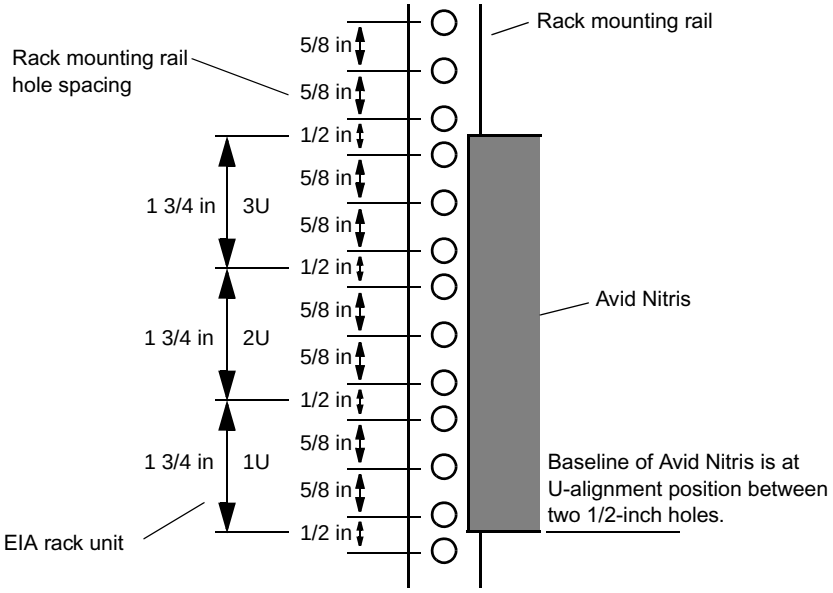
The following procedure helps you decide where to install the Avid Nitris in the rack. If your rack enclosure does not have threaded holes, install the rack-nut clips included with the Avid Nitris where the Avid Nitris front panel secures to the rack enclosure. If your rack enclosure has threaded holes, do not attach the rack-nut clips.

To position the Avid Nitris in the rack enclosure and attach the rack-nut clips:

1. Select the lowest position in the rack where you can mount the Avid Nitris. Position the Avid Nitris so the bottom is at the baseline of a U-alignment position.

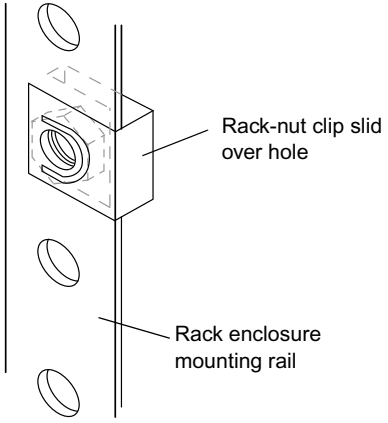
   If your rack enclosure has threaded holes, continue with “Securing the Avid Nitris in a Rack” on page 11.

Positioning the Avid Nitris



2. From the inside of the enclosure rail, slide the rack-nut clip over each hole you want to use. Each front support rail needs 2 rack-nut clips for the front of the Avid Nitris.

Attaching Rack-Nut Clips onto the Rack Enclosure



Securing the Avid Nitris in a Rack

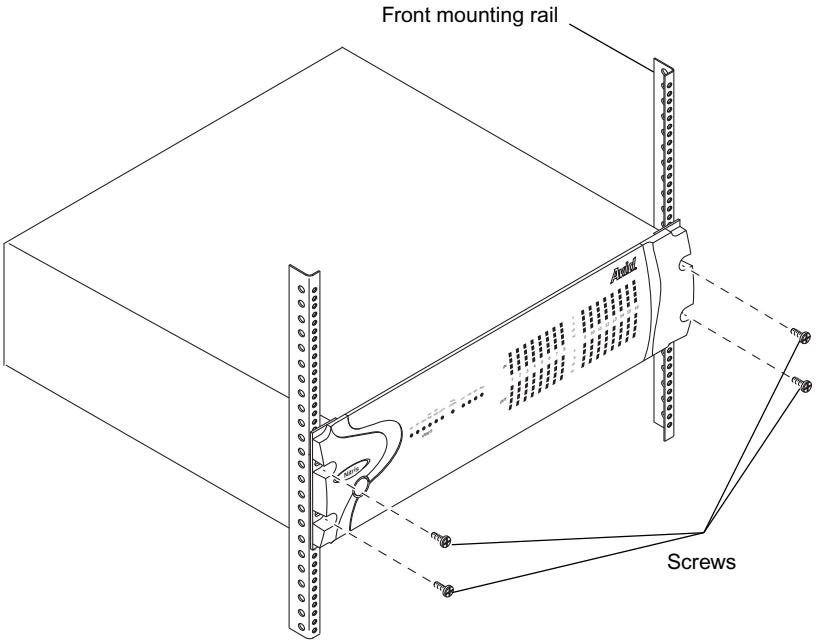
The Avid Nitris is secured in the front mounting rails of the rack with four rackmount screws. If your rack has threaded holes, use the proper rack screws for your rack. If your rack does not have threaded holes, attach the rack-nut clips included with the Avid Nitris as previously described (see “Positioning the Avid Nitris in the Rack” on page 9).

You should have someone helping you to lift the Avid Nitris enclosure.

To secure the Avid Nitris into the rack.

1. From the front of the rack, position the Avid Nitris so that it is flush against the front mounting rails.

Installing an Avid Nitris



2. Align the holes in the Avid Nitris with the holes in the front mounting rail. From the front of the rack enclosure, insert the screws through the Avid Nitris and front mounting rail, and tighten.

Avid Nitris Front Indicators and Rear Connectors

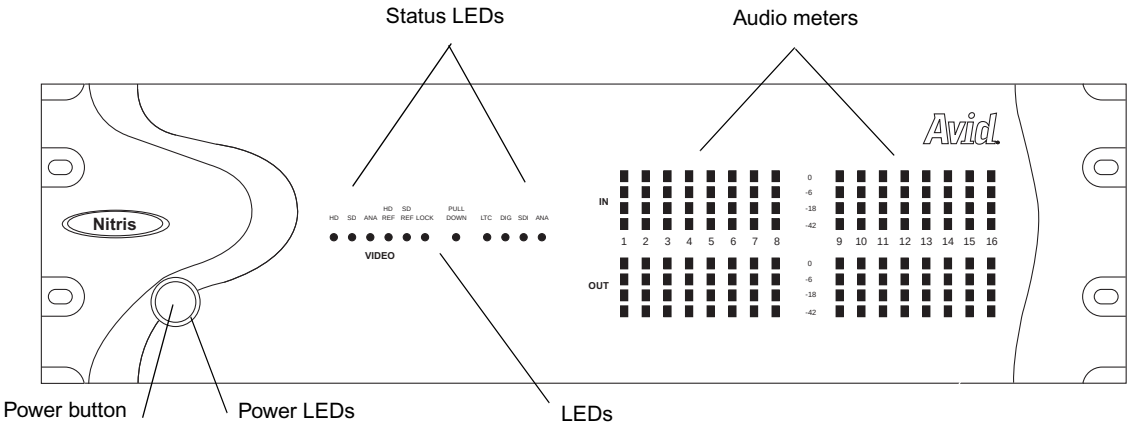
The Avid Nitris provides the high definition and standard definition input and output for your Avid editing system. The front panel of the Avid Nitris has several status LEDs, audio meters, and a power button.

Turn on the Avid Nitris after you have turned on your computer.

Front Panel

The following figure shows the front panel of the Avid Nitris. The table following the figure describes the Avid Nitris LEDs and power button.

Avid Nitris Front Panel



Avid Nitris LEDs

LED	Status When Lit
VIDEO	
HD	The LED is illuminated in High Definition (HD) mode (as opposed to SD). Lit when the application is set to capture HD source media and the signal is present from the source.
SD	The LED is illuminated in Standard Definition (SD) mode. Lit when the application is set to capture SD source media and the signal is present from the source.

Avid Nitris LEDs (Continued)

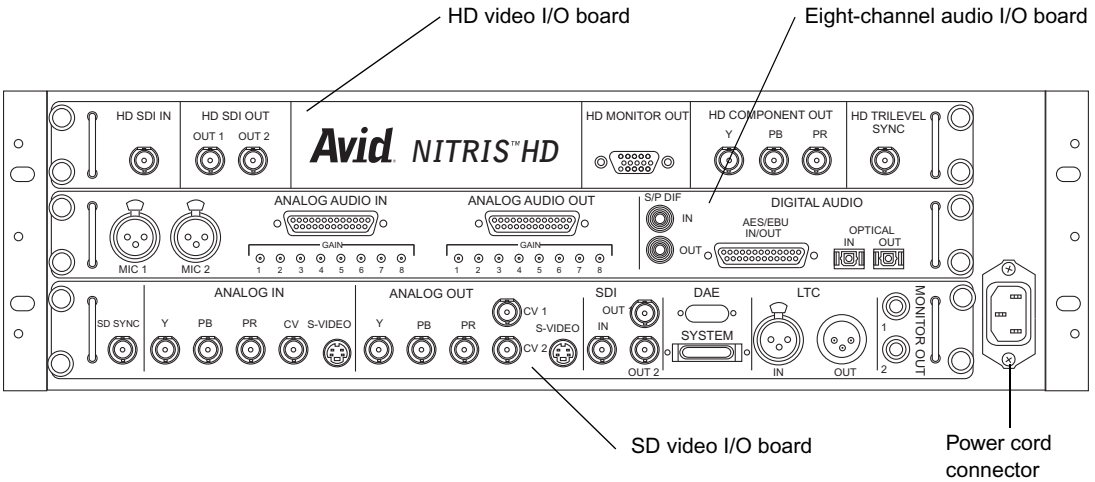
LED	Status When Lit
ANA	Lit when the application is set to capture an analog video input and the signal is present. The ANA and SD LEDs are always lit when the system is capturing analog SD video. *Avid Nitris does not capture analog HD so the ANA does not light during an HD capture.*
HD REF	Blinks when a High Definition Reference signal is connected and constantly on when the Nitris is locked to the incoming Reference signal.
SD REF	Blinks when a Standard Definition Reference signal is connected and constantly on when the Avid Nitris is locked to the incoming Reference signal.
Lock	Lit when a valid reference input signal is present and locked (for capture). Blinks if the sync signal is not valid.
AUDIO	
Pull Down	Lit when audio Pulldown is selected in the application during capture.
LTC	Lit when LTC IN is present on the input to the Avid Nitris.
DIG	Lit when a digital input is selected in the application.
SDI	Lit when a serial digital input is selected in the application.
ANA	Lit when an analog input is selected in the application.
Power LEDs	LEDs around the power button light when the Avid Nitris is on. Yellow is displayed when no signal is detected from the Nitris Base board. Green is displayed when the Nitris Base board signal is detected.

Rear Panel

The Avid Nitris rear panel contains the following video I/O and audio I/O boards:

- **HD Video I/O board** — Provides HD SDI I/O with embedded audio support, HD monitor, HD component, and HD tri-level sync connections for video equipment.
- **Eight-channel audio I/O board** — Provides two microphone inputs, eight analog I/O channels, two S/PDIF audio I/O channels, eight AES/EBU audio I/O channels, and eight channels of optical ADAT.
- **SD Video I/O board** — Provides analog and digital I/O connections for video equipment, and connects the Avid Nitris to the system using the digital interlink cable. Digital interlink cable transfers video signal data between the workstation's Avid Nitris Base board and the Avid Nitris. The SD Video I/O board provides a connection for syncing equipment to the Avid Nitris, and supports embedded audio on the SD SDI input.

Avid Nitris Rear Panel



If you select a downconvert format, you can output HD playback and SD downconvert simultaneous through the Avid Nitris. As a result, you can monitor SD output or create an SD master at the same time you are outputting an HD master. Some HD media formats are not compatible with SD resized outputs.

Each connector on the three Avid Nitris I/O boards is described in the following sections:

HD Video I/O Board Connectors

Eight-Channel Audio I/O Board Connectors

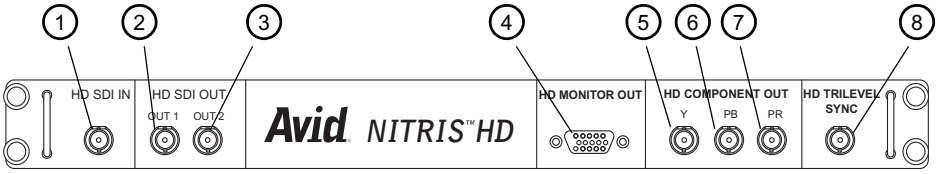
SD Video I/O Board Connectors

HD Video I/O Board Connectors

The following figure shows the connections on the HD video I/O board. The following table describes the function of each connector. You select which inputs to use from the Capture tool when inputting.

The HD Monitor and HD Component outputs cannot be used at the same time. Select one of the two in the Output tool.

HD Video I/O Board Connectors



HD Video I/O Board Identifiers

Number	Label	Function
1	HD SDI IN	High-definition Serial Digital Interface input with embedded audio support, BNC connector.
2	HD SDI OUT 1	High-definition Serial Digital Interface output number 1, BNC connector.
3	HD SDI OUT 2	High-definition Serial Digital Interface output number 2, BNC connector.
4	HD MONITOR OUT	High-definition component analog RGB video signal on a 15-pin connector: compatible with multisync computer monitors. *The HD MONITOR OUT connector on the HD Video I/O Board provides an output signal to VGA monitors. PAL video does not work because 50 Hertz (Hz) is not available in VGA monitors although, some 48 Hz monitors might display 24p. NTSC and HD video over 59 Hz usually works with a 60 Hz refresh rate. Video with a refresh rate higher than 60 Hz usually displays at one of the available monitor refresh rates.*
5	HD COMPONENT OUT, Y	HD analog component video output, Y color difference signal, BNC connector; connects to analog video input of a monitor or waveform /vectorscope.

