Avid® Media Composer® Adrenaline™

Editing and Input Output Guide Supplement

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Contents

Chapter 1

Settings Options

The Settings scroll list is displayed when you click the Settings tab of the Project window. If you select a setting in the Settings scroll list and make changes, the parameters remain the default settings until you they are changed again. To view or modify the parameters, double-click the setting.

This chapter describes the parameters for the following settings:

Audio Settings

Table 1   Audio Settings

Setting	Description
Source Monitor Scrub	Select the number of outgoing and incoming frames you hear as you scrub.
Record Monitor Scrub	Select the number of outgoing and incoming frames you hear as you scrub.
Default Pan	Select the way you want sound to pan between speakers.
Audio Tools Response	To adjust the audio latency of your system, select a response speed that corresponds to the speed of your system.

Audio Project Settings

The following topics apply to adjusting audio project settings:

- Audio Projects Settings - Main Tab
- Audio Project Settings - Input Tab
- Audio Project Settings - Output Tab
- Audio Project Settings - Hardware Tab

Audio Projects Settings - Main Tab

Table 2   Audio Project Settings (Main Tab)

Setting	Options	Description
Sample Rate	32 kHz 44.1 kHz 48 kHz	Allows you to select audio rate settings for the entire system for playing and recording. The default sample rate for DV is 48 kHz. The broadcast standard for most high-end video postproduction houses is 48 kHz. Select the rate based on the requirements of your facility. For information on changing the sample rate for individual sequences and audio clips, see "Changing the Sample Rate for Sequences and Audio Clips" in the Help.
Audio File Format	OMF (WAVE) OMF (AIFF-C)	Select the file format for the audio: • **OMF (WAVE)** is compatible with Windows applications. • **OMF (AIFF-C)** is compatible with many third-party applications, including Pro Tools. Select the AIFF-C format for all audio media when you need to transfer audio media files directly to a Pro Tools or an AudioVision® system for audio sweetening.

Table 2   Audio Project Settings (Main Tab) (Continued)

Setting	Options	Description
Audio File Sample Size	16 Bit 24 Bit	Select this option to set the sample size used when you work with audio files: • **16 Bit** is for CD-quality audio. • **24 Bit** is for work with higher resolution audio.
DV Audio Pattern	Unlocked Audio Locked Audio	DV Audio Pattern works with all devices. However, because some devices check the DV Audio Pattern setting before transferring or recording, you should select the DV Audio Pattern setting expected by your device. • **Unlocked Audio** allows some imprecision in the audio sample rate, with a variation of up to +/– 25 audio samples per frame. • **Locked Audio** keeps the audio clock locked precisely to the video clock, so exactly the same number of audio samples and video frames are recorded or transmitted in each cycle of the phase relationship.
Render Sample Rate Conversion Quality	High and Slow Balanced Low and Fast	Allows you to set the conversion quality of all non-real-time sample rate conversions.
Convert Sample Rates When Playing	Always Never	Allows you to choose whether or not to perform the conversion rate: • **Never** plays the segments not set at the sample rate as silence. • **Always** makes the system attempt to perform a sample rate conversion on-the-fly. Although the resulting audio quality might not be useful for a finished project, it can be useful during an editing session since it prevents audio from playing back with silence. For information on changing the sample rate for individual sequences and audio clips, see "Changing the Sample Rate" in the Help.

Table 2   Audio Project Settings (Main Tab) (Continued)

Setting	Options	Description
Show Mismatched Sample Rates as Different Color	Yes No	Allows you to identify a specific sample rate by color if you have a sequence with several different sample rates.
Real-Time Audio Dissolves	Disabled Enabled	Allows you to play audio dissolves (also called crossfades) as real-time effects. Select Disable if you experience an audio performance delay on your system.
Dissolve Midpoint Attenuation	Const Power –3dB Linear –6dB	Sets the method used for audio dissolves: • **Const Power –3dB** uses constant power to maintain a consistent sound level through the midpoint of the dissolve. • **Linear –6dB** uses a linear gradient to maintain a consistent amplitude through the midpoint of the dissolve.
Optical Connection	ADAT TOSLINK	Allows you to select an output for use with an optical connection.

Audio Project Settings - Input Tab

📄 *The options that appear in this tab depend on your audio configuration and the audio hardware installed on your system. Your options might differ from those listed here.*

Table 3   Audio Project Settings (Input Tab)

Setting	Options	Description
Input Gain		Allows you to calibrate the volume of global audio input.

<p align="center">**Table 3   Audio Project Settings (Input Tab) (Continued)**</p>

Setting	Options	Description
Input Source	ADAT AES/EBU DV OHCI RCA (–10dBu) S/PDIF TOSLINK XLR (+4dBu)	Allows you to select the type of input.
Passthrough Mix Tool		Opens the Passthrough Mix tool, which allows you to adjust the mix of tracks for monitoring audio input.

Audio Project Settings - Output Tab

📄   *The options that appear in this tab depend on your audio configuration and the audio hardware installed on your system. Your options might differ from those listed here.*

Table 4   Audio Project Settings (Output Tab)

Setting	Options	Description
Output Gain		Allows you to calibrate the volume of global audio output.
Master Volume		Allows you to make global level adjustments for output. These adjustments affect levels for all output tracks to the speakers and to the record devices.
Bypass panel	Clip Gain RT EQ Auto Gain	Allows you to have the system ignore the volume settings established with the audio tools when playing back or recording a sequence: • **Clip Gain** bypasses the volume settings in the Audio Mix tool. • **RT EQ** bypasses all EQ effects set in the Audio EQ tool. • **Auto Gain** bypasses all Automation Gain effects set in the Automation Gain tool. These buttons function the same as the Bypass buttons in the audio tools.

Table 4   Audio Project Settings (Output Tab) (Continued)

Setting	Options	Description
Mix Mode Selection Menu button	Stereo Mono Direct Out	Modifies the way that the system interprets audio values during playback: • **Stereo** mixes the currently monitored audio tracks into a stereo pair. • **Mono** pans all the currently monitored tracks to center. This mode also ignores pan effects. • **Direct Out** maps tracks directly to up to eight channels of output. By default, Direct Out maps all audio tracks in numerical sequence to existing output channels. You can remap a track to any channel by clicking the Channel Assignment pop-up menu and selecting another channel.
Stereo Mix Tracks	Mix To 1 & 2 Mix To 3 & 4 Mix To 5 & 6 Mix To 7 & 8	Allows you to customize the mix of tracks with Stereo selected in the Mix Mode Selection Menu button. The system sends a stereo mix to the two channels you select. Material panned to the left will be sent to the odd channel, and material panned to the right will be sent to the even channel. The number of channels available depends on the audio output you select.
All or Timeline Track Maps	All Timeline	Allows you to map the track and output channels: • **All** allows you to choose between all available tracks. • **Timeline** allows you to assign output channels to the tracks monitored in the Timeline.
Which Set of Track Maps	Grp 1 Grp 2 Grp 3	Allows you to select which set of output tracks to map to audio channels. Groups of tracks display in multiples of 8, up to the maximum of 24 available audio tracks.

Audio Project Settings - Hardware Tab

The settings in this tab are for informational purposes only and list defaults set by the system, depending on your audio hardware and configuration.

Table 5   Audio Project Settings (Hardware Tab)

Setting	Options	Description
Card		The type of audio card installed.
Peripheral		The type of peripheral audio device (audio interface) attached to the system.
Slot #		The slot where the audio card is located.
Sync Mode		Sync is used for audio input and output to ensure the audio sample clock is always in sync with the video clock. This prevents long-term drift between audio and video.
		When you are working with video and digital audio simultaneously, set your digital audio equipment to the same video reference signal as your video equipment.
		Changing the audio input selection automatically selects the correct audio clock source for audio sync.
HW Calibration	-14dBFS	
	-18dBFS	
	-20dBFS	

Bin Settings

<p align="center">**Table 6   Bin Settings Options**</p>

Option	Description
Auto-Save interval *n* minutes	Specifies the length of time between attempts to auto-save project files. The default is 15 minutes.
	To avoid interrupting an edit, the Avid system waits until the system is inactive before auto-saving. Use the option "Force Auto-Save at" to specify an interval at which the system interrupts an edit to make the auto-save.
Inactivity period *n* seconds	Specifies the length of time the Avid system waits when the system is inactive before automatically saving the project files. The default is 0 seconds.
Force Auto-Save at *n* minutes	Specifies the maximum length of time between auto-saves. When the system reaches this time, it auto-saves the project files even if it must interrupt an edit to do so. The default is 30 minutes.
Maximum files in a project's attic	Specifies the total number of files stored in the Avid Attic folder. When a bin is saved, the Avid system copies the current version of the bin to a special folder called the Avid Attic. The default is 30 files.
	Keep more files if there are many editors working on the system. This ensures that all the bins are backed up.
Max versions of a file in the attic	Specifies the total number of single-bin copies stored in the Avid Attic folder. This setting prevents filling the Avid Attic with too many copies of one bin, at the risk of losing the others. The default is five copies.
Double-click loads object in	Determines what happens when you double-click an object in the bin.
New Pop-up Monitor	Creates a new Source pop-up monitor and automatically loads the clip when you double-click an object in the bin.

Table 6   Bin Settings Options (Continued)

Option	Description
Source or Record Monitor	• When you have the Composer monitor stretched into two monitors, loads the clip into the Source monitor or the sequence into the Record monitor. • When you are using the single Composer monitor, loads the clip or sequence into the existing Source pop-up monitor.
Enable edit from bin (Splice, Overwrite)	Allows you to edit clips directly from a bin by selecting a clip and clicking the Splice-in or the Overwrite button.
Enable SuperBin	Enables the SuperBin and its functions. See"Conserving Screen Real Estate with the SuperBin" in the Help.

Capture Settings

Capture Settings: General Tab

<div align="center">

Table 7   Capture Settings Options (General Tab)

</div>

Option	Description
Stop deck after capture	Select this option if you want to stop the deck when the capture operation is complete.
Pause deck after capture	Select this option if you want to pause the deck when the capture operation is complete.
Preroll Method	Select one of four methods from the pop-up menu. For more information, see "Selecting the Preroll Method" in the Help.
Force unique clip names	Select this option if you want the Avid system to automatically assign a clip name based on the bin's name and to make sure this name, or another name you select, is not already used by any other object in the bin.
Activate bin window after capture or logging	Select this option if you want the Avid system to change the focus from the Capture Tool window to a bin window after capturing or logging is complete. This allows you to immediately start working in the bin.
Space bar stops capture	Select this option if you want to use the space bar to create clip names during the capturing process. When you press the space bar during a capture operation, the system stops capturing, creates a clip from the capture material, and places the clip in the active bin.
Capture across timecode breaks	When this option is selected, the system captures sections of discontinuous timecode on a tape as separate clips.
	Deselect this option to make the system stop capturing and report an error when it encounters a timecode break.

Table 7   Capture Settings Options (General Tab)

Option	Description
Latency for external timecode mode *n* frames	Use this setting to compensate for problems that could occur when capturing with external timecode, as described in "Capturing with External Timecode" in the Help.
	If you notice that your captured media consistently starts on the wrong frame (usually one or two frames off), use this option to ensure that capturing starts on the correct frame. The option is deselected by default.
Capture a single video frame only	Select this option if you want the Avid editing application to capture a single frame of video from your clip. When you click the Record button, the Avid editing application captures the currently displayed frame.
Ask before discarding a canceled clip	Select this option if you want the Avid editing application to query whether to discard the canceled clip, keep it, or try again.
Ask for name when a new tape is seen	Select this option if you want the Avid editing application to query you for a name when it detects a new tape.
Pause deck while logging	When this option is selected, the deck pauses after you set an OUT point while you log clips; this allows you time to type the name of the clip. See "Logging Directly into a Bin" in the Help. Deselect this option to allow the camera or deck to continue playing after you set an OUT point.

Capture Settings: Batch Tab

Table 8   Capture Settings Options (Batch Tab)

Option	Description
Optimize for disk space	When this option is selected, the system captures only the exact amount of material in the master clips plus any additional handles. The tape pauses and prerolls independently for each master clip that is batch captured.