HD Video I/O Board Identifiers (Continued)

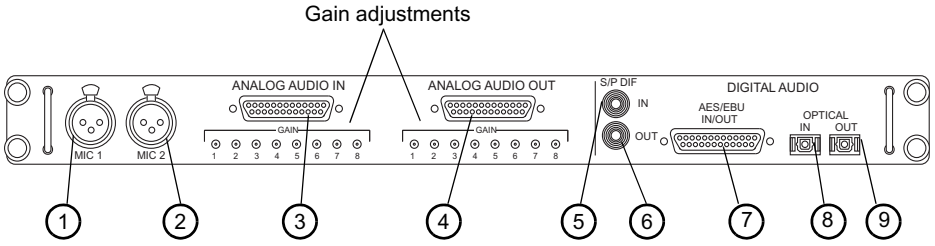
Number	Label	Function
6	HD COMPONENT OUT, PB	HD analog component video output, PB color difference signal, BNC connector; connects to analog video input of a monitor or waveform /vectorscope.
7	HD COMPONENT OUT, PR	HD analog component video output, PR color difference signal, BNC connector; connects to analog video input of a monitor or waveform /vectorscope.
8	HD TRILEVEL SYNC	High-definition video reference input for tri-level sync.

Additional audio support provided via the HD and SD SDI connectors. The number of available audio channels is defined by the application.

Eight-Channel Audio I/O Board Connectors

The following figure shows the connections on the eight-channel audio I/O board. The following table describes the function of each connector. You select which audio inputs to use from the Capture tool when inputting.

Eight-Channel Audio I/O Board Connectors



Eight-Channel Audio I/O Board Identifiers

Number	Label	Function
1	MIC 1	Microphone (MIC) inputs, two female XLR connectors. The analog microphone connectors accept powered or 48 V phantom power microphones. The audio input and microphone are selected in the software.
2	MIC 2	
3	ANALOG IN	Channels 1 - 8 Professional level audio input, 25-pin DSUB connector; a color coded DB25 to XLR cable is provided.

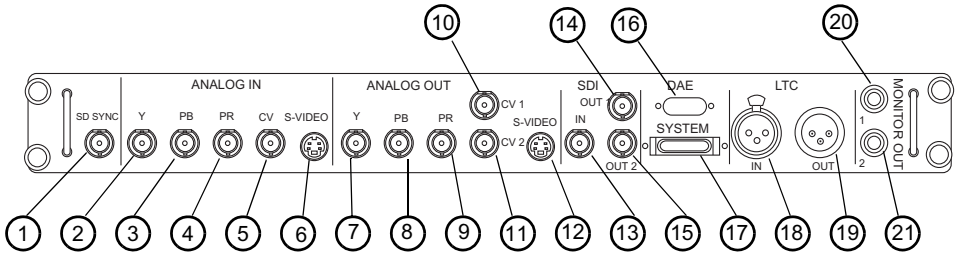
Eight-Channel Audio I/O Board Identifiers (Continued)

Number	Label	Function
—	Gain	Gain controls for the 8 audio inputs.
4	ANALOG OUT	Channels 1 - 8 Professional level audio output, 25-pin DSUB connector; a color coded DB25 to XLR cable is provided.
—	Gain	Gain controls for the 8 audio outputs.
5	S/PDIF IN	S/PDIF digital input, white phono (RCA) jack.
6	S/PDIF OUT	S/PDIF digital output, red phono (RCA) jack.
7	AES/EBU IN/OUT	Channels 1 - 8 AES/EBU digital input and output, 25-pin DSUB-connector; a color coded DB25 to XLR cable is provided.
8	OPTICAL IN	8 optical channels input.
9	OPTICAL OUT	8 optical channels output.

SD Video I/O Board Connectors

The following figure shows the connections on the SD video I/O board. The following table describes the function of each connector. You select which inputs to use from the Capture tool when inputting.

SD Video I/O Board Connectors



All analog video outputs are available during capture and playback to be used as a client monitor.

SD Video I/O Board Identifiers

Number	Label	Function
1	SD SYNC	Standard-definition video reference (REF) input for a black burst or reference signal, BNC connector.
2	ANALOG IN, Y (component)	SD analog component video input, Y luma, BNC connector; connects to the Y video output of decks.
3	ANALOG IN, PB (component)	SD analog component video input, PB color difference signal, BNC connector; connects to the B-Y video output of decks.
4	ANALOG IN, PR (component)	SD analog component video input, PR color difference signal, BNC connector; connects to R-Y video output of decks.
5	ANALOG IN, CV (composite)	Composite video input, BNC connector. Connects to analog video output of decks.
6	ANALOG IN, S-VIDEO	S-Video input, 4-pin connector. Connects to analog video output of decks.
7	ANALOG OUT, Y (component)	SD analog component video output, Y luma, BNC connector; connects to Y video input of decks. The component analog output connectors can also be connected to a monitor or waveform/vectorscope.
8	ANALOG OUT, PB (component)	SD analog component video output, PB color difference signal, BNC connector; connects to B-Y video input of decks. The component analog output connectors can also be connected to a monitor or waveform/vectorscope.
9	ANALOG OUT, PR (component)	SD analog component video output, PR color difference signal, BNC connector; connects to R-Y video input of decks. The component analog output connectors can also be connected to a monitor or waveform/vectorscope.
10	ANALOG OUT, CV 1 (composite)	Composite video output, BNC connector. Connects to analog video input of decks or monitor.
11	ANALOG OUT, CV 2, (composite)	Composite video output, BNC connector. Connects to analog video input of decks or monitor.
12	ANALOG OUT, S-VIDEO	Super-video output, 4-pin connector. Connects to analog video input of decks.
13	SDI IN	Serial Digital Interface input with embedded audio support, BNC connector.
14	SDI OUT1	Serial Digital Interface output number 1, BNC connector.

SD Video I/O Board Identifiers (Continued)

Number	Label	Function
15	SDI OUT2	Serial Digital Interface output number 2, BNC connector.
16	DAE	Digital Audio Extraction (DAE) interface, 9-pin DSUB connector. DAE is currently not supported in the Avid Nitris.
17	SYSTEM	Audio, video, and communication I/O connector from the Avid Nitris system.
18	LTC IN	Longitudinal timecode input, female connector. Can be used in place of 9-pin deck control when deck control is not required.
19	LTC OUT	Longitudinal timecode output, male connector. Master clock used to stripe tapes and synchronize systems to the house master clock (SMPTE for NTSC, and EBU for PAL).
20 21	Monitor OUT 1 Monitor OUT 2	1/4-inch audio tip/ring/sleeve (TRS) jacks that each output one channel (left/right) of audio to speakers. The audio feeding this connection is from the incoming or outgoing audio. **⚠ This TRS jack provides balanced professional level audio to your speaker system. Do not use 1/4 mono cables in this connector; your output levels might be too high.**

Workstation Overview

The platform currently shipping with the Avid Nitris is the HP wx8400 workstation. The following section describes and identifies the connections used on the rear of the workstation.

Avid has also previously qualified the xw9300 andxw8200 systems to be used with the Avid Nitris.

As more systems and third-party boards are tested and qualified, and as different configurations are approved, they are posted on the Avid web site. For the latest information concerning system availability, go to www.Avid.com. Click your product line (for example, Broadcast or Video Editing) and then click your Avid application.

HP Workstation xw8400 Slot Configuration and Connections

Avid has qualified the xw8400 system with the NVIDIA® Quadro® FX 3500 graphics board to be used with the Avid Nitris.

The back panel also contains ports for connecting the mouse, keyboard, monitors, and application key (dongle).

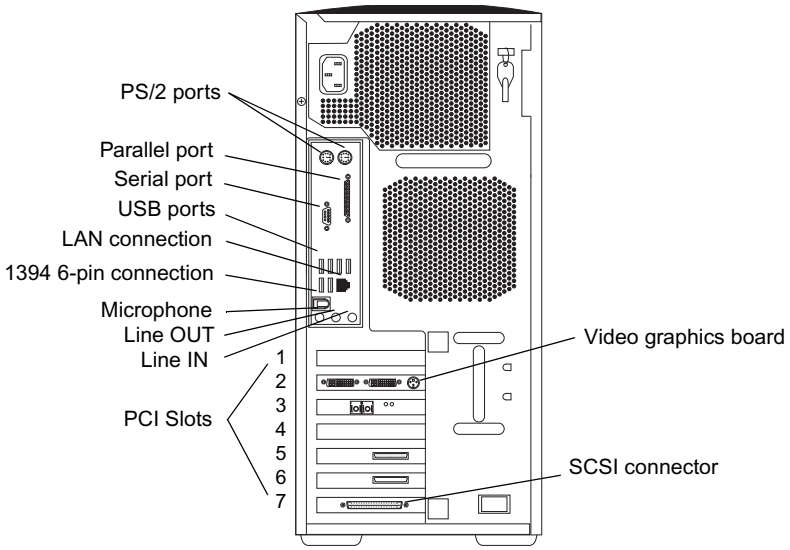
The following table lists the Avid qualified slot configuration for the xw8400 system.

HP Workstation xw8400 Slot Assignments

Slot	Description
PCI slot 1 (32-bit, 33 MHz, 5 V)	Do not use.
PCI Express slot 2 (x16 Graphics bus)	Qualified OGL graphics board (NVIDIA Quadro FX 3500)
PCI Express slot 3 (x8 mechanically, x4 electrically)	(Option) Fibre Channel for shared or local storage Fibre Channel for Avid Unity MediaNetwork or Intel Pro 1000 PT for Avid Unity ISIS
PCI Express slot 4 (x16 mechanically, x4 electrically)	Dual-Link HD SDI Board for Avid DS; used for inputting audio and video. Not used for Avid Symphony
PCI-X slot 5 (64-bit, 133 MHz, 3.3 V)	Avid Nitris base board
PCI-X slot 6 (64-bit, 100 MHz, 3.3 V)	Avid Nitris Codec Board
PCI-X slot 7 (64-bit, 100 MHz, 3.3 V)	ATTO UL4D PCI-X U320 Dual-channel SCSI controller

The following figure identifies the slots and connections on the rear of the xw8400 workstation.

Rear View of xw8400 System

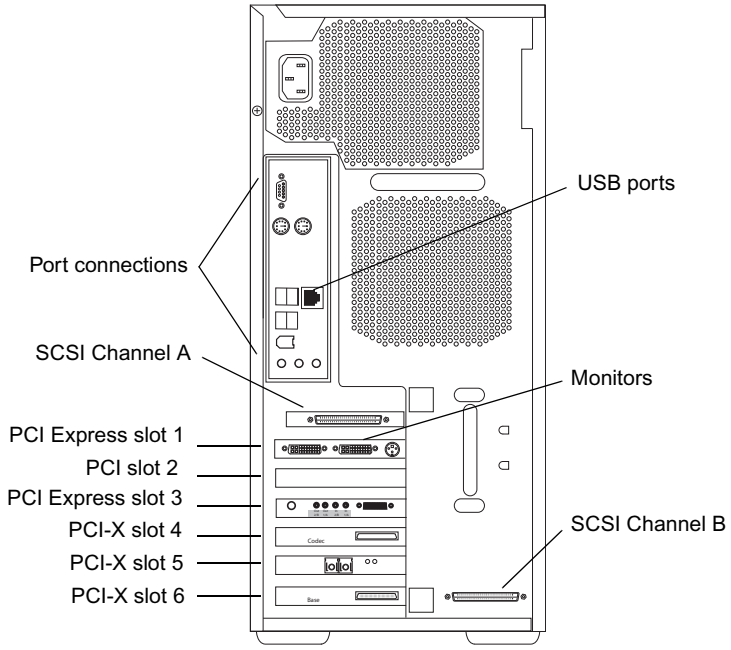


HP Workstation xw9300 Slot Configuration and Connections

Avid has qualified the xw9300 workstation with the NVIDIA graphics board to be used with the Avid Nitris. The following figure identifies the slots and connections on the rear of the xw9300 workstation.

The back panel also contains ports for connecting the mouse, keyboard, monitors, and application key (dongle).

Rear View of xw9300 System



The following table lists the Avid qualified slot configuration and function of each expansion board installed in the xw9300 workstation. For details on the graphics board specifications and system configuration, see the vendor documentation.

HP Workstation xw9300 Slot Configurations

Slot	Board Information	Description
PCI Express slot 1 (x16 Graphics bus)	NVIDIA graphics board	Processes input from the Avid Nitris Base board, handles OpenGL® processing, and outputs video signal to workstation monitor(s).
PCI slot 2 (32-bit, 33 MHz, 5 V)	Not used	Do not use. This bus segment is used by the integrated 1394 and the integrated Ethernet. *An on-board Ultra 320 SCSI connector panel occupies this location. The on-board SCSI is on the same bus segment as slots 6 and 7.*

HP Workstation xw9300 Slot Configurations

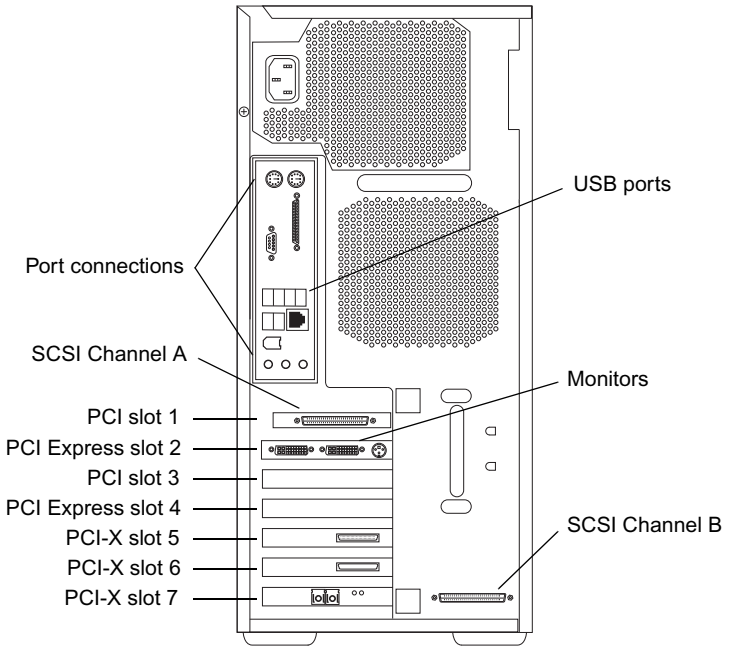
Slot	Board Information	Description
PCI Express slot 3 (x16 Graphics bus)	Dual-Link HD SDI Board for Avid DS.	For Avid DS, used for inputting audio and video.
	Not used for Avid Symphony	Do not use for Avid Symphony. This bus segment is used by the integrated 1394 and the integrated Ethernet.
PCI-X slot 4 (64-bit, 100 MHz, 3.3 V)	Avid Nitris Codec board	Performs the HD compression and 10-bit formats for the Avid Nitris Base board.
PCI-X slot 5 (64-bit, 100 MHz, 3.3 V)	ATTO™ optical Fibre Channel board when connected to Avid Unity™ MediaNetwork	Processes input and output to the Fibre Channel storage on the Avid Unity MediaNetwork.
	Intel® PRO/1000 MT Dual Port Server Adapter when connected to Avid Unity ISIS™	Processes input and output to the Ethernet storage on the Avid Unity ISIS.
PCI-X slot 6 (64-bit, 133 MHz, 3.3 V)	Avid Nitris Base board	Processes video capture, playback I/O, and hardware effects for the Avid Nitris and routes video to the NVIDIA graphics board. **The Nitris Base board must run at 100 MHz. Avid sets the jumper on PCI-X slot to runs at 100 MHz, however, if you have purchased you system directly from HP, you will need to make sure that the setting is changed from 133 MHz to 100 MHx. For instructions, see the Avid DS web site http://www.softimage.com/avidds, and select Download > System. Then choose the 9300 platform.**

HP Workstation xw8200 Slot Configuration and Connections

Avid has qualified the xw8200 workstation with the NVIDIA graphics board to be used with the Avid Nitris. The following figure identifies the slots and connections on the rear of the xw8200 workstation.

The back panel also contains ports for connecting the mouse, keyboard, monitors, and application key (dongle).

Rear View of xw8200 System



The following table lists the Avid qualified slot configuration and function of each expansion board installed in the xw8200 workstation. For details on the graphics board specifications and system configuration, see the vendor documentation.

HP Workstation xw8200 Slot Configurations

Slot [a]	Board Information	Description
PCI slot 1 (32-bit, 33 MHz, 5 V)	Not used	Do not use. This bus segment is used by the integrated 1394 and the integrated Ethernet. *An on-board Ultra 320 SCSI connector panel occupies this location. The on-board SCSI is on the same bus segment as slots 6 and 7.*
PCI Express slot 2 (x16 Graphics bus)	NVIDIA graphics board	Processes input from the Avid Nitris Base board, handles OpenGL® processing, and outputs video signal to workstation monitor(s).
PCI slot 3 (32-bit, 33 MHz, 5 V)	Not used	Do not use. This bus segment is used by the integrated 1394 and the integrated Ethernet.

HP Workstation xw8200 Slot Configurations

Slot [a]	Board Information	Description
PCI Express slot 4 (x8 mechanically, x4 electrically)	Dual-Link HD SDI Board for Avid DS.	For Avid DS, used for inputting audio and video.
	Not used for Avid Symphony	Do not use for Avid Symphony. This bus segment is used by the integrated 1394 and the integrated Ethernet.
PCI-X slot 5 (64-bit, 133 MHz, 3.3 V)	Avid Nitris Base board	Processes video capture, playback I/O, and hardware effects for the Avid Nitris and routes video to the NVIDIA graphics board. **The Nitris Base board must run at 100 MHz. The board is installed into the PCI-X 133 MHz bus slot but Avid sets this PCI-X slot to run at 100 MHz in the BIOS.**
PCI-X slot 6 (64-bit, 100 MHz, 3.3 V)	Avid Nitris Codec board	Performs the HD compression and 10-bit formats for the Avid Nitris Base board.
PCI-X slot 7 (64-bit, 100 MHz, 3.3 V)	ATTO™ optical Fibre Channel board when connected to Avid Unity™ MediaNetwork	Processes input and output to the Fibre Channel storage on the Avid Unity MediaNetwork.
	Intel® PRO/1000 MT Dual Port Server Adapter when connected to Avid Unity ISIS™	Processes input and output to the Ethernet storage on the Avid Unity ISIS.

a. On a rackmount workstation, PCI slot 1 is to the left, and the PCI slot 7 is to the right when viewing the back of the workstation base unit.

Connecting the Dual-Link HD SDI Board

Standard with every Avid DS Nitris is new hardware that provides the necessary dual-link HD-SDI input and output channels for HD-RGB sources like HDCAM SR delivering a complete solution for capture, conform, finishing and mastering for HD-RGB workflows.

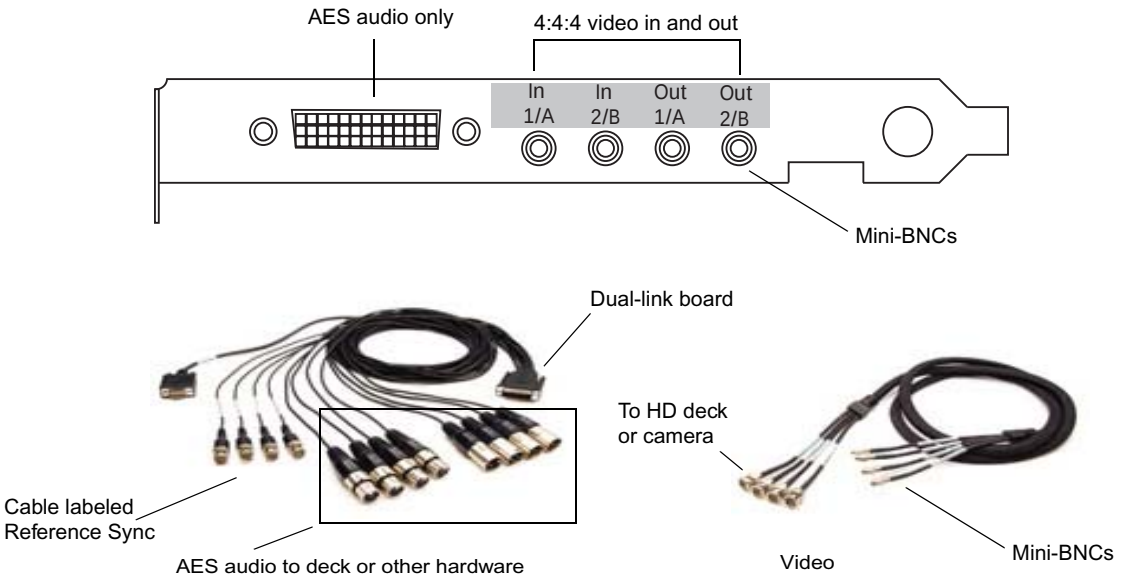
Existing customers can add the dual-link HD-SDI hardware a purchasable option.

The Dual-Link HD SDI board is used whenever you need to input or output using 4:4:4 format. When using this format you should not attempt to use connections on the Nitris DNA box.

The dual-link HD SDI board is divided by use into two sections:

- 4:4:4 format video using 4 mini-BNC connectors.
- AES Audio embedded with the video breakout cable — 15-Pin D connector for 8 channels of AES/EBU audio inputs and outputs. The connector attaches to a 8-XLR breakout cable. It is 24 bit, 48Khz audio. Inputs support 32 bits at 96Khz.

The remaining sections of cable are not used. The above two functions are the only ones supported at this time.



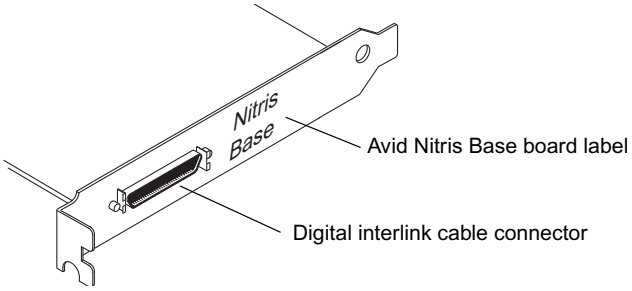
To connect the Dual-Link video and sync:

The dual-link board has 1 dual-link input (2 connectors), and 1 dual-link output (2 connectors). The inputs should normally be connected to a dual-link capable deck, and the outputs can either go back to the deck, or feed a HDLink-type device for display on a computer monitor. Sync on the board is always an input and should be feeded with the same sync that is feeded to the deck connected to the AJA board. It's used to sync both the Audio and Video when in playback mode.

Avid Nitris Base Board Connection

The following illustration shows the connection on the Avid Nitris Base board. For information on connecting your video and audio equipment to the Avid Nitris, see “Connecting Audio and Video Equipment” on page 35.

Avid Nitris Base Board Connection



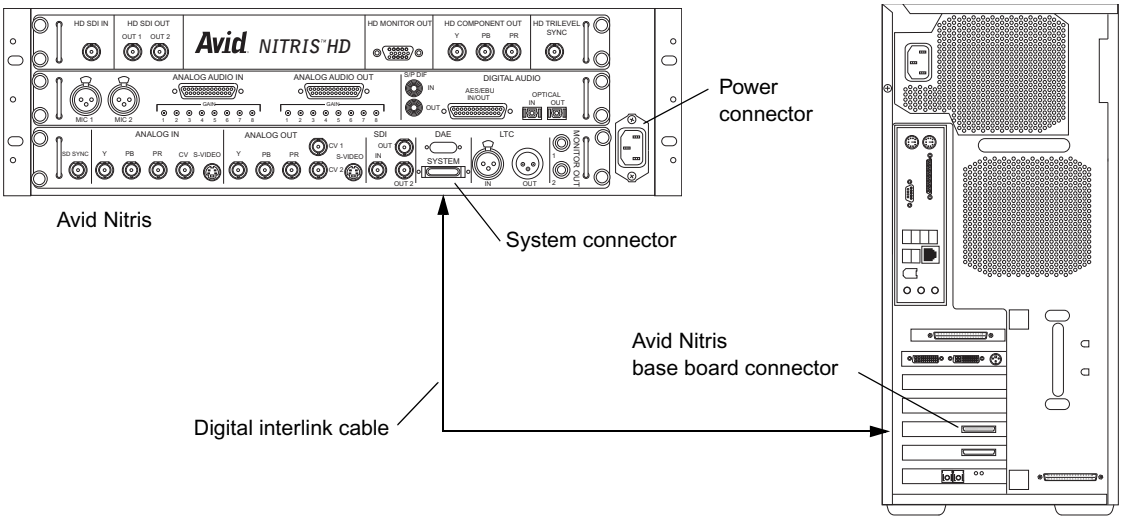
There is a similar connector on the Nitris Codec board which is currently not used. Make sure you connect the digital interlink cable to the board labeled “Nitris Base.” (The newer Codec board has venting holes instead of a connector.)

Connecting the Avid Nitris

To connect the Avid Nitris to the workstation:

1. Make sure that the power on the Avid Nitris is Off.
2. Attach the power cord to the power connector at the back of the Avid Nitris and plug it into a power outlet.
3. Plug one end of the digital interlink cable into the SYSTEM connector at the back of the Avid Nitris.

Connecting the Avid Nitris



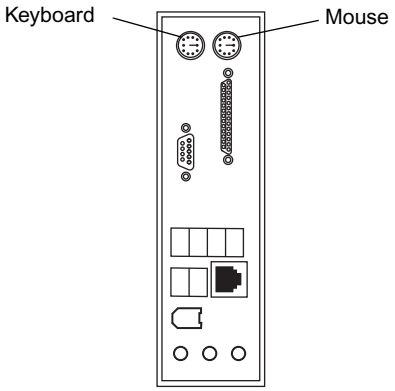
4. Plug the other end of the digital interlink cable into the digital interlink connector on the Avid Nitris Base board.
5. Make sure both ends of the cable are secure.

Turn on the Avid Nitris after you have turned on your computer.

Connecting the Keyboard and Mouse

The keyboard and mouse come with attached cables for connecting them to the back panel of your workstation. The following figure shows the keyboard and mouse connections on a deskside workstation.

Connecting the Keyboard and Mouse



To connect the keyboard and mouse:

1. In the base unit, connect the keyboard to the top-left or bottom mini-DIN port.
2. Connect the mouse to the top-right or top mini-DIN port in the base unit.

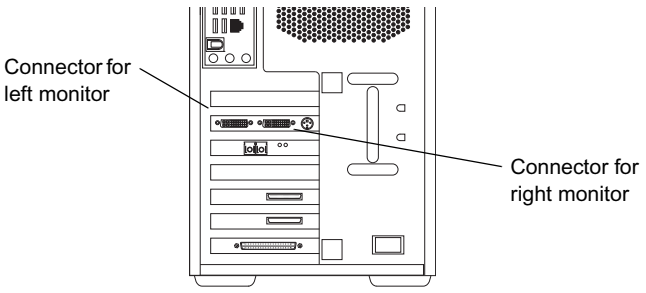
On a rackmount workstation, the keyboard port is on the bottom when viewing the back of the workstation base unit and the mouse is to the top.

Avid does not recommend using extension cables more than 6-feet (1.83-meters) for your keyboard and mouse.

Connecting the Monitors

Your workstation comes with two monitors for Avid Nitris. You can purchase either standard high-resolution flat-panel monitors or VGA monitors. The monitors connect to the NVIDIA graphics board (see the following figure). The NVIDIA graphics board is located in the PCI Express slot 2.

NVIDIA Graphics Board in the xw8400 Workstation



On a rackmount workstation, the graphic boards are to the left when viewing the back of the workstation base unit.

Each monitor comes with a video cable and a power cord. Depending upon the monitor, you might receive a VGA-to-DVI adapter. Avid recommends that you use the DVI connectors on the monitor if available. For more information regarding the graphic boards and monitors, see the documentation provided by the manufacturer.

The driver for the graphic board should be installed on your system, but it is also located on the Avid DS Drivers CD-ROM. Unique video property settings and system BIOS are used in your Avid Nitris editing system. For more information consult, your Avid representative.

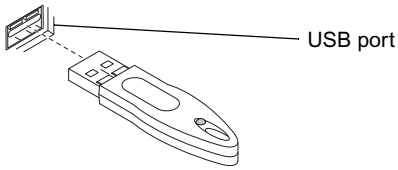
To connect the monitors:

1. Verify that the power is turned off on the monitor and the base unit, and then connect these devices to a power source.
2. Attach one end of the cable to the monitor. Use adapter if needed.
3. Attach the other end of the cable to the appropriate DVI connector as shown in "NVIDIA Graphics Board in the xw8400 Workstation" on page 29. Use adapter if needed.

Connecting the Application Key

The application key, commonly referred to as a *dongle*, allows the Avid software to run on your system. If you have not yet connected the application key, you should do so before you run the Avid application. If your system has USB ports in the front and in the rear, Avid recommends that you connect the application key to a USB port at the rear of the system.

Application Key



For Avid DS, you no longer need an application key (Dongle) to use your system.