Table 8   Capture Settings Options (Batch Tab) (Continued)

Option	Description
Optimize for batch speed	When this option is selected, the system speeds up batch capturing by allowing the deck to continue to roll forward between adjoining clips. To qualify for this operation, the two adjoining clips must meet the following criteria: • There must be 5 seconds or less between the OUT point of the first clip and the IN point of the second clip. • The two clips must have the same video resolution and the same audio rate. 📧 *If you select this option, the system might occasionally capture more than is required.*
Switch to emptiest drive if current drive is full	When this option is selected, the system switches to the target media storage drive with the most available space when the current target drive becomes full during batch capturing. The system switches before starting to capture the clip, based on the number of minutes in the clip. For complete instructions, see "Batch Capturing Clips" in the Help. If you do not select this option, capturing stops when a drive becomes full.
Rewind tape when finished	When this option is selected, the system automatically rewinds tapes after batch capturing is finished.
Eject tape when finished	When this option is selected, the tape ejects as soon as the last shot from that tape has been used. This adds to efficiency since you can do other tasks while the tape is being used and yet still be alerted at the moment the tape is no longer needed.
Log errors to the console and continue capturing	Select this option if you want the Avid editing application to continue capturing if an error occurs during the capture process.
Capture the tracks logged for each clip	Select this option if you want the Avid editing application to capture the tracks logged for each clip.

Table 8   Capture Settings Options (Batch Tab) (Continued)

Option	Description
Use the audio sample rate logged for each clip	Select this option if you want the Avid editing application to use the audio sample rate logged for each clip.
Use the audio sample size logged for each clip	Select this option if you want the Avid editing application to use the audio sample size logged for each clip.
Use the video compression logged for each clip	Select this option if you want the Avid editing application to use the video compression logged for each clip.

Capture Settings: Edit Tab

Table 9   Capture Settings Options (Edit Tab)

Option	Description
Enable edit to timeline (splice, overwrite)	Select this option to display the Splice-in Edit and Overwrite Edit buttons in the Capture tool.
Handles	Indicate the amount of footage you want to capture before and after the IN and OUT points of the clips (when capturing to the Timeline only).

Capture Settings: Media Files Tab

Table 10   Capture Settings Options (Media Files Tab)

Option	Description
Capture to a single file, 2 GB limit	When this option is selected, capturing stops when the media captured has taken up 2 gigabytes (GB) of storage space on the media drive.
Capture to multiple files	When this option is selected, the system writes captured video or audio to multiple files across multiple drive partitions. Select this option for clips that might exceed the 2-GB file-size limit.
Maximum (default) capture time *n* minutes	When this option is selected, the system preallocates space on the drive partitions to accommodate the specified number of minutes. (The preallocation can take a long time.)
	The system captures for only the specified number of minutes; be careful not to underestimate. The default is 30 minutes.
During capture, clip is updated in MediaManager	(Windows Only) When this option, also known as "chunking," is selected, the media is sent in segments so that workgroup users can begin accessing and using the media as soon as possible. For more information, see the *Avid Unity MediaManager Setup and User's Guide*.
	Do not select this option unless you are part of a workgroup environment.
Segment length *n*	Select a segment size in minutes or select the maximum (2 GB).
Switch to emptiest drive when *n* minutes left	When this option is selected, the system switches to another storage drive when the specified amount of time remains.

Capture Settings: DV Options Tab

Table 11   Capture Settings Options (DV Options Tab)

Option	Suboption	Description
DV Scene Extraction		When this option is selected, you can automatically generate subclips and locators based on time-of-day (TOD) information contained in the DV video format. See "DV Scene Extraction" in the Help.
	Add Locators	Creates locator marks where the TOD information breaks occur while capturing.
	Create Subclips	Creates subclips where the TOD information breaks occur while capturing.
	Both	Creates locators and subclips where the TOD information breaks occur while capturing.

Correction Settings

Table 12   Correction Settings Options

Option	Description
Saved Color Labels	Select an item from the pop-up menu to control how custom colors are named in bins. For information on saving custom colors, see "Assigning Colors to Bins" in the Help.
• None	When selected, the system does not supply a name.
• RGB	When selected, the system uses the 8-bit values for the red, green, and blue components as the name.
• Name	When selected, the system uses the name from the standard HTML color scheme that most closely matches the color you are saving.

<div align="center">Table 12   Correction Settings Options (Continued)</div>

Option	Description
• Name and RGB	When selected, the system uses both the Name and the RGB information as the name. This is the default option.
Real Time Image Updating	When this option is selected, the image in the active monitor updates on-the-fly as you move controls in the Color Correction tool. This provides instant feedback on your adjustments, but the updating process might not always be smooth due to system processing limitations. This is the default option. *You can switch the current setting for Real Time Image Updating on and off by pressing and holding the Alt key (Windows) or Option key (Macintosh). If Real Time Image Updating is on, pressing and holding the Alt key (Windows) or Option key (Macintosh) will turn updating off temporarily. If Real Time Image Updating is off, pressing and holding the Alt key (Windows) or Option key (Macintosh) will turn updating on temporarily.*
Eyedropper 3 x 3 Averaging	When this option is selected, the system calculates the color value to pick by averaging the values of a 3 x 3 sample of pixels centered on the eyedropper's position. This is often useful for picking up a color accurately by sight because it compensates for shifts in color value from one pixel to another. When this option is deselected, the system selects the color value of the exact pixel at the eyedropper's position.
Show Eyedropper Info	When this option is selected, the numerical RGB values appear on the color swatches in the Color Match controls.

Deck Configuration Settings

<div align="center">Table 13   Deck Configuration Options</div>

Option	Description
Configuration name	Type a name for the configuration.
Add channel	Click to add a new channel box. Opens the Channel dialog box.

<p align="center">**Table 13   Deck Configuration Options (Continued)**</p>

Option	Description
Add deck	Click to add a deck or DV device. Opens the Deck Settings dialog box.
Auto-configure	With a deck or DV device already connected to the system, you can click Auto-configure to bypass the Deck Settings dialog box and automatically configure a deck or DV device with the default settings. *Not all DV devices respond to the Auto-configure command. Due to this limitation, Auto-configure selects only the generic devices.*
Verify configuration against actual decks	Select if you want the system to check the deck configuration against the devices physically connected to the system.

Deck Settings

<p align="center">**Table 14   Deck Settings Options**</p>

Option	Suboption	Description
Name		Type your custom name for the tape deck. The default name matches the deck type.
Description		Enter notes about the deck.
Notes		Displays configuration information, supplied by Avid, about the deck or DV device you have selected. Not all decks or devices include this information. You can supply your own information in the Description field, and then save the configuration.

Table 14   Deck Settings Options (Continued)

Option	Suboption	Description
Device		Click the Manufacturer pop-up menu, and select your device manufacturer. Click the Model pop-up menu, and select your device model.
		If your device does not appear in the list, click the Manufacturer pop-up menu, and select Generic, and click the Model pop-up menu, and select the type of device.
		While you are capturing, if you continually see a message box that reads "Fail to find preroll," click the Model pop-up menu, and select GenericDVBasicDevice-NTSC or GenericDVBasicDevice-PAL
Address		For VLX*i* use only (see your VLX*i* documentation). If you are using direct serial port deck control, this option is unavailable.
Preroll		Specifies how many seconds the tape rolls before capturing or digital cut starts. The default is based on the type of videotape recorder (VTR).
Fast Cue		Speeds up long searches if your decks can read timecode in fast forward or rewind mode.
	Switch to ff/rew (seconds): *n*	When this option is selected, the system switches to fast forward or rewind if the target timecode is beyond the specified number of seconds from your current location on the tape.
		By default, the deck switches to fast forward or rewind to reach a target timecode that is more than 60 seconds away.
		If your deck shuttles very quickly, you can increase this number so that the system uses fast cue only for long searches.
	Switch to Search (seconds): *n*	When this option is selected, the system switches out of fast forward or rewind when it is within the specified number of seconds of the target timecode. By default, the system switches to search mode when it is 60 seconds from the target timecode.

Deck Preferences Settings

Table 15   Deck Preferences Options

Option	Description
When the deck contains no tape Log as	Select the timecode format (Drop Frame or Non-drop Frame) for logging clips when no tape is in the deck. When a tape is in the deck, the system automatically uses the existing timecode format on the tape.
Allow assemble edit for digital cut	When this option is selected, you can use the assemble-edit features in the Digital Cut tool along with the assemble-editing capabilities of your record deck. Select this option to record frame-accurate digital cuts quickly and without striping entire tapes in advance. For more information about digital cuts and assemble editing, see "Generating Output" in the Help.
Stop key pauses deck	This option defines the function of the Stop key (space bar) on the keyboard. Select this option to map the space bar to the Pause button on the deck. Deselect this option to map the space bar to the Stop button.
	If the videotape heads are down in "Stop key pauses deck" mode, pressing the space bar brings up the heads and pauses the deck.
	The Stop button in the Capture tool always stops the decks.
Shuttle holds speed	When this option is selected, the Shuttle button continues shuttling at a constant speed instead of stopping when you release it.
Stop any paused decks when quitting	When this option is selected, any paused decks are stopped when you quit the Avidapplication. Selecting this option saves wear on the deck heads.
Poll deck during digital cut	This option is selected by default. When it is selected, the Avid system checks the deck for the current timecode and displays it in the timecode window of the deck controller. If you see degraded image quality on your digital cut (particularly visible as noise during black), deselect this option and record the digital cut again. With the option deselected, the Record button does not flash and the timecode display in the deck controller is not updated for the duration of the digital cut.

Table 15   Deck Preferences Options (Continued)

Option	Description
DV Capture Offset (frames) & Digital Cut Delay	Type the number of frames by which you want to offset while you record (capture).
Override Recommended Digital Cut Delay	Select this option to set a digital cut delay. See "Using DV Digital Cut Delay" in the Help.
Digital Cut Offset (frames)	Type the number of frames by which you want to delay the digital cut.

Export Settings

See the following topics:

- Export Settings Dialog Box Options
- Export Settings: Quick Time Reference Options
- Export Settings: Quick Time Movie Export Options
- Export Settings: QuickTime Movie Settings
- Export Settings: QuickTime Compression Settings
- Export Settings: DV Stream Options
- Export Settings: OMFI and AAF Options
- Export Settings: AVI Settings (Windows Only)
- Export Settings: AVI Video Compression Options (Windows Only)
- Export Settings: Audio Options
- Export Settings: Graphic Options
- Export Settings: Graphic Format Options

Export Settings Dialog Box Options

Table 16   Export Settings Dialog Box Options

Export As Option	Description
OMFI 1.0 OMFI 2.0	Select one of these options to export a standard OMFI composition for transfer to a third-party workstation that supports OMFI. You can choose to export composition only, or embed the video and audio, or both. See "Exporting Through OMF Interchange" in the Help.
AAF	Select this option to create an Advanced Authoring Format (AAF) file. You can choose to export composition only, or embed the video and audio, or both. See "Exporting OMFI and AAF Files" in the Help.
QuickTime Reference	Select this option to create a QuickTime reference movie. A QuickTime reference movie contains pointers (links) to movie files. This is similar to exporting as composition only. See "Exporting As a QuickTime Reference Movie" in the Help.
DV Stream	Select this option to create a standard DV stream. The DV Stream format is often used for distribution on a CD-ROM or over the Web. Use this option when exporting video that will be combined or processed with other DV-formatted media. Requires a video track. See "Exporting Video in DV Stream Format" in the Help.
QuickTime Movie	Select this option to create a self-contained QuickTime movie. See "Exporting QuickTime Movies" in the Help. *If you installed additional QuickTime Export formats, they appear in the pop-up menu with tildes (~) before their names. This indicates they have not been qualified and are not supported by Avid.*
AVI (Windows only)	Select this option to export an AVI file through the Avid Codec for AVI or other compression tool. For more information, see Table 23 on page 51.
Audio	Select this option to export audio tracks in the WAVE format, SD2 (Macintosh only), or AIFF-C audio format. See "Exporting Tracks As Audio Files" in the Help.