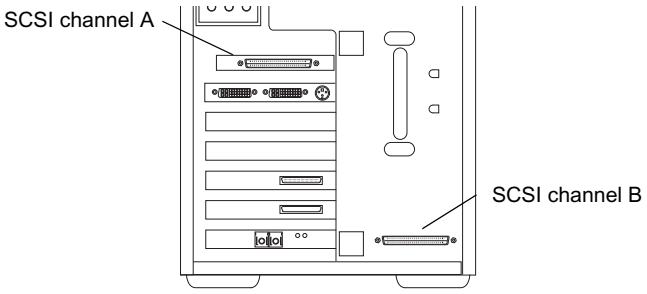
Avid now provides a utility that generates a dongle ID number based on your hardware components. The license file is supplied from this dongle ID. See the Avid DS Nitris Installation and Administration Guide for instructions on how to generate the dongle ID and license your system.

Connecting the SCSI Local Storage Systems

Avid Nitris editing systems support the Avid MediaDock Ultra320 and Avid VideoRAID as a local SCSI storage system. Local storage connects to the two SCSI channels at the rear of the workstation and must be striped to provide the needed throughput.

Avid typically supports newer drives as they become available. For the latest list of supported drives, see your Avid sales representative.

SCSI Connections at the Rear of the System



The connections at the rear of the workstation are HD 68-pin connectors. If you are going to use SCSI devices for standalone storage, you must order the cables separately when you order your Avid editing system.

Also note that the xw8400 does not have onboard SCSI controllers. Instead, it uses an Atto UL4D SCSI card with dual-SCSI connectors.

The maximum length of the external SCSI cables must not exceed 16-feet (5 meters). If connecting two MediaDock Ultra320 enclosures (one enclosure on each SCSI channel) you can use a 16-foot (5 meter) SCSI cable on each SCSI channel.

Avid MediaDock Ultra320

For installation procedures and instructions on switching between single-bus and dual-bus modes, see the documentation that ships with the Avid MediaDock Ultra320.

Formatting and Striping Media Drives

Disk drives must be configured as *Dynamic* when you are striping drives.

To configure and stripe a drive:

1. Start your system, and log in to an account with administrative privileges.
2. Right-click the My Computer icon, and select Manage.

   The Computer Management window opens.
3. Click the Disk Management folder.

For more information on the Computer Management window, click the Help icon in the toolbar of the Computer Management window.

4. Make a drive Dynamic by right-clicking the disk ID section of the disk in the Computer Management window and selecting Upgrade to Dynamic disk, or Create Dynamic disk, depending upon the status of your disk.

   When you select a disk in the Computer Management window, the white section of the disk changes to stripes, showing that the section has been selected.
5. Repeat step 4 for each drive you want to stripe.
6. Right-click one of the Dynamic drives and select Action > Create Volume.
7. Follow the instructions in the Create Volume Wizard to finish striping the drives using NTFS format.

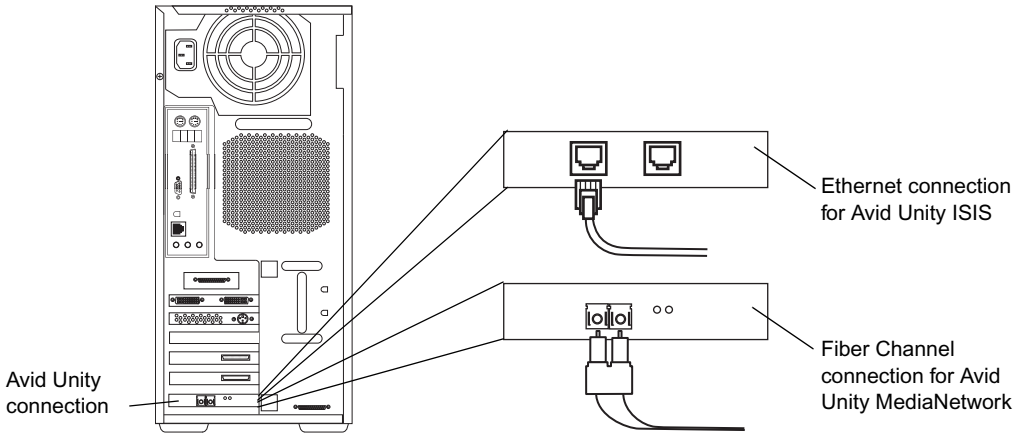
Connecting to Avid Unity Shared Storage

Avid Unity media networks are shared storage and networking solutions for sharing media between multiple workstations. Depending on which Avid Unity environment you have, a specific media network board is installed in PCI slot 5 of your Avid Nitris workstation.

Avid Unity ISIS uses the optional Intel PRO/1000 MT Dual Port Server Adapter board. This is supported for both Avid Symphony and Avid DS (32-bit and 64-bit).

Avid Unity MediaNetwork uses the optional ATTO 3300 Fibre Channel board. This is only supported for 32-bit applications, therefore it cannot be used for the Avid DS 64-bit version.

Avid Unity Media Network Board Slot Location



Setup and installation instructions for the Avid Unity components ship with the Avid Unity hardware. For information on installing the Avid Unity network board driver, see the Avid Unity documentation.

Reference Signal

Whenever you use more than one video or audio device in your video editing environment, you must have a separate synchronization signal connected to each device. A sync generator or reference signal provides a composite signal that locks all the devices (video and audio) to the main video signal. If the devices are not in sync for example, a monitor might show rolling, tearing, or incorrect colors in the picture whenever you send video between devices.

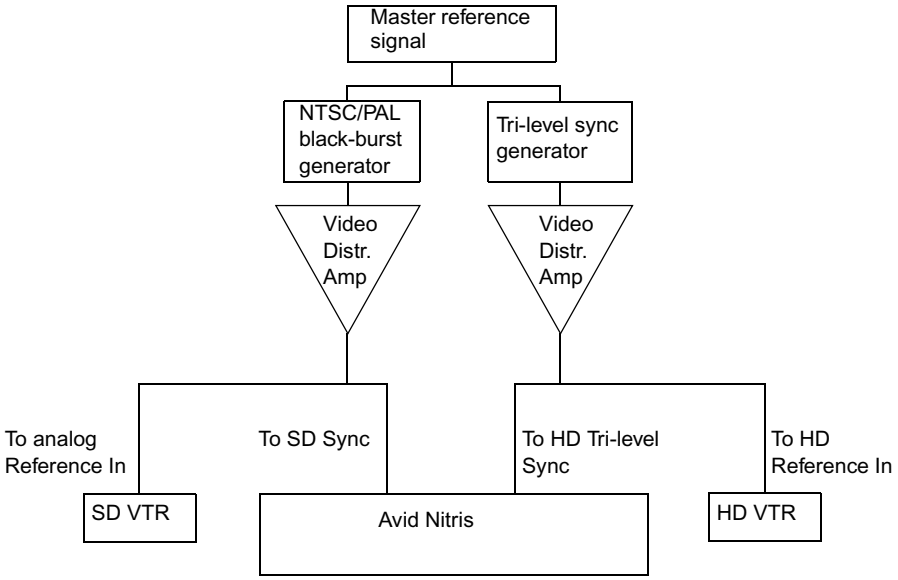
To make sure the configuration you are using is properly synced, read the documentation that ships with each of your video devices.

Avid applications require that the VTR and the Avid Nitris hardware be genlocked to the same timing source when capturing or outputting a digital cut.

Sync Topology

When you sync analog and digital video/audio devices, it is always preferable to feed every component with a separate black-burst or tri-level sync signal in a star pattern. Avoid looping the reference signal by terminating any unused loop out with a 75 ohm terminator.

Typical Sync Topology



You also need to verify the following to make sure your topology is correct:

- **Distance between distribution Amplifier (DA)**: If your DA feeds multiple devices that are far apart, the stability and strength of the signal it sends is crucial.
- **Quality of the devices**: A good DA in a star pattern topology is necessary to ensure that every device is properly referenced. A tri-level sync signal could be distributed by an analog video distribution amplifier.
- **Analog video routing switchers**: The Avid Nitris has separate inputs for the SD and HD sync. Consider using an analog routing switcher to select between the various tri-level sync signals.

Tri-level Sync

Tri-level sync is typically used to synchronize your HD video devices. Tri-level sync could be considered functionally the same as black-burst video in that it is simply the reference synchronizing information from the facility's master generator.

You must use a synchronization signal to synchronize your VTR and the Nitris video subsystem for all the HD formats supported by Avid Nitris. Some HD formats can use a black burst sync. For more information see "Selecting Sync for HD Formats" in the Help.

Black Burst Sync

When using SD video, a black burst or reference signal must be connected to the SD SYNC input of the Avid Nitris.

Connecting Audio and Video Equipment

There are several possible cabling configurations depending on your camera, video deck, and client monitor. The audio and video output signals are available to each output connector at the same time. Industry-standard video cables are not included with the Avid Nitris. The following sections describe several possible connections:

- Connecting Video
- Connecting Audio
- Connecting a Client Monitor
- Qualified VGA Outputs

You can control this equipment remotely with the serial connection on the workstation, see “Controlling a Video Deck” on page 41.

Connecting Video

You can connect HD VTRs and video monitors to your workstation. The following sections describe several video connections:

- Connecting a Video Deck — Component Signal
- Connecting a Video Deck — Composite Signal
- Connecting a Video Deck — Serial Digital Signal
- Connecting a Video Deck — S-Video Signal
- Controlling a Video Deck

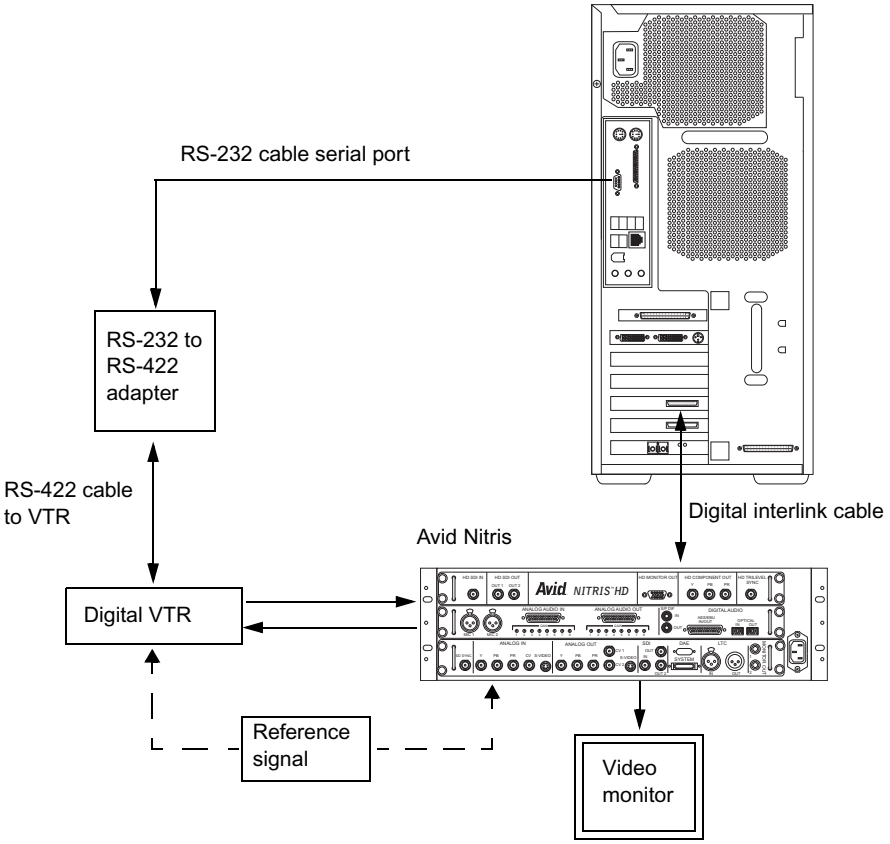
The following procedure and illustration summarizes the video connections. For more information, see the documentation that comes with your peripheral devices.

To connect video devices:

1. Connect the HD In on the Avid Nitris to the HD Out on the VTR.
2. Connect one of the HD Out, on the Avid Nitris to the HD In on the VTR.
3. Connect the other HD Out on the Avid Nitris to the HD In on the video monitor.
4. Set the VTR transport switch to Remote.

5. Plug the RS-232 end of your serial adapter cable into the serial port on your workstation.
6. Plug the other end (RS-422) of the serial adapter cable into the REMOTE IN port on the VTR.
7. Plug one end of a BNC sync cable into the Avid Nitris SD sync or HD tri-level input and the other into the reference signal.

Connecting Video Devices



Connecting a Video Deck — Component Signal

A component video deck connection requires the following:

- Two component video cables with three BNC connectors at both ends
- A video deck with component inputs and outputs

To connect a deck using component signals:

1. Locate one component video cable.

   The cables used in the following example have three BNC connectors on each end of the cable and are color coded (red, green, and blue).

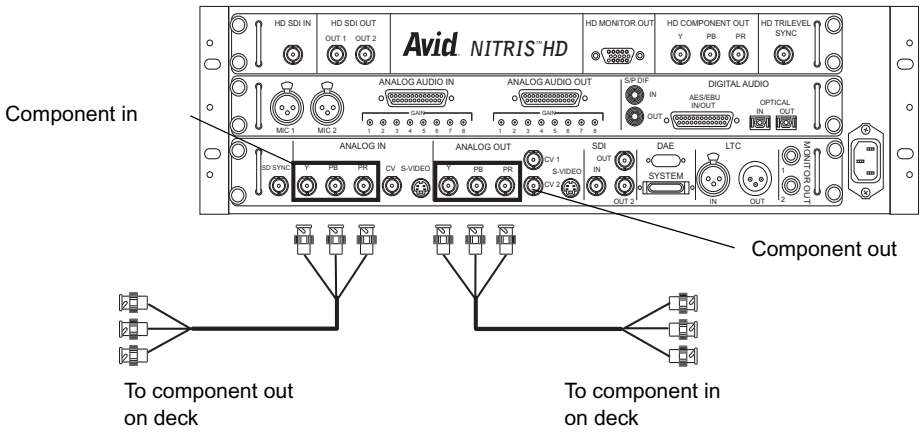
2. Attach one end of the cable to the Avid Nitris inputs as follows:

   a. Connect the BNC attached to the green wire to the component input connector labeled Y.

   b. Connect the BNC attached to the red wire to the component input connector labeled PR.

   c. Connect the BNC attached to the blue wire to the component input connector labeled PB.

Connecting a Video Deck — Component Signal



3. Attach the other end of the component cable to the component outputs of your video deck as follows:

   a. Connect the BNC attached to the green wire to the component output connector labeled Y.

   b. Connect the BNC attached to the red wire to the component output connector labeled R-Y.

   c. Connect the BNC attached to the blue wire to the component output connector labeled B-Y.