Table 16   Export Settings Dialog Box Options (Continued)

Export As Option	Description
Graphic	Select this option to export a single frame, a series of frames, or a file type that supports multiple frames as a graphic file. Select a file type from the pop-up menu. See "Exporting As a Graphic File" in the Help. For information about supported file types, see "File Format Specifications" in the Help.
Avid Log Exchange	Select this option to export the selected bin as a shot log file that complies with Avid Log Exchange (ALE) specifications. For information about Avid Log Exchange, see "Converting Log Files with Avid Log Exchange (Macintosh)" in the Help.
	ALE and tab-delimited files include information for master clips and subclips only. Information for other objects, such as group clips, sequences, and precomputes, is not included.
Tab Delimited	Select this option to export the selected bin as a shot log file in the form of a tab-delimited ASCII text file.

Export Settings: Quick Time Reference Options

Table 17   Export Settings Dialog Box (QuickTime Reference Options)

Option	Description
Use Marks	When this option is selected, the system uses current IN and OUT points in the selected clip or sequence to determine starting and ending frames for the export. To export the entire clip or sequence, deselect this option or mark the entire clip or sequence.
Use Enabled Tracks	When this option is selected (default), the system uses tracks that are enabled in the Timeline. To export all the tracks in the sequence, deselect this option.

**Table 17   Export Settings Dialog Box
(QuickTime Reference Options) (Continued)**

Option	Description
Flatten Video Tracks	When this option is selected, the composition is exported as one video track. When this option is deselected, one QuickTime video track is generated for each video track in the composition, and you cannot select Fill Spaces with Black. Because most third-party applications do not understand multiple QuickTime video tracks, it is a good idea to select this option. This option is automatically selected if you selected the Fast Draft Defaults and the Digital Mastering Defaults options.
Fill Spaces with Black	When this option is selected, blank spaces in video tracks are filled with black in the QuickTime reference movie. Because QuickTime reference movies do not recognize blank spaces, it is a good idea to select this option. When this option is deselected, a QuickTime reference movie might interpret spaces in the video track as gray or as the background of the player. This option is automatically selected if you selected the Fast Draft Defaults and Digital Mastering Defaults options.
Render All Video Effects	When this option is selected, all unrendered video effects, including matte keys and titles, are rendered before export. When this option is deselected, any unrendered effects are ignored. This option is automatically selected if you selected the Digital Mastering Defaults option.

Table 17   Export Settings Dialog Box
(QuickTime Reference Options) (Continued)

Option	Description
Mixdown Audio Tracks	When this option is selected, the audio tracks in the composition are mixed to stereo files created at the same location as the movie. When this option is deselected, the Quick Time Reference movie references the original audio media. This option is selected automatically if you select the Digital Mastering Defaults option.
	If you select the Premix Audio Track option, you can also select an audio format. Select the format that is supported by the application into which you will be importing the QuickTime reference movie.
	• WAVE: Select this option to export audio tracks in the WAVE format (.WAV file name extension). Nearly all Windows applications that support sound use WAVE files. QuickTime also supports the WAVE format.
	• AIFF-C: Select this option to export audio tracks in the industry-standard AIFF-C format, which is compatible with many third-party sound editing and multimedia applications.
	• You can also select an Audio sample rate and Audio sample size.
Fast Draft Defaults	Select this option for a faster export. This option automatically selects Flatten Video Tracks and Fill Spaces with Black. It automatically deselects Render All Video Effects and Premix Audio Tracks.
Digital Mastering Defaults	Select this option to render all video effects and to premix audio tracks before exporting the file. This option automatically selects Flatten Video Tracks, Fill Spaces with Black, Render All Video Effects, and Premix Audio Tracks.
Use Network Media References	When this option is selected, the exported movie uses the machine and drive share name of the media drive in the QuickTime reference movie instead of a drive letter. Select this option when the media files referenced by the movie are accessed remotely over the network. If the media files are stored on the same drive as the QuickTime reference movie, you do not need to select this option. When this option is deselected, you cannot select Add Shares for Media Drives.

**Table 17   Export Settings Dialog Box
(QuickTime Reference Options) (Continued)**

Option	Description
Add Shares for Media Drives	When this option is selected, the system creates a new drive share for referenced media files stored on unshared network drives. The drive share is hidden; that is, other users do not see the shared drive when browsing your computer. You do not need to select this option when media is stored on the same drive as the QuickTime reference movie.
Use Avid DV Codec	Deselect this option when you are working in a cooperative environment where one or more non-Avid systems also have access to the media. This option is selected by default. Select this option if the non-Avid systems have the Avid DV Codec.
Pixel Aspect Ratio	The pixel aspect ratio allows you to apply a scaling to the video: square, 4:3 non-square, or 16:9 non-square. The pixel aspect ratio allows you to control the display format without modifying the source file.
	This feature creates metadata — additional data that is stored with the QuickTime movie. Some applications, such as the QuickTime Player and Avid ePublisher, can interpret this metadata and scale the image at display time.
	Pixel aspect ratio is useful for QuickTime reference movies because you do not modify the source files of referenced movies. For example, if your source movies are stored at the standard 720 x 486 for NTSC (720 x 576 for PAL), you can create two different QuickTime reference movies that use the same referenced source files — one that uses 4:3 and another that uses 16:9.

Export Settings: Quick Time Movie Export Options

Table 18   QuickTime Movie Export Options

Option	Suboption	Description
Use Marks		When you select this option, the system uses current IN and OUT points in the selected clip or sequence to determine starting and ending frames for the export. To export the entire clip or sequence, deselect this option.
Use Enabled Tracks		When you select this option, the system exports only the currently enabled tracks for a selected sequence or clip. To export all tracks in the sequence, deselect this option.
Same as Source		When you select this option, the system copies the media files directly with no resolution change. This method is fast and creates output that uses the same quality as your source files. Selecting Same as Source is the best method to use if you plan to process the video on another system, using a third-party application like After Effects® or media cleaner®.
	Use Avid DV Codec	Deselect this option when you are working in a cooperative environment where one or more non-Avid systems also have access to the media. This option is selected by default.
Custom		When you select this option, the system decompresses the files, processes them, and compresses the files at the requested resolution. This method is slower and often loses quality. You should only use the Custom option if you have to directly export a clip or sequence in a particular file format.
Format Options		Click the Format Options button to open the Movie Settings dialog box. For more information, see "Selecting QuickTime Movie Format Options" in the Help.
Video and Audio		Select this option if you want to export both the audio and video.

Table 18   QuickTime Movie Export Options (Continued)

Option	Suboption	Description
Video Only		Select this option if you want to export only the video. For example, use this option if you want to add effects in a third-party application or to use only the video in a multimedia project.
Audio Only		Select this option to export only the audio. For example, use this option if you want to use or enhance audio in a third-party application or you want to use the audio in a multimedia project.
Video Format	Width x Height	Select this option to set the width of the clip.
		• **Size to Fit**: This option sizes to fit the specified width and height. You can type in values or select from the predefined values in the Fast menu.
		The values in the Fast menu suggest a typical use for each size. For example, 320 x 240 (Internet video, large).
		• **Crop/Pad**: This option instructs the system not to scale or resize the frames. If necessary, it adds black lines to the top and bottom of the frame to achieve the correct size.
	Color Levels	Select this option to set the color to RGB or ITU-R 601.

Table 18   QuickTime Movie Export Options (Continued)

Option	Suboption	Description
	File Field Order	These options allow you to select the field that is the upper field during export. For 24p or 25p projects, these options do not appear; all fields are automatically exported as progressive (still) frames.
		• **Odd (Upper Field First)**: Select this option if you are in a PAL project. In forming the export frame, Field 1 becomes the upper field, that is, Field 1's lines become the odd-numbered lines in the frame (counted starting from 1). Field 2's lines become the even-numbered lines.
		• **Even (Lower Field First)**: Select this option if you are in an NTSC project. In forming the export frame, Field 1 becomes the lower field, that is, Field 1's lines become the even-numbered lines in the frame. Field 2's lines become the odd-numbered lines.
		• **Single Field**: Select this option if you want the output file to consist of only Field 1. In this case, the single field of 243 lines for NTSC (288 lines for PAL) is resized to fit the frame as specified in the width and height selection.
Create Preview		Select this option if you want to create a preview of the QuickTime movie.
Pixel Aspect Ratio		The pixel aspect ratio allows you to apply a scaling to the video: square, 4:3 non-square, or 16:9 non-square. The pixel aspect ratio allows you to control the display format without modifying the source file.
		This feature creates metadata — additional data that is stored with the QuickTime movie. Some applications, such as the QuickTime Player, can interpret this metadata and scale the image at display time.
		Pixel aspect ratio is useful for the Same as Source option because that option also preserves the original format.

Export Settings: QuickTime Movie Settings

Table 19   QuickTime Movie Settings

Option	Suboption	Description
Video		
Settings	Compression Settings	See "Selecting QuickTime Movie Format Options" in the Help.
Filter	Choose Video Filter	Allows you to apply a single effect filter during an export.
Size	Export Size Settings	QuickTime allows you to set a size, but Avid recommends you set the size in the Width and Height text boxes of the Export Settings dialog box. Both settings have the same effect, and the QuickTime size setting overrides the Avid size setting.
Sound		
Settings	Compressor	Allows you to select a sound compression setting for your export, along with other options.
Prepare for Internet Streaming	Fast Start	Allows a movie to begin playing over the Internet without downloading the entire movie first. This method of playing movies over the Internet is referred to as progressive download or HTTP streaming. It does not require a streaming video server.
	Fast Start - Compressed header	A better choice for progressive downloading. This option works the same as Fast Start (see previous entry), but compresses the header information. The header is the portion of the file that allows the movie to start playing before the entire movie is downloaded. Compressing the header allows it to download faster. This is important for large movies (movies that are longer than several minutes).

Table 19   QuickTime Movie Settings (Continued)

Option	Suboption	Description
	Hinted Streaming	Select this option if you are putting the exported file on a streaming video server. The file does not stream without a hint track for each track in the movie. The hint tracks allow the streaming video server to split the file into packets for the streaming.
		A file with hinted streaming also plays as a progressive download. However, it will probably play more slowly than a Fast Start movie because it contains additional information and is therefore larger.
		For additional options, click Track Hinter Settings. The RTP (Real Time Protocol) Track Settings dialog box opens. For more information, see QuickTime Help at:
		www.apple.com/quicktime/tools_tips/tutorials/ hinttracks.html

Export Settings: QuickTime Compression Settings

Table 20   QuickTime Compression Settings

Format Options	Suboption	Description
Compressor	Animation	For high-quality, lossless compression (in which no picture information is lost).
		Uses a run-length-encoded (RLE) scheme to encode each pixel, resulting in a file that is 70% to 95% the size of the uncompressed file.
		At maximum quality, this is a lossless compression (in which no picture information is lost). See the description of the Quality option in this table.

Table 20   QuickTime Compression Settings (Continued)

Format Options	Suboption	Description
	Avid DV	For compression compatible with Avid Xpress DV and Avid NewsCutter® products or with Avid Meridien products with the DV/MPEG option. Allows fast import.
	Avid Meridien Compressed	For compression compatible with Avid Meridien products. Allows fast import. See "Using Avid Codecs for QuickTime" in the Help.
	Avid Meridien Uncompressed	For 1:1 resolution used in Avid Meridien products. Allows fast import. See "Using Avid Codecs for QuickTime" in the Help.
		For export at the same resolution as your current clips, select Same as Source instead of Custom. See "Exporting QuickTime Movies" in the Help.
	Avid ABVB NuVista (Windows only)	For backward compatibility with systems using AVRs.
	BMP	For internal encoding of individual frames as BMP (Windows native bitmap format) files.
	Cinepak	For export at low resolution where high quality is not an issue, such as presentations or educational uses, or for small-screen-size playback from CD-ROM or hard drive. Uses compression algorithm optimized for CD-ROM playback.
	Component Video	For high-quality, lossless compression (in which no picture information is lost). Uses the same algorithm as the Animation method but saves the file in YUV RLE format, which separates the luminance from the chrominance. All QuickTime applications can read this format, but only some can write to this format.
	DV-NTSC DVC PRO-PAL DV-PAL	For storing original or edited DV (digital video) footage in QuickTime files. DV-NTSC and DVC PRO-PAL do 4:1:1 chroma sampling; DV-PAL does 4:2:0 chroma sampling.