4. Locate another component video cable and attach it to the Avid Nitris outputs as follows:

a. Connect the BNC attached to the green wire to the component output connector labeled Y.

b. Connect the BNC attached to the red wire to the component output connector labeled PR.

c. Connect the BNC attached to the blue wire to the component output connector labeled PB.

5. Attach the other end of the component cable to Component input of your video deck as follows:

   a. Connect the BNC attached to the green wire to the component input connector labeled Y.

   b. Connect the BNC attached to the red wire to the component input connector labeled R-Y.

   c. Connect the BNC attached to the blue wire to the component input connector labeled B-Y.

Make sure you terminate the input signal if your video deck supports passthrough. See the documentation that is provided with your video deck.

Connecting a Video Deck — Composite Signal

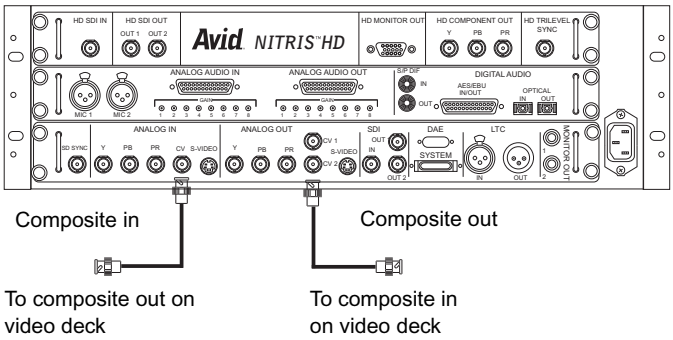
A composite video deck connection requires the following:

- Two composite video cables with BNC connectors at both ends
- A video deck with composite inputs and outputs

To connect a deck using composite signals:

1. Locate one composite video cable.
2. Attach one end of the cable to the Avid Nitris Composite output connector on the SD video I/O board.

Connecting a Video Deck — Composite Signal



3. Attach the other end of the composite cable to Composite input of your video deck.
4. Locate another composite video cable and attach it to the Avid Nitris Composite input on the SD video I/O board.
5. Attach the other end of the composite cable to Composite output of your video deck.

Make sure you terminate the input signal if your video deck supports passthrough. See the documentation that is provided with your video deck.

Connecting a Video Deck — Serial Digital Signal

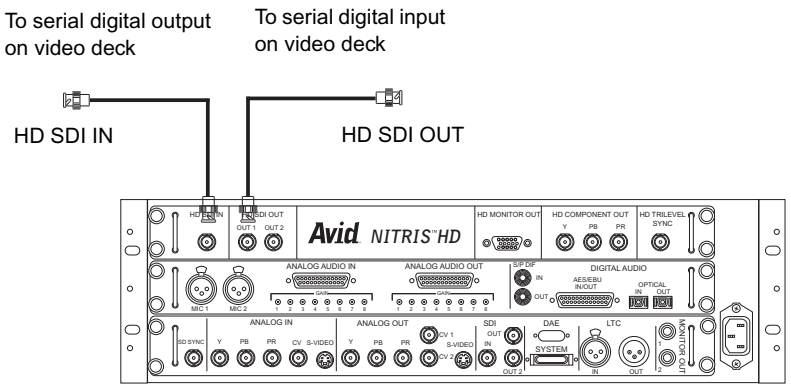
A serial digital video deck connection requires the following:

- Two serial digital cables with BNC connectors at both ends
- A video deck with serial digital inputs and outputs

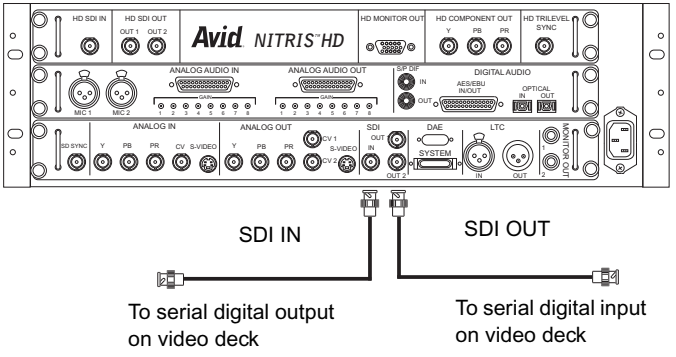
To connect a deck using serial digital signals:

1. Locate one serial digital cable.
2. Attach one end of the cable to the SDI IN on the Avid Nitris SD video I/O board or HD SDI IN on the HD video I/O board.

Connecting a Video Deck — Digital Signal to the HD Video I/O Board



Connecting a Video Deck — Digital Signal to the SD Video I/O Board



3. Attach the other end of the serial digital cable to serial digital output on the video deck.
4. Locate another serial digital cable and attach it to the SDI OUT on the Avid Nitris SD video I/O board or HD SDI OUT on the HD video I/O Board (see the previous figures). You can use either SDI OUT connectors on the two boards.
5. Attach the other end of the serial digital cable to the serial digital input on the video deck.

Make sure you terminate the input signal if your video deck supports passthrough. See the documentation that is provided with your video deck.

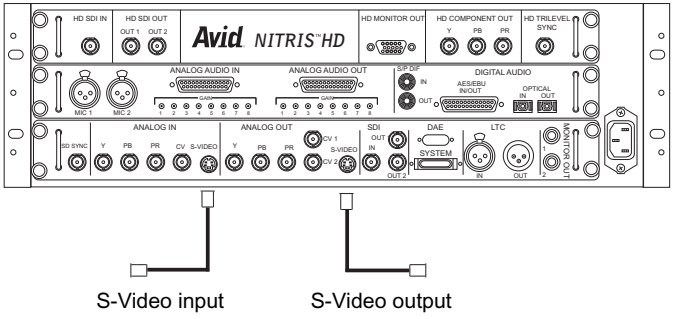
Connecting a Video Deck — S-Video Signal

There are two industry-standard S-Video connectors on the rear of the Avid Nitris. One connector is for video input, and the other is for video output. A composite video deck connection requires the following:

- Two S-Video cables
- A video deck with S-Video inputs and outputs

To connect a deck using S-Video signals:

1. Locate one S-Video cable.
2. Attach one end of the cable to the Avid Nitris S-Video IN connector on the SD video I/O board.



3. Attach the other end of the S-Video cable to S-Video output on the video deck.
4. Locate another S-Video cable and attach it to the S-Video OUT connector on the Avid Nitris SD video I/O board (see the previous figure).
5. Attach the other end of the S-Video cable to the S-Video input on the video deck.

Controlling a Video Deck

Avid editing systems provide video deck control through a serial control connector on most decks. You can control a single deck by using an RS-232 to RS-422 serial adapter. The adapter converts an RS-232 signal to an RS-422 signal to control a VTR from your Avid editing workstation. An optional RS-232 to RS-422 serial adapter kit is available through Avid.

The adapters include two diagnostic LEDs (power and data). The power LED glows steadily when the adapter is receiving adequate power through the serial port. The data LED flashes whenever data is being transmitted or received. This helps you confirm that the serial port is active.

The optional serial adapter kit that contains the following:

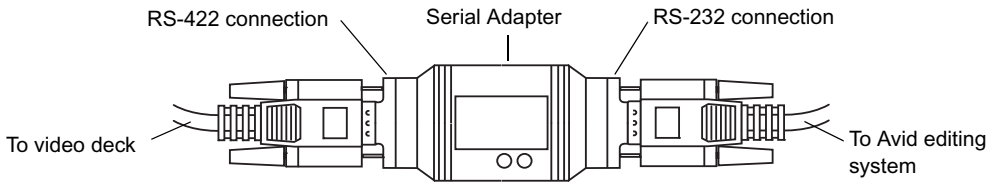
- An RS-232 to RS-422 serial adapter
- Two serial cables with 9-pin male connectors at both ends

To connect a single deck to your system:

1. Locate the serial adapter kit.
2. Attach one end of a 9-pin cable to the end of the serial adapter labeled RS-232.
3. Attach the other end of the 9-pin cable to the serial port on the Avid editing system or to the serial connector of the USB-to-serial adapter.

When you attach the cable to the serial port on the PC, note if you are using the COM1 or COM2 serial port. You need to select the same port in the Avid editing application.

Video Deck Control Cabling



4. Attach one end of another 9-pin cable to the end of the serial adapter labeled RS-422.
5. Attach the other end of the 9-pin cable to the remote serial port of the video deck.

Place the deck in Remote mode before attempting to control the deck using the software. See the documentation provided with your deck.

Connecting Audio

Avid provides three audio cable harnesses with the Avid Nitris. Each cable is color coded and labeled for Avid Nitris connections. The cables are identified as follow:

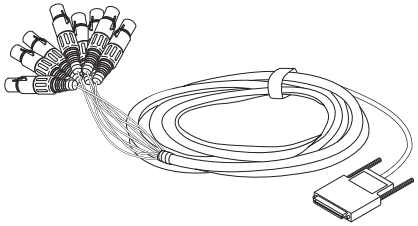
- Line In Balanced (blue, eight XLR female)
- Line Out Balanced (red, eight XLR male)
- AES/EBU I/O (yellow, four male dual-channel XLRs, four female dual-channel XLRs)

Pinouts for these three audio cable harnesses are provide on the Avid Support Center.

Each cable is similar in appearance, using a DB-25 connector on one end and eight industry-standard XLR audio connectors on the other end.

Audio Input and Output Cable

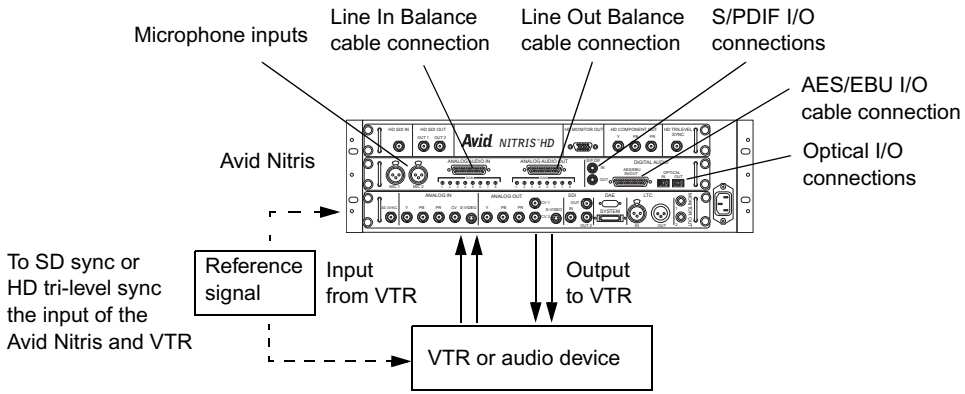
Avid audio I/O cables provided with the Avid Nitris



The connections between the Avid Nitris and VTR vary depending on the type of audio equipment and VTR you have. The following figure identifies the connections for your audio equipment. See "Eight-Channel Audio I/O Board Connectors" on page 16 for exact connector locations.

Two microphone inputs are also provided on the eight-channel audio I/O board.

Audio Input and Output Connections



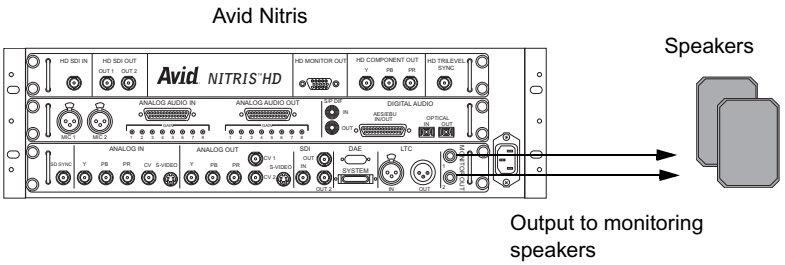
To connect your audio equipment:

1. Make sure that the Avid Nitris power is off.
2. Connect the audio output ports on the Avid Nitris to the input ports on the VTR or audio device.
3. Connect the audio input ports on the Avid Nitris to the output ports on the VTR or audio device.

The Avid Nitris provides two balanced ¼-inch audio TRS jacks for monitoring your audio. The Monitor Out jacks are on the SD Video I/O board. When you play a sequence, the audio tracks are mixed down to stereo when heard through the monitor speakers.

These TRS jacks provide balanced professional level audio to your speaker system. Do not use 1/4 mono cables in this connector or your output levels might be too high.

Audio Monitoring Connection



Connecting a Client Monitor

To view the video as it passes through the Avid Nitris, you might want to connect a Client monitor. All analog video outputs are active when you play a sequence or when you capture data. A Client monitor can be connected to any of the following video outputs on the SD video I/O board (see “SD Video I/O Board Connectors” on page 17):

- Component
- Composite
- SDI
- S-Video

A Client monitor can be connected to of the following video outputs on the HD video I/O board (see “HD Video I/O Board Connectors” on page 15):

- HD Monitor Out
- HD Component Out

Most video decks provide a video output connector. You can connect a monitor to the deck to see the video sent to the Avid Nitris or the video the Avid Nitris sends to the deck. See the documentation that came with your video deck for more information.

The video you see in the monitor connected to the deck might not indicate there is a video signal going to the Avid Nitris.

Qualified VGA Outputs

When using an RGB analog signal with a VGA monitor use a 60 Hz vertical refresh rate. You might need to adjust your horizontal and vertical display size on some monitors, and with some format combinations to view the entire picture.

The following are supported HD formats for Avid Nitris using standard VGA monitors:

- 1080i/59.94
- 1080p/29.97 (transmitted as 1080PsF/29.97)
- 1080i/50 (marginal on some VGA monitors, see the following note)

A 50 Hz vertical rate is the lower limit on some monitors. Consult your VGA monitor specification for compliance with 50 Hz vertical refresh.

- 1080p/23.976
- 1080p/24
- 1080p/25 (marginal - PsF)
- 720p/23.976
- 720p/59.94

You can also use the 15-pin D-sub VGA connector with a BNC adapter cable in Y, Pb, Pr output mode for an extra analog color difference output in addition to the primary on board Y, Pb, Pr BNC outputs.

Connecting Serial and MIDI Port Devices

This section only applies to Avid Symphony Nitris.

Avid systems support the connection of two different MIDI fader controllers and a Yamaha® mixer. The fader controllers and the mixer connect to the MIDISPORT™ 2x2 USB-to-MIDI converter attached to the USB ports. The two fader controllers are the JL Cooper FaderMaster Pro™ and the JL Cooper MCS-3000X. Avid supports recording automation gain using the MIDI features of the mixer.