Table 20   QuickTime Compression Settings (Continued)

Format Options	Suboption	Description
	Graphics	For export at low resolution where high quality is not an issue, such as presentations or educational uses, or for small-screen-size playback from CD-ROM or hard drive. Uses a limited color palette version (16 colors) of Animation compression.
	H.261	For low-quality video conferencing.
	H.263	For video conferencing. Optimized for low data rates and low motion.
	Intel Indeo Video 4.4 (Windows only)	For export at low resolution where high quality is not an issue, such as presentations or educational uses, or for small-screen-size playback from CD-ROM or hard drive. Files do not export at 720 x 540 and 720 x 486 frame sizes, even though these sizes are listed.
	Motion JPEG A	For medium-quality, lossy compression (in which some picture information is lost) requiring much storage space and additional hardware support for real-time playback. Motion JPEG (M-JPEG) is a variant of the ISO JPEG specification for use in digital video. Considered the standard for Motion JPEG, format A is supported by chips from Zoran Corporation and C-Cubed, Inc.
	Motion JPEG B	For medium-quality, lossy compression (in which some picture information is lost) requiring much storage space and additional hardware support for real-time playback. Motion JPEG (M-JPEG) is a variant of the ISO JPEG specification for use in digital video. Format B cannot use the markers that ISO JPEG and format A do; supported by chips from LSI Logic Corporation.
	None	Does not compress the file; results in very large files.

Table 20   QuickTime Compression Settings (Continued)

Format Options	Suboption	Description
	Photo - JPEG	For medium-quality, lossy compression (in which some picture information is lost) requiring moderate storage space and data throughput on playback.
		Uses the Joint Photographic Experts Group (JPEG) algorithm for image compression; results in files that are 20% to 30% the size of the uncompressed files. Some data is lost during compression, and the export process takes longer to complete (typically six times longer than the Animation compression, for example).
	Planar RGB	For high-quality, lossless compression (in which no picture information is lost). Results in large files.
		Encodes each image plane separately, using a run-length-encoded (RLE) scheme. Used primarily to support Photoshop files, which are usually stored using a planar run-length algorithm.
	PNG	Portable Network Graphics, used to replace GIF^{SM} as a bitmap still-image format for newer Internet browsers.
	Sorenson Video	For medium-quality, lossy compression (in which some picture information is lost) at a low data rate and low storage requirements. This codec is particularly suited for Web or CD-ROM delivery.
	Sorenson Video 3	An improved version of the Sorenson Video codec. Movies created with this codec require the QuickTime 5 viewer.
	TGA	Saves exported file in TARGA® format.
	TIFF	Tagged Image Format, a cross-platform bitmap still-image format, used often in pre-press production.
	Video	For export at low resolution where high quality is not an issue, such as presentations or educational uses, or for small-screen-size playback from CD-ROM or hard drive.

Table 20   QuickTime Compression Settings (Continued)

Format Options	Suboption	Description
Colors		Select the colors that you want included in the exported file. The selections vary according to the codec you select. Some codecs have only one color setting.
		If you select the Sorenson codec, Millions of Colors is selected automatically.
		Do not select the option Millions of Colors +. This option creates an alpha channel that is not used for export from your Avid system.
		If you use one of the Avid Codecs for QuickTime with other applications that support alpha channels, you can select the Millions of Colors + option to create an alpha channel that can be imported into your Avid system.
Quality		Drag this slider to adjust the image quality for the exported file. The selections vary according to the codec you select. Some codecs have only one Quality setting.
		This slider does not adjust quality for the Avid Codecs for QuickTime.
		If you select Avid Meridien Compressed or Uncompressed, a dialog box opens, allowing you to select a resolution.
Motion	Frames per second	Select a frame rate from the pop-up menu. Select 30 to maintain full-motion video/animation. A frame rate of 29.97 conforms to NTSC video frame-rate standards. Select 25 for PAL.
	Key frame every n frames	Use this option to have the system use keyframes as a reference for subsequent frames. Enter a numeric value to specify the frequency of the keyframes.
	Limit data rate to n KBytes/sec	Allows you to specify the target data rate for the compressed movie.

Export Settings: DV Stream Options

**Table 21   Export Settings Dialog Box
(DV Stream Options)**

Option	Description
Use Marks	When you select this option, the system uses current IN and OUT points in the selected clip or sequence to determine starting and ending frames for the export. To export the entire clip or sequence, deselect this option.
Use Enabled Tracks	When this option is selected (default), the system uses tracks that are enabled in the Timeline. To export the entire clip or sequence, deselect this option.
Format Options	Click this button to select a video format and an audio format for export.
Color Levels	Select this option to set color to RGB or ITU-R 601.
File Field Order	These options allow you to select the field that is the upper field during export. For 24p or 25p projects, these options do not appear; all fields are automatically exported as progressive (still) frames.
	• **Odd (Upper Field First)**: Select this option if you are in a PAL project. In forming the export frame, Field 1 becomes the upper field, that is, Field 1's lines become the odd-numbered lines in the frame (counted starting from 1). Field 2's lines become the even-numbered lines.
	• **Even (Lower Field First)**: Select this option if you are in an NTSC project. In forming the export frame, Field 1 becomes the lower field, that is, Field 1's lines become the even-numbered lines in the frame. Field 2's lines become the odd-numbered lines.
	• **Single Field**: Select this option if you want the output file to consist of only Field 1. In this case, the single field of 243 lines for NTSC (288 lines for PAL) is resized to fit the frame as specified in the width and height selection.

Export Settings: OMFI and AAF Options

**Table 22   Export Settings Dialog Box
(OMFI and AAF Settings Options)**

Option	Suboption	Description
Export As:	OMF 1.0	Select this option if the application to which you are exporting does not support OMFI Version 2.0.
	OMF 2.0	Select this option if the application to which you are exporting supports OMFI Version 2.0. If you are not sure, select OMF 1.0.
	AAF	Select this option if the application to which you are exporting supports AAF.
Include All Video Tracks in Sequence		Select this option to include all video tracks from the sequence in the OMFI or the AAF file. The Video Details tab appears.
Include All Audio Tracks in Sequence		Select this option to include all audio tracks from the sequence in the OMFI or the AAF file. The Audio Details tab appears.

The following options appear in both the Video Details tab and the Audio Details tab:

Option	Suboption	Description
Export Method:	Link to Current Media	Select this option when you want to export an OMFI or an AAF composition with links to the media in its current location. Media is not embedded in the file. 📄 *This may also be referred to as Composition Only.*
	Copy Media and Link to Copied Media	Select this option when you want to copy media to another drive and export an OMFI or an AAF composition with links to the copied media.
	Consolidate and Link to Consolidated Media	Select this option when you want to export an OMFI or an AAF composition with links to media that you have consolidated. For more information about consolidating, see "Consolidating Media" in the Help.

Table 22   Export Settings Dialog Box
(OMFI and AAF Settings Options) (Continued)

Option	Suboption	Description
	Embed Media	Select this option to include (embed) video or audio media in the OMFI or the AAF file.
	Consolidate and Embed Media	Select this option to first consolidate, then embed media in the OMFI or the AAF file. Select the drive from the Target Drives list. The default handle length is 60 frames. If you want to change the default, type the length of the handles, in frames. For more information about consolidating, see "Consolidating Media" in the Help.
Destination Folder:	Set	Click Set to select the drive and folder to which you want to copy the media files.
Target Drive for Consolidate:		Select the drive where you want to create the consolidated media files.
Handle Length: *nn* Frames		Enter the number of frames you want to use as handles for consolidated clips. Handles refer to material outside the IN and OUT points and are used for dissolves and trims with the new, shorter master clips. The default is 60.

The following options appear in the Audio Details tab only:

Option	Suboption	Description
Include Rendered Audio Effects		Select this option to render audio effects during export.
Convert Audio File Format to:	Project rate, 32 kHz, 44.1 kHz, or 48 kHz	Select this option if your sequence has a mix of sample rates and you need to create a single sample rate. (You set the project rate in the Audio Project Settings window. For more information see "Adjusting Audio Project Settings" in the Help.) You can also use this option to change the sample rate if the application to which you are exporting does not support the current sample rate.

**Table 22   Export Settings Dialog Box
(OMFI and AAF Settings Options) (Continued)**

Option	Suboption	Description
Convert Audio File Format to:		If your sequence has a mix of audio file formats, and you want to embed media, you must choose a single audio file format. Audio files are converted to this format during export. This choice is optional if you want to consolidate and link media.
	WAVE	Select WAVE (.WAV file name extension) to link to or embed audio tracks in the WAVE format. Nearly all Windows applications that support sound use WAVE files. QuickTime also supports the WAVE format.
	AIFF-C	Select AIFF-C to link to or embed audio tracks in the industry-standard AIFF-C format. Note that your Avid system does not compress audio media.
	SD II (Macintosh only)	Select SD II to link to audio tracks in the SD II (Sound Designer II) format, for export to AudioVision or another product that supports the SD II format. SD II audio media cannot be embedded in an OMFI or an AAF file. The converted files are located in a folder labeled Exported Audio Media at the top level of the drive with the most available space.

Export Settings: AVI Settings (Windows Only)

**Table 23   Export Settings Dialog Box
(AVI Settings Options)**

Option	Suboption	Description
Use Marks		When this option is selected, the system uses current IN and OUT points in the selected clip or sequence to determine starting and ending frames for the export. To export the entire clip or sequence, deselect this option.

**Table 23   Export Settings Dialog Box
(AVI Settings Options) (Continued)**

Option	Suboption	Description
Use Enabled Tracks		When this option is selected, the system exports only the currently enabled tracks for a selected sequence or clip. To export all tracks in the sequence, deselect this option.
Video and Audio		Select this option if you want to export both the audio and the video.
Video Only		Select this option if you want to export only the video.
Audio Only		Select this option if you want to export only the audio. For example, use this option if you want to use or enhance audio in a third-party application or use the audio in a multimedia project.
Video Format	Codec Options	When you click this button, the Video Compression dialog box opens. For more information, see Table 24 on page 54.
	Width x Height	This option allows you to set the width and height of the clip. Click the Fast Menu button, and select from a list of standard dimensions. • **Scale to Fit:** This option sizes to fit the specified width and height. • **Crop/Pad:** Crop/Pad never scales or resizes frames. If necessary, the system adds black lines to the top and bottom to achieve the correct size.
	Color Levels	This option allows you to set color to RGB or ITU-R 601.
	FPS	This option sets the frame-per-second (fps) rate for AVI export.

**Table 23   Export Settings Dialog Box
(AVI Settings Options) (Continued)**

Option	Suboption	Description
	File Field Order	These options allow you to choose the field that will be the upper field during export. For 24p or 25p projects, these options do not appear; all fields are automatically exported as progressive (still) frames.
		• **Odd (Upper Field First):** Select this option if you are in a PAL project. In forming the export frame, Field 1 becomes the upper field, that is, Field 1's lines become the odd-numbered lines in the frame (counted starting from 1). Field 2's lines become the even-numbered lines.
		• **Even (Lower Field First):** Select this option if you are in an NTSC project. In forming the export frame, Field 1 becomes the lower field, that is, Field 1's lines become the even-numbered lines in the frame. Field 2's lines become the odd-numbered lines.
		• **Single Field:** Select this option if you want the output file to consist of only Field 1. In this case, the single field of 243 lines for NTSC (288 lines for PAL) is resized to fit the frame as specified in the width and height selection.
Audio Format	Mono	Exports audio to a single channel.
	Stereo	Exports audio to two channels.
	Sample Rate	Select this option to select the sample rate.
		• **Project Rate:** The native rate of the chosen audio media (44.1 kHz or 48 kHz).
		• **22.050 kHz:** Half the sample rate of 44.1-kHz media.
		• **11.025 kHz:** One quarter the sample rate of 44.1-kHz media.

**Table 23   Export Settings Dialog Box
(AVI Settings Options) (Continued)**

Option	Suboption	Description
	Sample Size	Select this option to select the sample size. • **16 bit:** When this option is selected, the system exports a 16-bit audio sample size (currently the industry-standard bit rate for audio). • **8 bit:** When this option is selected, the system exports an 8-bit audio sample size for use in third-party systems that do not support 16-bit. This option is also used to minimize the data throughput requirements (for example, to improve playback in multimedia projects).

Export Settings: AVI Video Compression Options (Windows Only)

**Table 24   AVI Video Compression Dialog Box
Options**

Option	Suboption	Description
Compressor	Cinepak Codec by Radius	For export at low resolution where high quality is not an issue, such as presentations or educational uses, or for small-screen-size playback from CD-ROM or hard drive. This codec uses a compression algorithm optimized for CD-ROM playback. Click Configure to open the Cinepak for Windows 32 configuration dialog box. You can then choose to compress to color or to black and white.
	Microsoft Video 1	Use this option when you create files that will play with Video for Windows. Click Configure to open the Configure dialog box. You can then adjust the quality of the compressed file using the Temporal Quality Rate slider.

**Table 24   AVI Video Compression Dialog Box
Options (Continued)**

Option	Suboption	Description
	Full Frames (Uncompressed)	For high-quality export in which no picture information is lost. This option does not compress the file and can result in very large files. To export an uncompressed file at 1:1, use the Avid Codec for AVI.
Compression Quality Slider		Use this option to adjust compression quality for certain codecs. This slider does not adjust quality for the Avid AVI codec.
Key Frame Every *n* frames		Use this option to have the system use keyframes as a reference for subsequent frames. Enter a numeric value to specify the frequency of the keyframes. This option is not available for the Avid Codec for AVI or for uncompressed files.
Data Rate *n* KB/sec		Use this option to set a specific data rate for the compressed file, in kilobytes per second. This option is not available for the Avid Codec for AVI or for uncompressed files.

Export Settings: Audio Options

**Table 25   Export Settings Dialog Box
(Audio Options)**

Option	Description
Mono Stereo	Select this option to export audio tracks in either mono or stereo.
WAVE	Select this option to export audio tracks in the WAVE format (.wav file name extension). Nearly all Windows applications that support sound use WAVE files. QuickTime also supports the WAVE format.

**Table 25   Export Settings Dialog Box
(Audio Options) (Continued)**

Option	Description
AIFF-C	Select this option to export audio tracks in the industry-standard AIFF-C format, which is compatible with many third-party sound editing and multimedia applications.
Sample Size	Select one of the following: • 16 bit • 24 bit
Sample Rate	Select one of the following: • Project Rate • 32 kHz • 44.1 kHz • 48 kHz You can use this option if your sequence has a mix of sample rates and you need to create a single sample rate. (You set the project rate in the Audio Project Settings dialog box. For more information, see "Adjusting Audio Project Settings" in the Help.) You can also use this option to change the sample rate if the application to which you are exporting does not support the current sample rate.

Export Settings: Graphic Options

**Table 26   Export Settings Dialog Box
(Graphic Options)**

Option	Suboption	Description
Use Marks		When this option is selected, the system uses current IN and OUT points in the selected clip or sequence to determine starting and ending frames for the export. To export the entire clip or sequence, deselect this option.
Use Enabled Tracks		When this option is selected, the system exports only the currently enabled tracks for a selected sequence or clip. To export all tracks in the sequence, deselect this option.
Graphic Format	Format Options	This option allows you to select a graphic format for export. The Format Options button allows you to set export parameters.
Width x Height		This option allows you to set the width and height of the clip. Click the Fast Menu button, and select from a list of standard dimensions. • **Scale to Fit:** This option sizes to fit the specified width and height. • **Crop/Pad:** Crop/Pad never scales or resizes frames. If necessary, the system adds black lines to the top and bottom to achieve the correct size.
Color Levels		This option allows you to set color to RGB or ITU-R 601.
Sequential Files		This option produces a series of still images, numbered sequentially. The fps rate of the source file determines the number of still image files that are produced.

**Table 26   Export Settings Dialog Box
(Graphic Options) (Continued)**

Option	Suboption	Description
File Field Order		This option allows you to choose the field that will be the upper field during export. For 24p or 25p projects, these options do not appear; all fields are automatically exported as progressive (still) frames.
		• **Odd (Upper Field First):** Select this option if you are in a PAL project. In forming the export frame, Field 1 becomes the upper field, that is, Field 1's lines become the odd-numbered lines in the frame (counted starting from 1). Field 2's lines become the even-numbered lines.
		• **Even (Lower Field First):** Select this option if you are in an NTSC project. In forming the export frame, Field 1 becomes the lower field, that is, Field 1's lines become the even-numbered lines in the frame. Field 2's lines become the odd-numbered lines.
		• **Single Field:** Select this option if you want the output file to consist of only Field 1. In this case, the single field of 243 lines for NTSC (288 lines for PAL) is resized to fit the frame as specified in the width and height selection.

Export Settings: Graphic Format Options

Table 27   Graphic Format Options Settings

File Type	Parameters	Description
Alias		This option creates files that are compatible with Alias™/Wavefront™ systems.
BMP	Windows	This option creates files that are compatible with systems running the Microsoft Windows operating system.
	OS/2	This option creates files that are compatible with systems running the IBM® OS/2® operating system.

Table 27   Graphic Format Options Settings (Continued)

File Type	Parameters	Description
Chyron		Developed by Chyron Corporation for use with video frame buffers of Chyron® character generator titles.
Cineon	Blackpoint (Windows) Black Point (Macintosh)	This option allows you to adjust a film exposure value that corresponds to filming a 2% black card. Values can be between 0 and 1022. The default value of 0 is adequate for most uses.
	Whitepoint (Windows) White Point (Macintosh)	This option allows you to adjust a film exposure value that corresponds to filming a 90% white card. Values can be between 1 and 1023.
		If the files came from and will be transferred back to a Cineon™ system, use a white point of 1023. The default value of 685 is appropriate if the final destination is not a Cineon system — for example, a video display.
	Gamma	This option specifies an adjustment to correct for any gamma inconsistencies in the output display. Values can be between 0.01 and 100.0.
		Use a value of 1.0 (the default) for images displayed on a PC monitor. Use a value of 0.59 for a Silicon Graphics® or a Macintosh monitor.
		Use a value of 0.45 for ITU-R 601 (CCIR 601) video.
ERIMovie	Pack 24 bits	This option controls whether the image data is packed into 24-bit color depth (compressed) or is saved as 32-bit (raw) color depth.
Framestore		The Framestore format is a 16-bit video image format used on the Amiga® in conjunction with Newtek's Video Toaster™ hardware. HIIP supports both compressed and uncompressed Framestore formats.
IFF		Developed by Electronic Arts. IFF (Interchange File Format), or more specifically IFF-ILBM (InterLeaved BitMap), is the standard file format by which applications on the Amiga platform transfer image files.

Table 27   Graphic Format Options Settings (Continued)

File Type	Parameters	Description
JPEG	Quality	This option controls the output file size and quality. Higher values produce better images but larger file sizes. Conversely, lower values reduce the image quality but result in smaller file sizes.
	Baseline	This option is selected by default. To see if this option is required, see the documentation that came with your JPEG-supported applications.
	Progressive	This option allows you to save progressive JPEG files, which divide the file into a series of scans of the image that increase in quality. Each scan progressively improves the recognizability of the image.
		Progressive JPEG files can be recognized only by applications with progressive JPEG support, such as some Web browsers.
OMF	Compression	This option controls the compression ratio and, therefore, the size of the file. You can choose from all the compression ratio options used by the Avid system when recapturing. For more information on Avid compression ratios, see "Main Topics: Resolutions and Storage Requirements" in the Help.
	Frame Rate NTSC/PAL	These options appear when you select a compression ratio that allows you to select either NTSC or PAL. When you select an option, the system displays the required image size and the default frame rate.
PCX		Developed by Zsoft Corporation for use with their PC PaintBrush™ paint software.
Photoshop	Compression	This option controls the size of the file on disk. Disabling compression creates larger files on disk.

Table 27   Graphic Format Options Settings (Continued)

File Type	Parameters	Description
PICT (Windows only)	Create MacBinary header	This option creates a file with a MacBinary header.
		MacBinary is a file format for representing all the information in a Macintosh file in one binary file. It is a compact file format, useful for storing a Macintosh file on a non-Macintosh system for later retrieval. Use a file expander utility to decode a MacBinary file once it is back on a Macintosh system.
Pixar		This option allows you to save the file in the Pixar® format.
PNG	Color Depth	The 8 bits option saves 8-bit files. The 16 bits option saves 16-bit files. The Automatic option saves the image in the same depth as the original loaded image.
	Interlaced	This option allows you to save the file for progressive display, similar to progressive JPEG files. As the file is transmitted, the recognizability of the image improves.
		Interlaced PNG files can be recognized only by applications with interlaced PNG support, such as some Web browsers.
QRT		Developed on the Amiga personal computer to run on several operating systems. Used by many ray tracing programs, such as DKB Ray Trace and the QRT ray tracer.
Rendition		Developed by Numerical Design, Ltd.
SGI	Color Depth	The 8 bits option saves 8-bit files. The 16 bits option saves 16-bit files. The Automatic option saves the image in the same depth as the original loaded image.
Softimage		Developed by Softimage®, Inc. for use in their Softimage software.
Sun Raster™		Developed by Sun Microsystems, Inc. and supported mainly in Sun applications.

Table 27   Graphic Format Options Settings (Continued)

File Type	Parameters	Description
TARGA	Color Depth	This option controls how images are saved. The 5-bit option saves data in Targa 16 format. The 8-bit option saves data in Targa 24/32 format.
	Compression	This setting controls the size of the file on disk. Disabling compression creates larger files on disk.
TIFF	Color Depth	The 8 bits option saves 8-bit files. The 16 bits option saves 16-bit files. The Automatic option saves the image in the same depth as the original loaded image.
	Compression	This setting controls the size of the file on disk. With None, image data is not compressed and can produce large file sizes. RLE (run length encoded) produces relatively small and fairly portable files. JPEG produces files that can vary in size, depending on the quality you have set using the JPEG quality slider. The higher the quality setting, the larger the file size.
	JPEG Quality	This option adjusts the image quality of the JPEG file on a sliding scale from 0 to 100. The higher the number you set, the higher the image quality of the JPEG file.
Wavefront	Format Type	This option specifies one of two output file formats supported by Wavefront (either RLA or RLB).
	Color Depth	The 8 bits option saves 8-bit files. The 16 bits option saves 16-bit files. The Automatic option saves the image in the same depth as the original loaded image.
	Gamma	This option specifies an adjustment to correct for gamma differences between Macintosh and Windows PC output display. This option is intended for cross-platform applications that require adjustment. *To see if you need to adjust this value, check the documentation that came with your Wavefront application. Usually, you can use the default setting.*

Table 27   Graphic Format Options Settings (Continued)

File Type	Parameters	Description
XWindows		Developed by the MIT X Consortium, and is supported by many X Window System™ applications on workstations and some personal computers.
YUV	Format	This option controls the video format of saved images. If set to NTSC, NTSC video format (720 x 486) is used. If set to PAL, PAL video format (720 x 576) is used. Images are either padded with black or cropped.
	Smooth YUV	This option enhances the fidelity of images saved in YUV color space (if originating in RGB color space).

Film and 24p Settings

Table 28   Film and 24p Setting Dialog Box Options

Option	Description
Edit Play Rate	Selects the play rate for Timeline play. See "Film Settings - Edit Play Rate Options" on page 64. 📄 *For a 23.976p project the Edit Play Rate is automatically set at 23.976 fps.*
Ink Number Format	Select one of these industry-standard ink number formats to meet your production lab standards and your film format.
Ink Number displayed as	Select the format for the ink number display in bins and cut lists.
Auxiliary Ink Format	Select the format for the auxiliary ink number (this is useful for tracking additional information for different film gauges). The choices are the same as for Ink Number Format.

Table 28   Film and 24p Setting Dialog Box Options

Option	Description
Auxiliary Ink displayed as	Select the format for the auxiliary ink number display. The choices are the same as for Ink Number displayed as.