USB and Serial Connections

Windows systems typically have 2 or more USB connections and one serial connection. If you need more than one serial connection, Avid recommends using a USB-to-serial adapter. See the documentation that comes with the device.

Connecting the USB Hub

The USB hub explained in this section converts one USB port into seven USB ports. The USB hub kit (see the following figure) contains a USB hub, a power adapter, and a USB cable.

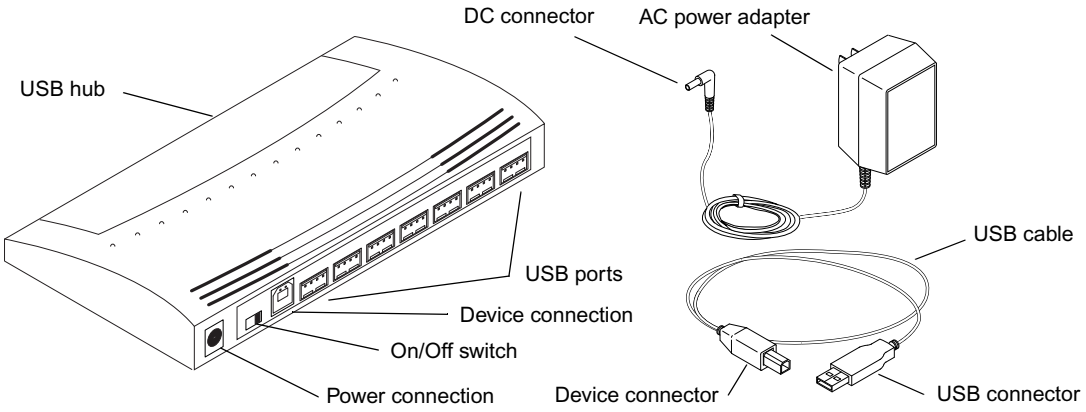
The USB hub shown in the example might not be the actual USB hub you use. However, the example shown provides enough information to allow you to properly connect whatever USB hub you decide to use.

The USB hub is supported only when it is powered by an ac adapter.

The USB hub has the following connections:

- USB ports 1 through 7
- Device connection
- On/Off switch
- Power connection

USB Hub



To connect the USB hub:

1. Connect the power adapter to the USB hub:
   a. Plug the dc connector of the ac power adapter into the USB hub power connection.
   b. Plug the ac power adapter into a wall outlet or power strip.
2. Connect the USB hub to the system using the USB cable:

a. Plug the device connector of the USB cable into the device connection at the rear of the USB hub.

b. Plug the USB connector of the USB cable into one of the USB ports at the rear of the system.

3. Turn on the power.

Connecting the USB Devices to the USB Hub

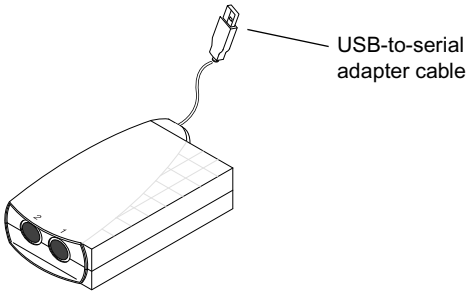
Once the USB hub is connected to the system, you can connect the following USB devices to the USB hub:

- USB-to-serial adapter
- USB-to-MIDI converter

Connecting the USB-to-Serial Adapter

The USB-to-serial adapter connects to a USB port on the USB hub.

USB-to-Serial Adapter



To connect the USB-to-serial adapter to the USB hub:

1. Plug the USB-to-serial adapter cable into a USB port on the USB hub (see “Connecting the USB Hub” on page 46 for port locations).
2. Install the USB-to-serial adapter software, using the instructions that came with the USB-to-serial adapter.

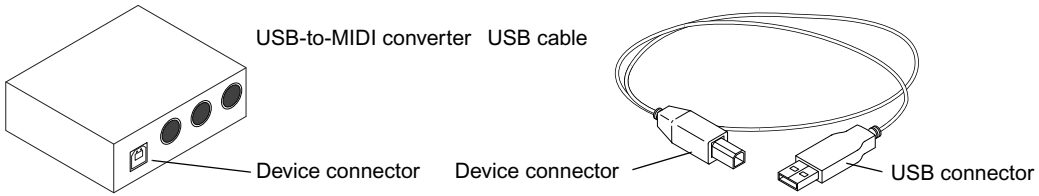
Connecting the USB-to-MIDI Converter

If you are using a JL Cooper controller or a Yamaha mixer, you must install a USB-to-MIDI converter. The MIDISPORT 2x2 by M-AUDIO has been tested with the Avid Symphony Nitris and Avid DS Nitris (32-bit) systems. You need a USB cable that connects to a USB

port on the system. Before you use the USB-to-MIDI converter, you must install the latest revision of the driver. Go to www.midiman.net and install the latest revision for the MIDISPORT 2x2.

To operate the JL Cooper with Avid DS 64-bit, you must use the EDIROL UM-1 interface and 64-bit driver. For details, see the Avid DS Support Center web site.

Connecting the USB-to-MIDI Converter

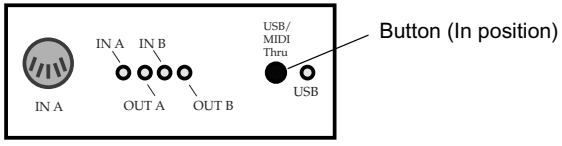


The ReadMe file and the Help in your application explains how to install the drivers and configure the USB-to-MIDI converter.

To connect the USB-to-MIDI converter to a port on the USB hub:

1. Locate the MIDI converter USB cable.
2. Connect the device connector of the USB cable to the device connector on the USB-to-MIDI converter.
3. Connect the other end of the USB cable to a USB port on the computer or USB hub (see "USB Hub" on page 46 for a port location).
4. Press the USB/MIDI Thru button *in,* at the front of the USB-to-MIDI converter, to allow the device to act as a USB-to-MIDI converter.

USB-to-MIDI Converter Front Panel



Connecting JL Cooper Fader Controllers

Your Avid Symphony Nitris system supports the FaderMaster Pro and the MCS-3000X fader controllers. Both of the fader controllers connect to a USB-to-MIDI converter that connects to a USB port on the system. See your Avid editing application Help to initialize your JL Cooper fader controllers.

The Avid DS Nitris system supports the JL Cooper MCS-3800 media command station. For more details, see the Avid DS Support Center web.

Fader controller connections are shown for both the MCS-3000X and the FaderMaster Pro (see "JL Cooper MCS-3000X Fader Controller Cabling" on page 50 and "JL Cooper FaderMaster Pro Fader Controller Cabling" on page 50). There are two major differences between the two fader controllers:

- The MCS-3000X has a four-position switchpack that is not on the FaderMaster Pro.
- The MIDI IN and MIDI OUT are in opposite positions in the MCS-3000X and the FaderMaster Pro.

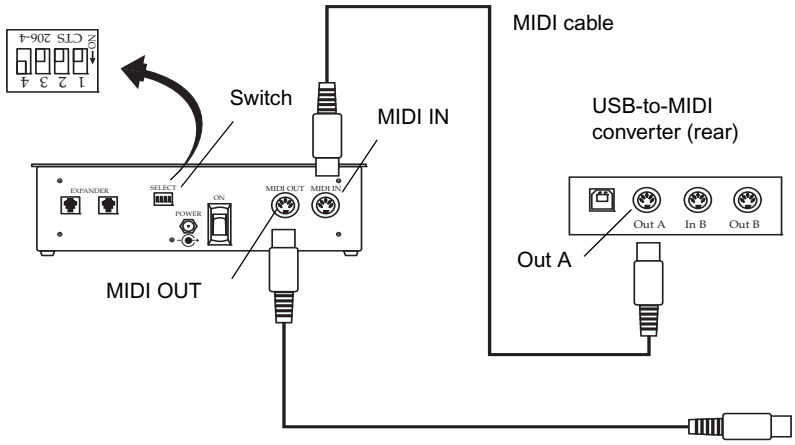
To connect the fader controllers:

1. Quit any open applications.
2. Shut down the Avid editing system.
3. Make sure your USB-to-MIDI converter is connected to the USB port as explained in "Connecting the USB-to-MIDI Converter" on page 47.
4. If you are cabling the MCS-3000X, set switch 4 to the ON (down) position. The switch is upside down on the MCS-3000X (see the following figure).
5. Locate two MIDI cables with 5-pin DIN connectors.

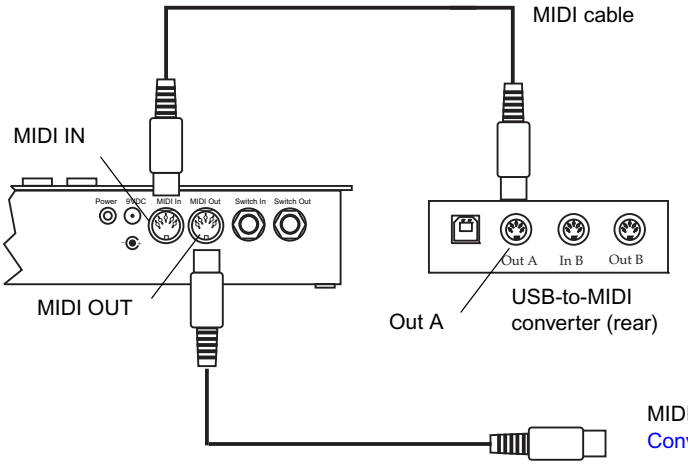
You can use the In A and Out A connector pair or the In B and Out B connector pair on the rear of the USB-to-MIDI converter. Whichever pair you use, select the corresponding port when you configure the device using the Controller Settings dialog box in the Avid editing application. For information on configuring the device, see "Using the Fadermaster Pro and MCS-3000X" in the Help.

6. Plug one end of the first MIDI cable into the In A connector of the USB-to-MIDI converter (see "USB-to-MIDI Converter Front Panel" on page 50), and the other end of the cable into the MIDI OUT connector of the fader controller.
7. Plug one end of the second MIDI cable into the Out A connector of the USB-to-MIDI converter, and the other end of the cable into the MIDI IN connector of the fader controller.
8. Make sure the button on the front of the USB-to-MIDI converter is pushed *in* (see "USB-to-MIDI Converter Front Panel" on page 50).

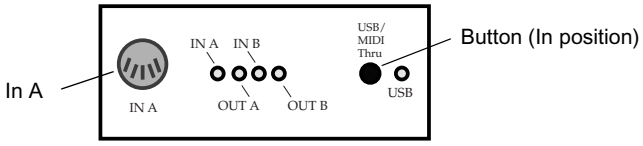
JL Cooper MCS-3000X Fader Controller Cabling



JL Cooper FaderMaster Pro Fader Controller Cabling



USB-to-MIDI Converter Front Panel



Connecting the Yamaha 01V/96 Mixer

This section only applies to Avid Symphony Nitris.

You can connect a Yamaha 01V/96 mixer via MIDI using a USB connection for the mixer. For information on configuring on connecting the Yamaha 01V/96, see “Setting Up the Yamaha 01V/96 or Yamaha 01V” in the Help.

To connect the mixer:

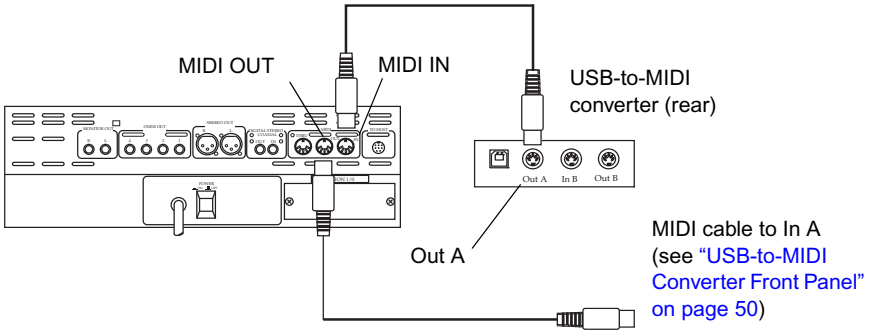
1. Quit any open applications.
2. Shut down the Avid editing system.
3. Make sure your USB-to-MIDI converter is connected to the USB port as explained in “Connecting the USB-to-MIDI Converter” on page 47.
4. Locate two MIDI cables with 5-pin DIN connectors.

You can use the In A and Out A connector pair or the In B and Out B connector pair on the rear of the USB-to-MIDI converter. Whichever pair you use, select the corresponding port when you configure the device using the Controller Settings dialog box in the Avid editing application. For information on configuring the device, see “Setting Up the Yamaha 01V/96 or Yamaha 01V” in the Help.

5. Plug one end of the first MIDI cable into the In A connector of the USB-to-MIDI converter (see “USB-to-MIDI Converter Front Panel” on page 50).
6. Plug the other end of the cable into the MIDI OUT connector of the mixer (see the following figure).
7. Plug one end of the second MIDI cable into the Out A connector of the USB-to-MIDI converter.
8. Plug the other end of the cable into the MIDI IN connector of the mixer (see the following figure).

9. Make sure button on the front of the USB-to-MIDI converter is pushed *in* (see "USB-to-MIDI Converter Front Panel" on page 50).

Yamaha Mixer Rear View



You must set up the mixer using its front panel. See your Avid editing application Help for more setup instructions.

The Yamaha mixer can also be connected directly to a serial port. For information on configuring the mixer when connected to a serial port, see "Setting Up the Yamaha 01V/96 or Yamaha 01V" in the Help.

Installing and Removing the Avid Fan

The documentation that ships with the HP Workstation explains how to install optional equipment. However, Avid requires an extra fan in the HP Workstation for cooling the Avid board set. The following procedure describes how to install the fan Avid has added to the HP Workstation. Reverse the procedure for removing the fan.

If you are installing a dual-link board, you will also need to install an over-the-top fan. Refer to the "Dual Boot System Setup for Avid DS and Avid Symphony" document that came with your dual-boot kit.