Film Settings - Edit Play Rate Options

Table 29   Edit Play Rate Options

Project Type	Option	Description
24p PAL	24 fps	Selects playback at 24 fps of all output except for digital cut
	25 fps	Selects playback at 25 fps of all output except for digital cut
24p NTSC	23.976 fps	Selects playback at 23.976 fps of all output except for digital cut
	24.000 fps	Selects playback at 24 fps of all output except for digital cut

General Settings

Table 30   General Settings Options

Option	Description
Project Format	This option displays the format currently selected for the project (NTSC or PAL). It cannot be changed.
Temporary File Directory	When you use the Drag and Drop Export or an export that creates an intermediate movie file, application must store the intermediate file, which can be as large as the final export. By default, the Temporary File Directory is located in the same directory as application.
	To improve efficiency or to avoid DISK_FULL errors when exporting, you can type in a different directory for these temporary files. The ideal setting for this field is to type in a directory on the drive to which you are exporting, or simply one with plenty of free space.
Default Starting TC	This option specifies the timecode value you want the system to use as the default starting timecode for each new sequence.
NTSC Has Setup	This option allows systems using NTSC-EIAJ to use the correct color mapping. NTSC-EIAJ users should not select this option. All other users should select this option.
Use Windows compatible file names (Macintosh only)	Prevents you from using the characters /\:*?"<>| and adding leading spaces, trailing spaces, or a trailing period in bin, project, or user names. These characters are not allowed in Windows file names. This option is useful for moving bins and projects from Macintosh to Windows platforms.
Allow file names to exceed 27 characters (Macintosh only)	Lets you override the Windows file name limit of 27 characters (not including the four characters reserved for the file type extension). Set this option if you do not plan to move your bins or projects to a Windows system, and if you want to use file names longer than 27 characters.

Grid Settings

Table 31 describes the options available in the Grid Settings dialog box.

Table 31   Grid Settings Options

Tab	Option	Description
Coordinates	Scale Mode • Normal • 4:3 Inside 16:9 Monitor • 4:3 Outside 16:9 Monitor • 1.66 Inside 4:3 • 1.77 Inside 4:3 • 1.85 Inside 4:3	This setting allows you to work with a grid that indicates boundaries for a format other than the one in which you are working. This is useful when you are creating graphics (like titles) that must remain safe in other formats. Select the appropriate option for the current and target formats you need. When you do not specifically need a grid that represents another format, use the Normal option, which is the default.
Coordinates	Increments	
	• Fields	Sets the number of tick marks along the grid axes as well as the number of visible grid points. The default value is 12.
	• Sub Fields	Sets the number of divisions between visible grid points for the snap-to-grid feature. Setting Sub Fields to 1 snaps objects to visible points only. A value of 2 provides 1/2-field jumps. A value of 4 (the default value) provides 1/4-field jumps, and so on. Setting Sub Fields to 0 turns off the snap-to-grid feature.
Coordinates	Source Scan Size	For film projects, where an optical house scans film for the addition of visual effects.
	• Hor. Size	The default values are 720 x 486 pixels.
	• Vert. Size	
Coordinates	Source Grid Adjustments	
	• Hor. Offset • Vert. Offset	Moves the grid on the image. These values are intended mainly for film projects.
	• Inset	Shrinks the grid proportionally.

Table 31   Grid Settings Options (Continued)

Tab	Option	Description
Display	Type • Square • Standard Film • Academy • Super 35 • Anamorphic	Selects a different grid for each standard film type. For video projects, use the Square grid type. The grid for the Academy option includes a safety margin on the left that is used for adding the optical sound track.
Display	Color	Sets a color for the grid axes and the grid points.
Display	Show Safe Title	Displays the safe title area. Create video titles within this area to ensure that they are viewable on a regular television screen.
Display	Show Safe Action	Displays the safe action area for video display. This box is self-adjusting for PAL and NTSC projects.
Display	Show 14x9 Zone Show 1.66 Aspect Show 1.85 Aspect Show 1.77 Aspect	Select one or more of these options to display the grid you want.
Display	Show Axes	Displays the grid axes.
Display	Show Tick Marks	Shows tick marks along the axes. Use the Fields parameter to set the number of tick marks.
Display	Show Thirds	Divides the screen into three sections. This is especially useful if you are creating titles for the lower third of the screen.
Display	Show Points	Shows the grid points. Use the Fields parameter to set the number of grid points.

Table 31   Grid Settings Options (Continued)

Tab	Option	Description
Display	Show Position Info	Displays the position coordinates of any point in the Effect Preview, or Record monitor. The application uses compass coordinates and X, Y coordinates. For compass coordinates, the point (0, 0) is the center of the axes. For X, Y coordinates, the point (0, 0) is the top left corner of the monitor. X values increase to the right, and Y values increase as you move down. For more information, see "Displaying Position Coordinates" in the Help.

Import Settings

See the following topics:

- Import Settings: Image Tab
- Import Settings: OMFI Tab
- Import Settings: Shot Log Tab

Import Settings: Image Tab

<p align="center">**Table 32   Import Settings Options (Image Tab)**</p>

Option	Suboption	Description
Aspect Ratio, Pixel Aspect	601, non-square	Select this option to import images with the dimensions used by the Avid system: 720 x 48 (NTSC) or 720 x 576 (PAL). Also use this option for 720 x 540 images, or for other images that fit the 4:3 aspect ratio. You can use this option to maintain field data when you import two-field media that follows exact NTSC or PAL dimensions.
		The system converts the existing pixel dimensions, if necessary, so that the image fills the screen.
		If the aspect ratio of the original frames does not match the 4:3 aspect ratio used by the Avid system, the imported frames might appear distorted.
		For best full-screen resolution of files created in a square-pixel environment, use 648 x 48 (NTSC) or 768 x 576 (PAL). To create a single resolution for both NTSC and PAL, use 720 x 540.
		This option is selected by default.
	Maintain, non-square	Select this option for an image that was created in a non-square-pixel environment, but does not match exact NTSC or PAL dimensions. Maintain, non-square preserves up to 48 (NTSC) or 576 (PAL) lines, and either removes additional lines or pads with video black if there are fewer lines.
		Maintain, non-square never scales or resizes.

Table 32   Import Settings Options (Image Tab) (Continued)

Option	Suboption	Description
	Maintain, square	Select this option for an image that was created in a square-pixel environment, such as a graphics application. Use this option primarily for icons, logos, and other graphics that cannot be resized and are not intended to fill the entire screen.
		The system fills the rest of the screen with video black. If the image has an alpha channel, this black is keyed out in the alpha channel.
		Do not use this option if you are importing:
		• Images in the 720 x 48 (NTSC) or 720 x 576 (PAL) non-square-pixel dimensions
		• A full-screen square-pixel image that has already been stretched to non-square-pixel dimensions
	Maintain and Resize, square	Select this option for an image that was created in square-pixel terms.
		The system fits the longest dimension to the screen size and fills in the missing pixels in the shorter dimension with video black, creating a border. If the image has an alpha channel, this black is keyed out in the alpha channel.
		For example, a 540 x 300 image would have its longer dimension resized to 720, and the shorter dimension resized in proportion (to 400). The remaining "short side" pixels are replaced with black.
		For best full-screen resolution of files created in a square-pixel environment, use 648 x 48 (NTSC) or 768 x 576 (PAL). To create a single resolution for both NTSC and PAL, use 720 x 540.
		Do not use this option if you are importing:
		• Images in the 720 x 48 (NTSC) or 720 x 576 (PAL) non-square-pixel dimensions
		• A full-screen square-pixel image that has already been stretched to non-square-pixel dimensions

Table 32   Import Settings Options (Image Tab) (Continued)

Option	Suboption	Description
File Field Order		This section allows you to select the temporal field ordering (sometimes referred to as field dominance) of the media you are importing.
		When the field dominance of the imported media matches the field dominance of the project format, no special processing is required. For more information, see "Field Ordering in Graphic Imports and Exports" in the Help.
		This setting does not apply to OMFI imports when the import resolution matches the OMFI file.
	Non-interlaced	This option allows you to import still images to all formats without concern for the temporal ordering of the fields.
		This is the default value.
	Odd (Upper Field First)	Select this option for the odd field to occur temporally first during import. The first line in the image belongs to the odd field.
	Even (Lower Field First)	Select this option for the even field to occur temporally first during import. The first line in the image belongs to the even field.
Color Levels	RGB	Select this option if the imported graphics file uses RGB graphics levels. Most computer-generated graphics use RGB graphics levels. The RGB color values are remapped to ITU-R 601 (formerly CCIR 601) video color values appropriate for the Avid system.
	RGB, dithered	Select this option if the imported graphics file uses complex color effects, such as a gradation, and you are importing at a high resolution (2:1). Do not use this option to reimport an image that has already been imported with dithering.
	601	Select this option if the imported graphics file uses video levels based on the ITU-R 601 (formerly CCIR 601) standard. These graphics include Avid color bars or images that include superblack (zero black) for keying purposes.

Table 32   Import Settings Options (Image Tab) (Continued)

Option	Suboption	Description
Alpha	Use Existing	Select this option to import the image, using the existing alpha channel information.
	Invert Existing	Select this option to reverse the black and white elements of the alpha channel if they differ from the matte key requirements of the system: a white background, a black foreground, and a gray transparency blend between the two.
	Ignore	Select this option to import an image that contains alpha channel transparency information as one opaque graphic. The imported graphic appears as a single master clip in the bin.
		If an image contains an embedded alpha channel but the system does not support alpha channel import for the file type, select this option to import the image successfully. For information on alpha channel support, see "Graphic File Import Specifications" in the Help.
Single Frame Import	Duration *n* seconds	Select this option to specify the duration of the single frame created from the import. The default is 10 seconds. This option does not apply to importing sequential image files because each file represents one frame of the clip; therefore, the total number of files determines the total duration.
		Importing an image with alpha channel creates a matte key effect as a single frame, with no associated media file.
		Importing as a single frame takes less time and requires less storage than importing as a media file. However, a single frame has limited real-time playback capabilities, particularly at high resolutions. This occurs because the system loads the frame into memory and handles it in real time, rather than playing it back from a disk.

Table 32   Import Settings Options (Image Tab) (Continued)

Option	Suboption	Description
Autodetect Sequential Files		Select this option if you are importing sequential files and you want the system to recognize that a sequence of connected files is present and to automatically import the whole sequence.
		When this option is deselected, the system does not automatically import a whole sequence of files that have sequential extensions. You can then select any single file for import.
		You can import sequential files for any of the supported still-image formats. For information on preparing a sequence of image files, see "Animation Files" in the Help.

Import Settings: OMFI Tab

Table 33   Import Setting Options (OMFI Tab)

Option	Description
Use the source file's resolution.	Select this option to maintain the source file's resolution. The system disregards the resolution setting in the Select Files to Import dialog box as well as resolution set in the Import tab of the Media Creation dialog box.
Use the current import resolution.	Select this option to use the current import resolution setting. The system disregards the source file resolution.
Ask me to set the resolution for each file that is different from the current import resolution setting.	Select this option to have the system display a query about resolution selection for each imported file when the resolution of the source file is different from the current import resolution setting.

Import Settings: Shot Log Tab

Table 34   Import Setting Options (Shot Log Tab)

Option	Description
Maintain events as logged.	Select this option to maintain all events as originally logged.
Combine events based on scene and automatically create subclips.	Select this option to combine all the events for a scene into a single master clip and then link the master clip to subclips that represent the original events for that scene. To use this option, you must have scene numbers logged in a scene column in the bin.
Combine events based on camera roll and automatically create subclips.	Select this option to combine all the events from a camera roll into a single master clip and then link the master clip to subclips that represent the original events for that camera roll. To use this option, you must have camera roll numbers logged in a camera roll column in the bin for a film project.
Merge events with known sources and automatically create subclips.	Select this option to create subclips for events that are merged or relinked to their source clips upon import. Use this option if you have already entered master clips in a bin for each camera roll or master scene, and have subsequently logged all the events related to those clips for import. *You must select the clips that you want to merge before selecting this option.*

Table 34   Import Setting Options (Shot Log Tab) (Continued)

Option	Description
Merge events with known master clips.	Select this option to merge information in the shot log onto selected master clips based on the matching tape name. Use this option if you have already logged (or captured) master clips in a bin for each take. 📄 *You must select the clips that you want to merge before selecting this option.*

Interface Settings

See the following topics:

- Interface Settings: General Tab
- Interface Settings: Appearance Tab

Interface Settings: General Tab

Table 35   Interface Settings Options (General Tab)

Option	Description
Show Labels in Tool Palette	When you select this option, the system displays text labels with the icons on the Tool palette. This is the default option. To tear off the Tool palette, click anywhere on the palette, press and hold the mouse button, and drag the palette to the location you want.

**Table 35   Interface Settings Options
(General Tab) (Continued)**

Option	Description
Show ToolTips	When you select this option, the system displays labels for buttons and icons when you position the mouse pointer over them. This is the default option.
	You can also turn ToolTips on and off from the Help menu.
Delay *n* seconds before showing	If you select Show ToolTips, you can delay the label display by entering a value in this text box. A delay allows you to move the mouse pointer across the interface without displaying the labels on items between the starting point and the destination of the mouse pointer.
Windows® Standard Alt Key Behavior (Windows Only)	This option switches between standard Windows Alt key behavior and Avid system Alt key behavior. When you select this option, pressing and holding the Alt key together with another key works as a keyboard shortcut for certain Windows actions (for example, opening menus).
	When you deselect this option, pressing and releasing the Alt key and then pressing another key works as the Windows keyboard shortcut, while pressing and holding the Alt key together with another key works as a keyboard shortcut for certain Avid functions. This is the default option.
	For more information on Windows shortcuts, see the Windows documentation.
	For more information on Avid shortcuts, see the *Avid Xpress Quick Reference for the Windows Operating System*, or select Help > Shortcuts.
Automatic Num Lock Activation (Windows Only)	When you select this option, the Avid application automatically sets the numeric keypad in numeric mode the next time you start the application. If you deselect this option, the Num Lock key on the keyboard controls the mode of the numeric keypad.
	With either selection, you can use the Num Lock key to change the mode of the numeric keypad.

**Table 35   Interface Settings Options
(General Tab) (Continued)**

Option	Description
Automatically Launch Last Project at Startup	Opens your last project when the application starts.

Interface Settings: Appearance Tab

**Table 36   Interface Settings Options
(Appearance Tab)**

Option	Selection	Description
Color	Background	Controls the color of the given interface component. See "Changing Interface Component Colors" in the Help.
	Button	
	Button Contents	
	Button Highlight	
	Button Spotlight	
	Text	
	Timeline Background	
	Timeline V Tracks	
	Timeline A Tracks	
	Timeline TC Tracks	
	Project Background	
	Bin Default Background	

**Table 36   Interface Settings Options
(Appearance Tab) (Continued)**

Option	Selection	Description
Shading Style	Convex Dim Radial Convex Radial Bright Radial	Controls the shading of buttons and toolbars. See "Changing Shading Style" in the Help.
Shading Depth	5% – 50%, in 5% increments	Controls the three-dimensional "rounding" of buttons and toolbars. See "Changing Shading Depth" in the Help.
Monitor Button Separation	Maximum Moderate None	Controls the spacing of the Monitor buttons. See "Changing Button Separation" in the Help.
Timeline Button Separation	Maximum Moderate None	Controls the spacing of the Timeline buttons. See "Changing Button Separation" in the Help.
Button Style	Oval Octagonal Rounded Square Swoosh Antique	Controls the shape of the buttons. See "Changing Button Style" in the Help.

Keyboard Settings

The following illustration displays the default keyboard settings.

For more information, see Help > Keyboard Shortcuts in the Avid editing application.

When you open the Keyboard palette from the Settings scroll list and select Map Foreign Keyboard, you can map user-selectable buttons to the keyboard. If the Windows operating system is set to French or German regional settings, and you click the center of the Enter key in the Keyboard palette, a message box opens that says foreign keyboard mapping mode has been turned off. Select Standard, and then select Map Foreign Keyboard again to return to foreign keyboard mapping mode.

Marquee Title Settings

<div align="center">

Table 37   Marquee Title Settings

</div>

Setting		Description
Create New Title using		
	Marquee	The system always opens Marquee when you select Clip > New Title or Tools > Title Tool.
	Title Tool	The system always opens the Title Tool when you select Clip > New Title or Tools > Title Tool.
	Ask me	The system displays the New Title dialog box when you select Clip > New Title or Tools > Title Tool. You can then select either Marquee or the Title Tool. This is the default setting.
Promote Title Tool titles to Marquee		
	Yes	The system always promotes a Title Tool title to a Marquee title when you open the title for editing from a bin or from within a sequence. For more information, see "Promoting Title Tool Titles to Marquee" in the Marquee Help.
	No	The system never promotes a Title Tool title to a Marquee title when you open the title for editing from a bin or from within a sequence.
	Ask me	The system displays the Edit Title dialog box when you open a title for editing from a bin or from within a sequence. You can then choose whether to promote the title to Marquee. This is the default setting.
Backup Title on Promote		When this option is selected, the system creates a backup Title Tool version of any title that it promotes to Marquee. The backup copy is a fast-saved (unrendered) title. The system adds [TT] to the name of the backup copy to differentiate it from the newly created Marquee version.

Media Creation Settings

Table 38   Media Creation Settings (Drive Filtering Tab)

Setting	Description
Filter Based on Resolution	Removes as a storage choice the drives that cannot support the selected resolution. This option causes the Avid editing system to utilize only Avid MediaDrives
Filter Out System Drive	Removes as a storage choice the drive on which the operating system resides.
Filter Out Launch Drive	Removes as a storage choice the drive on which the Avid application resides.

Table 39   Media Creation Settings (Other Tabs)

Setting	Description
Video Resolution	Select a resolution.
OMF/MXF	Select a file format: Open Media Format (OMF) or Material Exchange Format (MXF). For more information, see "File Format Specifications" in the Help.
Apply to All	This sets your chosen resolution for all the Media Creation dialog box tabs. It also sets it for any place in the application where you select a resolution.
Video/Audio Drive	Select a drive or drives
Apply to All	This sets your chosen video and audio drives for all the Media Creation dialog box tabs. It also sets them for any place in the application where you select drives.

MM Host

You need to configure your Avid application before you can interact with MediaManager. Specifies the location of MediaManager by listing the computer name of the MediaManager server. See the *Avid Unity MediaManager Setup and User's Guide*.

MM User

You need to configure your Avid application before you can interact with MediaManager. Defines user and login preferences for using MediaManager. See the *Avid Unity MediaManager Setup and User's Guide*.

PortServer Settings

Table 40   PortServer Settings

Setting	Description
Auto-connect to LANshare at Launch	LANshare workspaces are recognized when you start the Avid application.
Connect	Starts the connection.

Render Settings

Table 41   Render Settings Options

Option	Description
Render Completion Sound	Sets a sound for Avid Xpress to activate once the rendering process is complete. This is useful when you are rendering multiple effects.
• None	Disables the rendering completion sound. This is the default.
• Render Sound	Sets the rendering completion sound to a customized sound.
• System Beep	Sets the rendering completion sound to match the sound set for your operating system.
Motion Effects Render Using	Determines the processing method when existing motion effects are rendered or rerendered.
• Original Preference	Causes effects to be rendered as whatever type they were when originally created.
• Duplicated Field	Displays a single field in the effect. For two-field media, this reduces the information stored by half because it drops one field of the image, resulting in a lower quality image. For single-field media, this is usually the best choice because of its speed (the other options do not improve effect quality for single-field media).
	With JFIF resolutions, selecting this option causes the effect to render in the shortest amount of time. With DV and MPEG resolutions, the effect renders approximately as quickly as it would if you selected Both Fields as the rendering option.
• Both Fields	Displays both fields in the effect. For example, the first two frames of a half-speed (50%) slow-motion effect repeat the original Frame 1 (both fields) twice. This option is good for shots without inter-field motion, NTSC or PAL film-to-tape transfers, and still shots. With footage that includes inter-field motion, this method might result in minor shifting or bumping of the image because it disturbs the original order of fields: a Field 1 will appear both before *and* after the corresponding Field 2.
	The effect renders relatively quickly. For best results, you should use evenly divisible frame rates with this option.

Table 41   Render Settings Options (Continued)

Option	Description
• VTR-Style	Creates a second field for the effect by shifting selected video fields of the original media by a full scan line. This technique is similar to that used by high-quality professional video decks when playing footage at less than normal speed. This option also creates the motion effect at the field level rather than the frame level; however, because pixels are not filtered, the final image is sharper than that created by the Interpolated Field option. The image might display some slight jitter at certain speeds. The time needed to render effects created with this option is longer than the time for effects created using either Duplicated Field or Both Fields but similar to the time needed for Interpolated Field.
• Interpolated Field	Creates a second field for the effect by combining scan line pairs from the first field in the original media. This option calculates the motion effect at the field level rather than the frame level. Because Avid Xpress considers all fields and does not disturb the original order of fields, the smoothest effect results. Effects created using this option take the longest amount of time to render.

Safe Color Settings

Table 42   Safe Color Settings Options

Option	Description
Composite	Sets safe color values for the composite video signal.
Luminance	Sets safe color values based on brightness.
RGB Gamut	Sets safe color values based on color range.

Table 42　　Safe Color Settings Options (Continued)

Option	Description
Units buttons	Define the units of measurement for the three types of safe color values.
	The Composite Units pop-up menu allows you to select either **IRE** or **mVolts** (millivolts).
	The Luminance and RGB Gamut pop-up menus allow you to select from the following options:
	8 Bit — Measures the adjustment on a scale from 0 to 255.
	📄 *The RGB value for a color in the Color Correction tool will not be identical to the RGB value for the same color in a graphics application such as Adobe® Photoshop®. For example, the 8-bit RGB values for reference black and reference white are 16 and 235 respectively.*
	Percent — Measures the adjustment on a percentage scale from 0 to 100.
	IRE — Measures the adjustment in IRE units.
	mVolts — Measures the adjustment in millivolts.
Actions buttons	Define how the system implements the safe color settings. The top menu controls both the Composite and the Luminance limit types; the bottom menu controls the RGB Gamut limit type. Each Actions menu allows you to select from the following options:
	Ignore — The system does not limit based on these settings. This is the default setting.
	Warn — The system provides warnings when these limits are exceeded. For more information on safe color warnings, see "Understanding Safe Color Warnings" in the Help.

Script Settings

Table 43   Script Settings Options

Option	Description
Font	This option selects the font for imported scripts.
Size	This option selects the font size. The default is 12 points.
Left Margin (pixels)	This option specifies the left margin size. The default is 40 pixels.
Take Coloring	This option specifies the color that the Avid system will apply to takes.
Show Frames	When this option is selected, the system shows frames in take slates.
Show All Takes	When this option is selected, the system shows all takes in each slate. If you deselect this option, the Avid system displays only one take per slate.
Interpolate Position	When this option is selected, you can click in a take line within a script, and the image in the Source pop-up monitor updates to the approximate position in the take where you have clicked. If you deselect this option, the Source pop-up monitor does not respond when you click in a take line.
Hold Slates Onscreen	Set this option to keep the slates on the screen when you scroll through a script in the Script window. Each slate remains on the screen as long as the take lines to which it is linked remain on the screen.

Timeline Settings

See the following topics:

- Timeline Settings: Display Tab
- Timeline Settings: Edit Tab

Timeline Settings: Display Tab

Table 44   Timeline Settings Options (Display Tab)

Option	Description
Show Toolbar	Displays the Timeline top toolbar.
Show Marked Region	Highlights the region from the IN point to the OUT point.
Show Marked Waveforms	Shows waveforms drawn between an IN point and an OUT point instead of over the entire composition.
Show Four-Frame Display	

Timeline Settings: Edit Tab

Table 45   Timeline Settings Options (Edit Tab)

Option	Description
Start Filler Duration	Type the amount of filler you want to appear by default when you select Clip > Add Filler at Start.
Find Flash Frames Shorter Than n frames	Type the maximum number of flash frames you want the system to detect. The default is 10, which tells the system to detect clips with 9 frames or fewer. See "Finding Black Holes and Flash Frames" in the Help.

Table 45   Timeline Settings Options (Edit Tab) (Continued)

Option	Description
Auto-Patching	When this option is selected, the system automatically patches the enabled source tracks to the tracks enabled in the Timeline sequence.
Auto-Monitoring	When this option is selected, the track you patch to is monitored. This option is selected by default.
Segment Drag Sync Locks	When this option is selected and sync locks are enabled, you can move segments in the Timeline and maintain sync between audio and video. After moving a segment in the Timeline, this option maintains sync by adding filler to the location from which the segment was moved, and to the location on all other sync-locked tracks that corresponds to the new location of the segment you moved. You can move either an audio clip or a video clip.
Default Snap-To Edit	Allows a clip, when dragged from a bin to the Timeline, to either snap to a transition point or move freely on the track. If the option is selected, the clip snaps to an existing transition endpoint. If the option is deselected, the clip moves freely to any position on the track.
Dupe Detection Handles	Select the size of the handles, in frames, to use for dupe checking. The chosen number of frames is added at the beginning and the end of each clip before checking for overlap. The handles are used only for internal calculations.