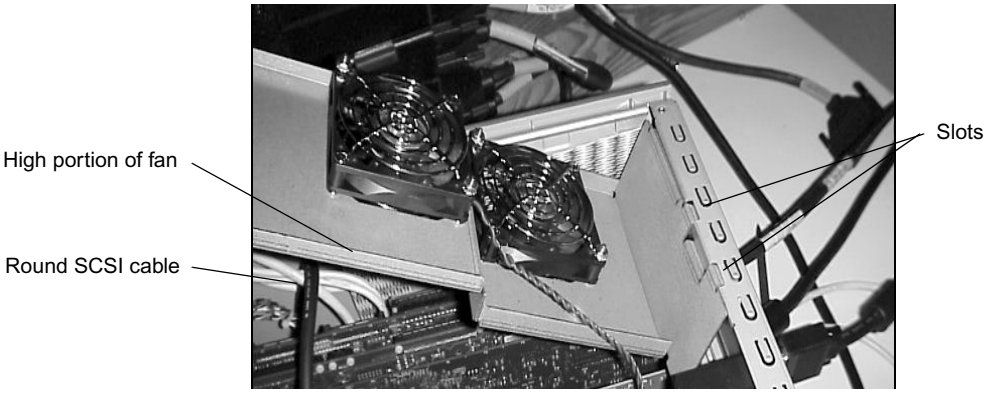
Before you install or remove the fan, you *must* make sure the system was turned off in a proper manner, the power cord is removed from the rear of the system, and you follow the proper grounding techniques.

To install and remove the fan:

1. Lay the system on its right side.
2. Unlock the left side cover using the keys attached to the rear of the system.

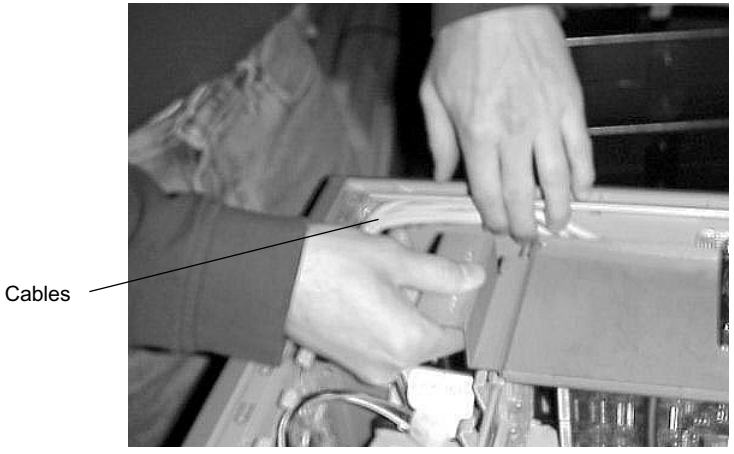
3. Remove the side cover by pulling out the latch to release the cover and removing it from the system.
4. Place the fan into the two slots located at the rear of the system. Make sure that the round SCSI cable is under the higher portion of the fan.

Placing the Fan Into the System



5. Lower the other end of the fan, pushing it down and towards the rear of the system until you have a pressure fit, carefully watching for the cables on the side of the system.

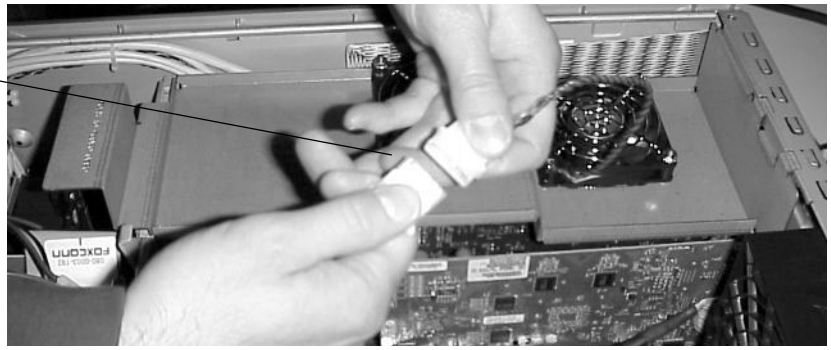
Lowering Fan Into Place



6. Connect the power plug.

Avid uses one of the power plugs available for internal disks.

Connecting the Power Plug



7. Replace the side cover.

Regulatory and Safety Notices

Warnings and Cautions

Never install equipment if it appears damaged.

Disconnect the power cord before servicing unit.

Only perform the services explicitly described in this document. For services or procedures not outlined in this document, speak with authorized Avid service personnel.

Follow all warnings and cautions in the procedures.

Operate the device within its marked electrical ratings and product usage instructions.

FCC Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canadian ICES-003

This Class A digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Union Notice

CE

Declaration of Conformity (According to ISO/IEC Guide 22 and EN 45014)

Application of Council Directives:	73/23/EEC, 89/336/EEC.
Standards to which Conformity is Declared:	EN60950:1999 Third Edition CISPR 22:1997 / EN55022:1994 + A1:1995 + A2:1997 Class A EN55024:1998/EN61000 — 3-2, 4-2, 4-3, 4-4, 4-5, 4-6, 4-11
Manufacturer's Name:	Avid Technology, Inc. 1925 Andover Street Tewksbury, MA 01876, USA
European Contact:	Nearest Avid Sales and Service Office or Avid Technology International B.V. Sandyford Business Center Unit 3, Dublin 18, Ireland
Type of Equipment:	Information Technology Equipment

Product Name:	Products for the Windows NT, Windows 2000, Windows 2003, or Windows XP Operating System: Avid Adrenaline DNA, Avid DS Nitris DNA, Avid Equinox Break-Out-Box, Avid|DS, Avid Xpress, Avid Xpress DV, Film Composer, Media Composer, MediaDock, MediaDock 2+, MediaDrive, MediaRAID, MEDIArray, MEDIArray Drive, MEDIArray II, MEDIArray II Drive, MEDIArray XT, Meridien I/O box, NewsCutter, NewsCutter DV, NewsCutter XP, Pro Tools AVoption|V10, Symphony Products for the Mac OS X Operating System: Avid Adrenaline DNA, Avid Xpress, Avid Xpress DV, Film Composer, Media Composer, MediaDock, MediaDock 2+, MediaDrive, MediaRAID, MEDIArray, MEDIArray Drive, MEDIArray II, MEDIArray II Drive, Meridien I/O box, Pro Tools AVoption|V10, Symphony, VideoRAID Products for the UNIX Operating System: AirPlay, AirSPACE, AirSpeed, DNxchange, VideoSPACE Products for media networks and workgroups: Avid ProEncode, Avid Unity ISIS, Avid Unity Media Engine, Avid Unity Media Engine, FC Avid Unity MediaManager, Avid Unity MediaNetwork (includes File Manager), Avid Unity TransferManager, LANserver, LANserver EX, MEDIArray, MEDIArray Drive, MEDIArray II, MEDIArray II Drive, MEDIArray XT, MEDIArray ZX, MEDIArray ZX Drive, Nearchive, PortServer, Vixel switches (8100, 7100, 7200, 9100, 9200), Xdeck
Base Model Numbers:	None
Product Options:	All
Year of Manufacture:	2007

(1) Products for the Windows NT, Windows 2000, Windows 2003, or Windows XP Operating System: products were tested in a typical Avid Adrenaline DNA, Avid DS Nitris DNA, Avid Equinox Break-Out-Box, Avid|DS, Avid Xpress, Avid Xpress DV, Film Composer, Media Composer, MediaDock, MediaDock 2+, MediaDrive, MediaRAID, MEDIArray, MEDIArray Drive, MEDIArray II, MEDIArray II Drive, MEDIArray XT, Meridien I/O box, NewsCutter, NewsCutter DV, NewsCutter XP, Pro Tools AVoption|V10, or Symphony configuration.

(2) Products for the Mac OS X Operating System: products were tested in a typical Avid Adrenaline DNA, Avid Xpress, Avid Xpress DV, Film Composer, Media Composer, MediaDock, MediaDock 2+, MediaDrive, MediaRAID, MEDIArray, MEDIArray Drive, MEDIArray II, MEDIArray II Drive, Meridien I/O box, Pro Tools AVoption|V10, Symphony, or VideoRAID configuration.

(3) Products for the UNIX Operating System: products were tested in an AirPlay, AirSpeed, DNxchange, or VideoSPACE configuration.

(4) Products for media networks and workgroups: Avid ProEncode, Avid Unity ISIS, Avid Unity Media Engine, Avid Unity Media Engine, FC Avid Unity MediaManager, Avid Unity MediaNetwork (includes File Manager), Avid Unity TransferManager, LANserver, LANserver EX, MEDIArray, MEDIArray Drive, MEDIArray II, MEDIArray II Drive, MEDIArray ZX, MEDIArray ZX Drive, Nearchive, PortServer, or Xdeck configuration.

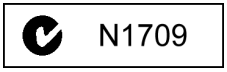
I, the undersigned, hereby declare that the equipment specified above conforms to the above Directives and Standards.

Dave Perri, Director of Hardware Engineering

Disposal of Waste Equipment by Users in the European Union

This symbol on the product or its packaging indicates that this product must not be disposed of with other waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city recycling office or the dealer from whom you purchased the product.

Australia and New Zealand EMC Regulations



Nigel Streatfiled General Manager
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Unit B
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French Forest NSW 2086
Australia
Phone: 61-2-8977-4800

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Using the Avid Nitris • Part 0130-07157-01 Rev. C • June 2007

Avid Nitris Dual Boot System Setup

The latest Avid Nitris systems can be upgraded to a dual-boot system to run both Avid DS and Avid Symphony applications. A dual-boot configuration is required for Avid DS to run on the Windows XP 64-bit edition, and Avid Symphony to run on the Windows XP 32-bit edition.

When you order your Dual-Boot kit, you will receive the following:

- SATA 250 GB disk drive
- SATA drive cable connector
- Dual-boot drive switchbox and label
- Microsoft Windows XP 64-bit edition

If you have ordered the Dual-Link option, you will receive the following additional components:

- Dual-link HD SDI board
- Fan assembly

Important: When requesting a new license, make sure that you provide the adequate System ID (SID) to Avid Customer Support.

The new dual boot system retains it's original System ID. i.e. Avid DS Nitris systems must keep their original SID, and not adopt the new Symphony Nitris SID. Similarly, Avid Symphony Nitris systems should keep their original SID. For more information on SIDs, go to http://www.softimage.com/avidds, and click **Licensing > Requesting the License**.

- On Avid DS, the SID can be found by running the Version Info Extractor utility.
- On Avid Symphony, the SID can be found by running the Dongle Dumper utility.

Install the Second Hard Drive and Power Switch

Important: Once you have installed the necessary hardware as directed in this document, make sure you continue the installation instructions as directed in the document called "Dual Boot Software Installation for Avid DS and Avid Symphony".

Take extra precautions when opening and installing hardware components into your system. Avid is not responsible for any damages to the system or the board.

1. Put on an antistatic wrist strap and connect it to a metal ground point on your system.

   To avoid static damage to your circuit boards, take the proper antistatic precautions before handling the board.

2. Remove the front bezel by releasing the 3 tabs on the side and swinging the bezel forward.

Fig. 1 - Bezel Tabs

3. Remove the second cover plate by pulling the two tabs inward and pushing the plate in.

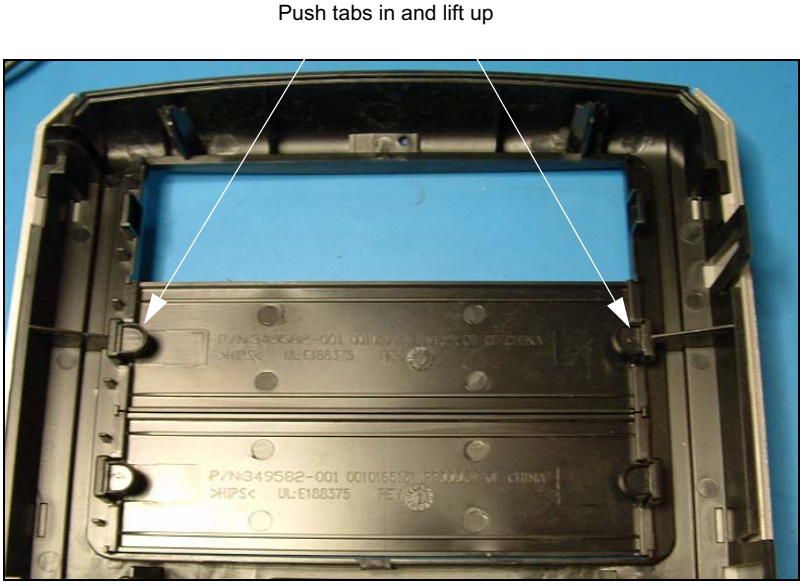

Fig. 2 - Back of HP Bezel

4. Remove the EMI shield from the middle opening on the PC.

Fig. 3 - Front of HP without bezel and middle EMI shield removed

5. Connect the three power harnesses to the drive switchbox. The short cable connects to the main power.

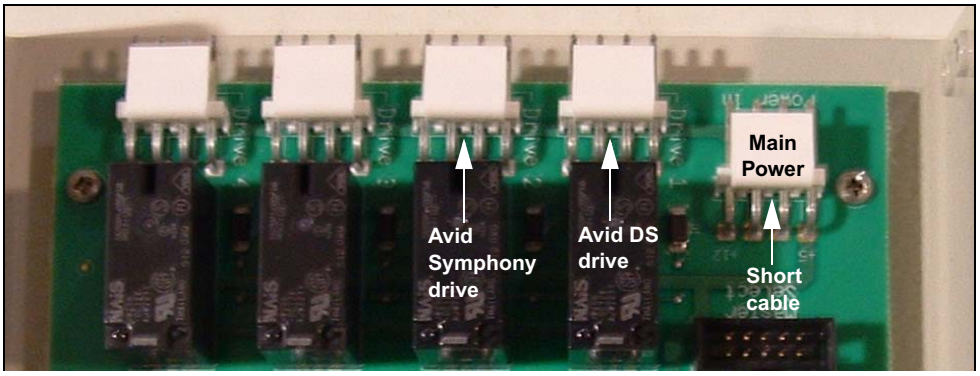

Fig. 4 - Switch Board Connectors

6. Reinstall the front bezel. Slide the drive switchbox into the opening below the DVD drive. The switchbox should slide in and clip into place like a DVD drive. The switchbox should be flush with the front bezel.

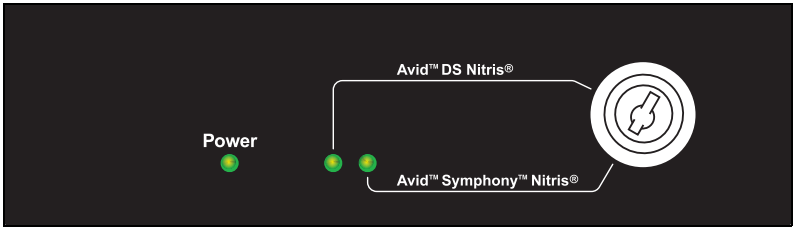

Fig. 5 - Avid Switchbox

7. Connect the second SATA cable on the motherboard. It connects underneath the first one. The label should face up, but if no label is present the top is shown below. (It may be necessary to remove the first cable to install the second.)

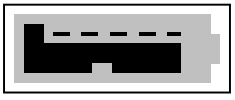

Fig. 6 - SATA Cable Connector for motherboard (Top view)

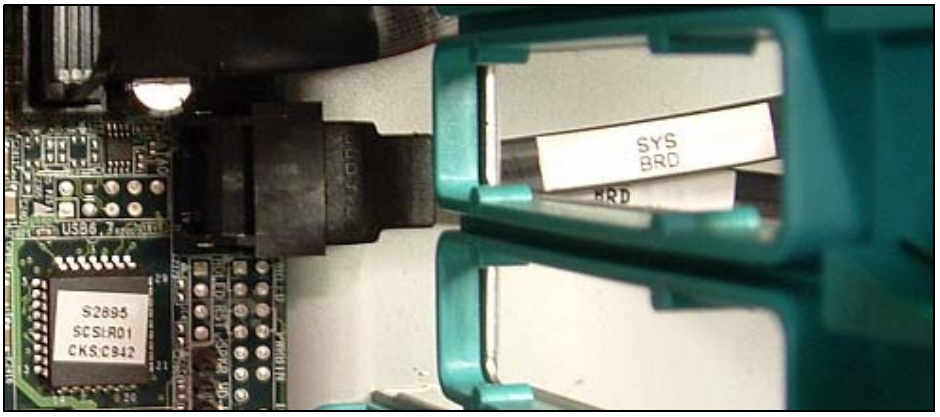

Fig. 7 - SATA Connector on HP Motherboard

8. Install the SATA drive that you just received into the second slot from the top of the drive cage.
9. Connect the power harness adapter cables to both of the cables coming off the power switch.
10. Connect the power harness for the Avid Symphony port of the drive switchbox, to the original SATA drive at the bottom of the drive cage. This drive must be connected to the SATA data cable connected to the top connector.
11. Connect the power harness for the Avid DS port of the drive switchbox, to the new SATA drive you just installed. This drive must be connected to the SATA data cable connected to the bottom connector.

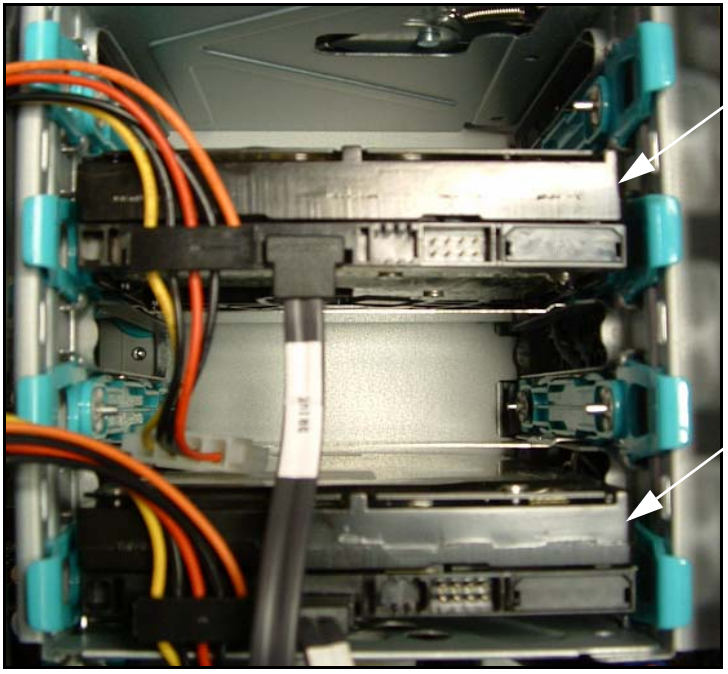

Fig. 8 - HP Drive Cage

12. Connect the main power for the drive switchbox to an HP power harness that is not connected to a fan.

Warning: If a SATA drive has two types of power connectors, you can only connect one power cable per drive.

Install the Dual-link Board

If you have purchased the dual-link option for Avid DS, then follow this procedure to install the dual-link HD SDI board.

1. Remove the AGP Card Support Assembly by squeezing the two sides of the retainer to release the locking mechanism from the chassis.
2. Rotate the retainer and lift it out of the system.
3. Open the PCI retainer by pressing down on the two green clips at the ends of the retainer and rotating the retainer towards the back of the system. If it is difficult to disengage the green clips, press the outside of the clips from the rear of the chassis while disengaging.
4. Install the dual-link board per the table below.

Slot	HP xw8200	HP xw9300	HP xw8400
Channel A	SCSI Connector	SCSI Connector	Not applicable
1	Not used	NVIDIA graphics board	Not used
2	NVIDIA graphics board	Not used	NVIDIA graphics board
3	Not used	Dual-Link HD SDI Board for Avid DS Not used for Symphony	Not used
4	Dual-Link HD SDI Board for Avid DS Not used for Symphony	Avid Nitris Codec board	Dual-Link HD SDI Board for Avid DS Not used for Symphony
5	Avid Nitris Base board	ATTO™ optical Fibre Channel board when connected to Avid Unity™ MediaNetwork or local storage (Symphony only) Ethernet Intel® PRO/1000 MT Dual Port Server Adapter when connected to Avid Unity ISIS™	Avid Nitris Base board
6	Avid Nitris Codec board	Avid Nitris Base board	Avid Nitris Codec board

Slot	HP xw8200	HP xw9300	HP xw8400
7	ATTO™ optical Fibre Channel board when connected to Avid Unity™ MediaNetwork or local storage Intel® PRO/1000 MT Dual Port Server Adapter when connected to Avid Unity ISIS™	Not applicable	ATTO™ optical Fibre Channel board when connected to Avid Unity™ MediaNetwork or local storage Intel® PRO/1000 MT Dual Port Server Adapter when connected to Avid Unity ISIS™

5. Lower the PCI retaining bracket and snap into place.

Install the Over-the-Top Fan Assembly

Follow this procedure only if you have installed a Dual-link board:

1. Place the two fan tabs, located at the rear of the fan bracket, into the slots at the back of the chassis frame.
2. Compress the foam on the two tabs so that the other end of the fan assembly is pushed against the blue card guide, not resting on top of it.

Make sure the cables on the side of the system are not caught or pinched by the fan assembly.

Fig. 9 - Inside the CPU

3. Dress cables. Plug the power connector of the fan into the same power harness that the front blower is using. i.e. wrap the power harnesses so that they are neat and do not interfere with any fan operation.
4. Replace the side cover.

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The Avid DS Nitris application uses JScript and Visual Basic Scripting Edition from Microsoft Corporation.

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Avid Nitris Dual Boot System Setup • 0130-07719-01 Rev. D • June 2007

Dual Boot Software Installation for Avid DS and Avid Symphony

The latest Avid Nitris systems provide the possibility of running a 64-bit operating system for Avid™ DS Nitris® (v8 and above) as well as a 32-bit operating system for Avid Symphony™ Nitris (v1.5 and above).

If you have an existing HP xw8200 system, you may upgrade to a dual-boot system. Contact your Avid representative for information on how to order this kit.

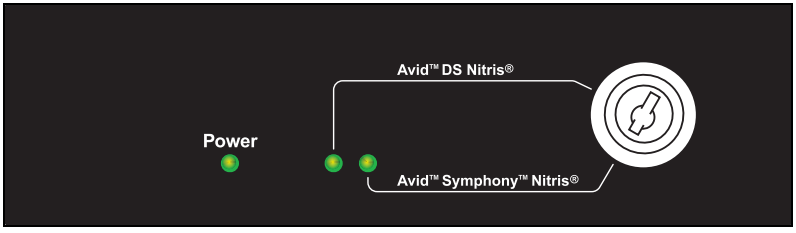
The information in this booklet is divided into three sections:

- Booting the System
- Installing the Software
- Recovery Procedures

Booting the System

The capability to boot either Avid™ DS Nitris® or Avid Symphony™ Nitris from the same system requires the following hardware:

- Two drives inside the system, each with a different partition structure that allows the use of either a 64-bit or 32-bit operating system.
- An Avid switchbox that is used to enable the drive from which you boot (see following illustration).



The drive that you are NOT rebooting must remain powered off. This alleviates the possibility of mixing 64-bit and 32-bit functions within drives.

To boot from a specific drive:

1. Make sure the Nitris system is turned off.
2. Make sure the switchbox is turned off.
3. Place the key into the lock of the system drive that you want to boot from. This allows power to be routed to the selected drive when you turn the power on.
4. Turn the switch to the appropriate drive.
5. Turn the power on.

   The system boots to the operating system on the selected drive.

Do not change location of the key from one drive to the other while the system is running. This can cause loss of data.

Installing the Software

The two different operating system and partitions are shown in the tables below.

Both partitions already have the Microsoft Operating System and any hardware drivers preinstalled. You just need to install the software on the appropriate partitions.

64-bit Operating System (Avid DS Nitris)

Drive	Label	Description	Contents	Size
C	64-bit Operating System	A partition of the primary system disk	Operating system software	50 GB
D or F	Projects/audio	Second partition of the drive	Video and audio project-related files	200 GB
E	DVD-ROM	—	—	—

32-Bit Operating System (Avid Symphony Nitris)

Drive	Label	Description	Contents	Size
C	32-bit Operating System	The sole partition of the primary system disk	Operating system software with user and Project related files	250 GB

Drive	Label	Description	Contents	Size
D	Video storage and audio	Local SCSI or local Fibre Channel storage for SD or HD versions	Video files	Dependent on system purchase
		Avid Unity MediaNetwork	Workspaces	
G or F	DVD-ROM	—	—	—

To install the Avid DS Nitris software:

If you are not already booted up in the Avid DS partition, make sure you first shut down the Nitris system, and turn off the switchbox.

1. On the switchbox, make sure that the switch is set to **Avid DS Nitris**.
2. Refer to your *Avid DS Nitris Installation and Administration Guide* for instructions on installing the software.

To install the Avid Symphony software:

If you are not already booted up in the Avid Symphony partition, make sure you first shut down the Nitris system, and turn off the switchbox.

1. On the switchbox, make sure that the switch is set to **Avid Symphony**.
2. Install the Avid Symphony software according to the Avid Nitris Poster, the Avid Symphony Nitris ReadMe, and the onscreen instructions.

Recovery Procedures

In the event of a complete system failure, the Avid DS Support Center web site provides details on the recovery process for your particular system.

If you have an HP workstation, you can rebuild the C: partition of your Avid DS Nitris workstation using the HP Recovery Manager. The recovery manager will rebuild your workstation with the Windows XP operating system and drivers, as well as any project data from the last recovery point that you made. It will not install the Nitris board drivers and firmware.

The first user to log on to the HP workstation will be prompted to create the necessary recovery CDs and a recovery point. Wait until after you have installed all the necessary Avid DS components, and then follow this checklist:

☑	Step	Refer to this section
☐	Create an operating system CD.	Go to http://www.softimage.com/avidds and select **Documentation > Recovery Procedures**
☐	Create an HP Restore Plus CD.	
☐	Create an HP Supplementals CD.	
☐	Create a recovery point. This step should be done at key intervals during the year.	

Rebuilding the Avid DS Partition

If you experience a system or hard disk failure, refer Avid DS Support Center web site to recover your operating system and data.

To rebuild your Avid DS partition:

1. While the Nitris system and switchbox are off, set the switch on the switchbox to **Avid DS Nitris**.
2. Turn off all external drives.
3. Follow the instructions on the Support Center web site.

   When prompted for your Windows XP license, refer to the product ID sticker attached to the right side of the Nitris machine. (On dual-boot systems, there are two stickers, make sure you use the correct one.)

Rebuilding the Avid Symphony Partition

To rebuild the Avid Symphony partition, you will need to use the HP restore CD specifically made for your Symphony system.

To rebuild your Avid Symphony partition:

1. Ensure that the Nitris system and switchbox are off.
2. Turn off all external drives.
3. Set the switch on the switchbox to **Avid Symphony**.
4. Insert the HP workstation restore CD into the drive, and power up the Nitris system.

When required, you will be prompted to insert the Windows XP operating system CD into the drive.

5. When prompted to install the additional HP software and drivers CD, click **Skip**, that software is not need for your Avid editing system.
6. Restart the system.

   The system boots from the Windows operating system CD.
7. Follow the instructions that appear onscreen.
8. When the operating system installation is complete, the system automatically restarts.
9. Remove the CD.

   The Windows XP welcome screen displays,
10. Click **Next**.
11. Click **Yes** to accept the End User License Agreement and click **Next**.
12. Enter your **Windows XP Product Key** when you are prompted for your Microsoft Product ID.

    Refer to the product ID sticker attached to the right side of the Nitris machine. (On dual-boot systems, there are two stickers, make sure you use the one for the 32-bit Windows O/S.)
13. Install the operating system.
14. Do one of the following:
    - Enter the computer name and description and click **Next**.
    - Click Skip if you want name the computer at a later time.
15. Log in as Administrator. Avid recommends not using a password at this time. Click **Next** to continue.
16. Follow the instructions on the screen and provide information to complete the installation. Some windows can be skipped and the information can be entered at later time.
17. If you are connected to a network, complete the Network Identification Wizard. You need network administrative privileges to configure your system and users for a network.
18. When the Thank You window displays, setup is complete, click **Finish**.
19. If the system does not automatically restart, shut it down and restart the system.

When the system restarts, click Cancel in any New Found Hardware Wizards that appear.

Installing Windows Updates

After you have reinstalled the Windows XP Professional operating system, apply all windows updates including Service Pack 2 and check for additional Windows updates. Do not turn on automatic updates. You should manually apply new updates to your Avid Symphony Nitris system when it is convenient for you.

Multiple restarts might be required during the Windows update process; continue to click Cancel in any New Found Hardware Wizards that appear.

Do not enable the Windows Firewall.

Installing the Avid Symphony Software

Install the Avid Symphony software according to the Avid Nitris Poster, the Avid Symphony Nitris ReadMe, and the onscreen instructions.

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The Avid DS Nitris application uses JScript and Visual Basic Scripting Edition from Microsoft Corporation.

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