Trim Settings

Table 46   Trim Settings

Setting	Description
Play Loop Preroll	Click the text box and type the value you want.
Play Loop Postroll	Click the text box and type the value you want.
Play Loop Intermission	Click the text box and type the value you want.

Video Display Settings

Table 47   Video Display Settings Options

Option	Sub-option	Description
DV device supports digital video input	Send video to DV device (client monitor enabled)	Select this option and sub-option to send video to the client monitor.
	Don't send video to DV device (client monitor disabled)	
Seconds of Video to Pre-Fill:	n seconds	Type the number of seconds by which to delay playback. By accepting a delay at the beginning of playback, you increase the likelihood that the system will play the material successfully. The maximum delay is 10 seconds.
Open GL Hardware: Preview DVE effects with:	Video boards installed on your system	Select the Open GL board for your video display
	Software Open GL	Select if you do not have an Open GL video board
Enable Confidence View (also called passthrough)	—	Enable confidence view if you want to view incoming or outgoing media in the Record monitor as you are capturing media or creating a digital cut.
Maximum Real Time Streams	Stream Limit n	Select the number of video streams you want to display in the Record monitor at a time.
		More streams uses more processing cycles and might cause the video to play choppy.

Workspace Settings

Table 48   Workspace Settings

Setting	Description
Activate Settings Linked By Name	Select this option to link other settings to the workspace.
Continually Update This Workspace	Select this option to automatically preserve the workspace in its most recent arrangement. Future changes to the arrangement of the tool windows are saved.
Manually Update This Workspace	Select this option to save the workspace in its current arrangement when you click Save Workspace Now (which appears only after you select Manually Update This Workspace). Future changes to the arrangement of the tool windows are disregarded unless you return to the Workspace Settings dialog box and click Save Workspace Now again.

Chapter 2

Using AudioSuite Plug-Ins

This appendix describes how to access and use the AudioSuite plug-ins, including the set of core plug-ins that comes with your Avid system. It also provides a list of other plug-ins that are supported by this version.

These topics are covered in the following sections:

- Accessing the AudioSuite Plug-Ins
- Core AudioSuite Plug-Ins
- Description of Core AudioSuite Plug-Ins
- Additional Supported Plug-Ins

Accessing the AudioSuite Plug-Ins

To access the plug-ins:

▶   Select Tools > AudioSuite.

The following illustration shows the AudioSuite window.

Plug-in Selection pop-up menu

Drive Selection pop-up menu

Status display
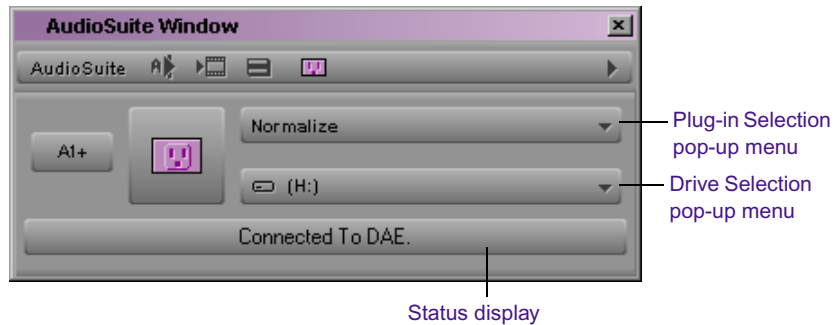
For details on installing and accessing the plug-ins, see "Understanding Digidesign Audio Suite Plug-Ins" in the Help.

Core AudioSuite Plug-Ins

The following basic plug-ins are installed automatically as part of the Avid system software installation:

- Invert — Inverts the polarity (phase of the audio file).

- Duplicate — Creates a new master clip from a selected audio clip. The plug-in uses the IN and OUT points on the selected clip to define the boundaries of the new clip.

- Normalize — Finds the peak value in the source audio file and scales the entire file proportionally to that maximum value.

- Gain — Same as Normalize, but allows positive or negative gain adjustment.

- Reverse — Rewrites the selected audio in reverse.

- Signal Generator — Produces audio test tones in a variety of frequencies, waveforms, and amplitudes.

- DC Offset Removal — Removes an audio artifact that is common in digital audio files. A DC offset is caused by poorly calibrated analog-to-digital converters (A/Ds), and can produce clicks and pops on clip edit transitions if not removed.

- Time Compression Expansion — Allows you to adjust the duration of a selected clip by creating a new master clip. This increases or decreases the selection's length without changing pitch.

- Pitch Shift — Changes pitch with or without changing length.

- EQ — Allows you to adjust frequency equalization on individual audio clips.

- Compressor — Reduces the dynamic range of signals that exceed a selected threshold by a specific amount.

- Limiter — Prevents signal peaks from exceeding a chosen level so that they don't overload amplifiers or recording devices.

- Gate — Reduces noise by decreasing the gain of signals that fall below a user-selectable threshold.

- Expander/Gate — Performs the same function as the Gate plug-in with the addition of expander features. Expanders are particularly useful for reducing noise or signal leakage that creeps into recorded material as the signal level falls, which often occurs with headphone leakage.

- Mod Delay — Provides time-delay-based effects. Effects obtained through the use of Mod Delay include slap echo, doubling, chorusing, and flanging.

For a brief overview of each plug-in and, where appropriate, a description of how to use the plug-in, see "Description of Core AudioSuite Plug-Ins" on page 94.

Description of Core AudioSuite Plug-Ins

The following sections give a brief overview of each plug-in and, where appropriate, describe how to use the plug-in.

Invert

The Invert plug-in reverses the polarity of the selected audio. All positive sample amplitude values are made negative, and all negative amplitudes are made positive. This process is useful for permanently altering the phase (polarity) relationship of tracks. Inverting can be useful when mixing because it alters frequency response between source tracks recorded with multiple microphones and also allows you to correct for audio that was recorded out of phase.

Duplicate

The Duplicate plug-in creates a new master clip from a selected audio master clip. The plug-in uses the IN and OUT points on the selected clip to define the boundaries of the new clip. This plug-in applies only if you are using the Create New Master Clips feature of the AudioSuite plug-ins.

Normalize

In cases where a sound file has been recorded with too little amplitude, the Normalize plug-in ensures that the inherent dynamics of the performance remain unchanged while the overall volume level of the passage is raised.

In addition to the standard AudioSuite parameters, the Max Peak At controls let you specify how close to maximum level (the clipping threshold) the peak level of your selection or file will be boosted.

To enter this information, do one of the following:

▶ Enter a numeric decibel value below the clipping threshold.

▶ Enter a percentage of the threshold.

▶ Adjust the on-screen slider.

Editing any of these controls automatically calculates the equivalent value in the others.

To configure the Normalize parameters:

1. Type the amount of boost you want applied during the Normalize process.

2. To set a specific decibel amount below maximum, double-click and type that value in the Max Peak at (dB) text box.

3. To set the amount of normalization as a percentage of maximum, type the percentage you want in the Max Peak at (%) text box. To manually set the amount, click and adjust the Max Peak slider [press and hold the Ctrl key (Windows) or the ⌘ key (Macintosh), and then click the slider and drag it to fine-adjust].

Gain

Gain allows you to boost or lower amplitudes in a file or selection by a specified amount. The Change Gain command is ideal for smoothing out undesirable peaks and other dynamic inconsistencies.

To configure the Gain parameters, do one of the following:

▶ Enter the new level as a decibel amount (dB) or percentage (%) by double-clicking in the respective text box and typing a new value.

▶ Use the slider to adjust the gain manually [press and hold the Ctrl key (Windows) or the ⌘ key (Macintosh), and then click the slider and drag it to fine-adjust].

Reverse

Reversed sounds are useful effects in many music and film and video projects. The Reverse plug-in lets you perform this type of processing very easily.

Signal Generator

The Signal Generator plug-in produces audio test tones in a variety of frequencies, waveforms, and amplitudes. The plug-in has the following options:

- **Frequency:** This option sets the frequency of the signal in hertz. Values range from a low of 20 Hz to a high of 20 kHz.

- **Level:** This option sets the amplitude of the signal in decibels. Values range from a low of –95 dB to a high of 0.0 dB.

- **Signal:** These buttons allow you to select the waveform. The waveform choices are sine, square, sawtooth, triangle, white noise, and pink noise.

The Signal Generator produces a tone as soon as it is inserted on a track. To mute the tone, use the Bypass button.

DC Offset Removal

The DC Offset Removal plug-in removes DC offset from your audio files. The term "DC offset" describes a specific type of audio artifact that might appears in digital audio signals.

The DC Offset Removal plug-in can be identified in a waveform overview because it appears to have a near-vertical fade-in with a constant or "steady-state" offset from zero when the file is actually "silent" (it contains no audible audio). The DC Offset Removal plug-in can help remove (or at least reduce) the DC offset from your source audio files.

Time Compression Expansion

The Time Compression Expansion plug-in allows you to adjust the duration of any selected regions by increasing or decreasing the selection's length without changing pitch. This function is particularly important in audio postproduction applications because it allows you to adjust sounds to specific time lengths or timecode durations for synchronization.

📋 *To change duration (length) and pitch simultaneously, use the Pitch Shift plug-in.*
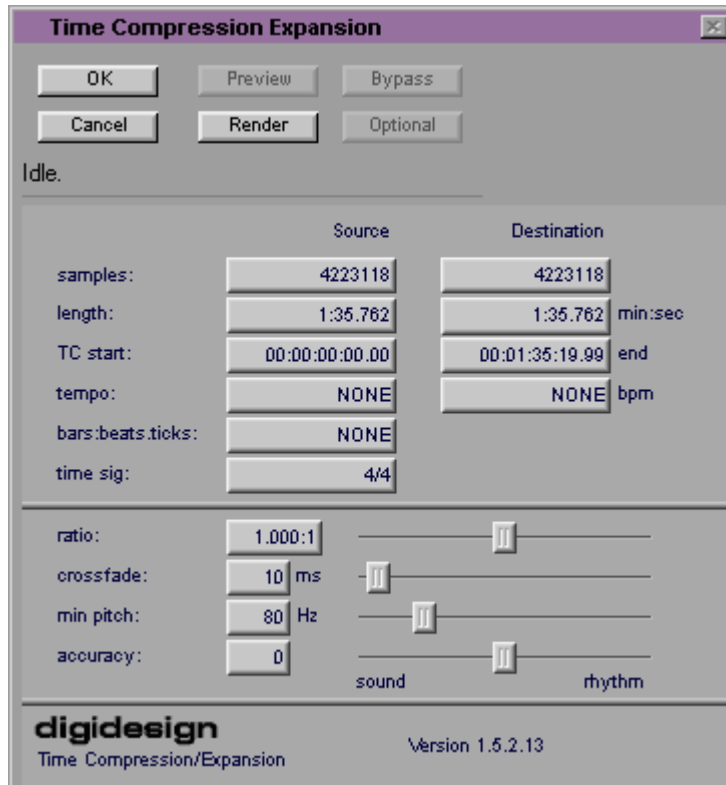
Master Clip Mode Parallel Processing

The Time Compression Expansion plug-in allows two tracks to be time-compressed or expanded as a "stereo pair," so that the two sides of the stereo signal are processed relative to each other.

The Time Compression Expansion plug-in has special parameters that let you enter time compression or expansion values in different formats, as explained below. They are located in the Source and Destination columns and also include the Ratio slider. Additional controls for fine-tuning the compression and expansion process are also included.

To use the special control features:

- Press and hold the Ctrl key (Windows) or the ⌘ key (Macintosh) to engage slider fine-tune mode.

- Alt+click (Windows) or Option+click (Macintosh) a field or slider to reset its default value.

Time Compression Expansion Parameters

The Time Compression Expansion plug-in has the following parameters:

Source and Destination

The Source text boxes display the length of the current selection before processing in each of the listed formats. All the text boxes in both columns are constantly active, and a change made to one value is immediately reflected in the values displayed in the other text boxes.

The text boxes in the Destination column display and control the length of the selection after processing by using the current settings. You can enter the length of the Destination file by double-clicking the appropriate text box in the Destination column. Type the number of samples in min:secs:msec format or type timecode values as start and end locations. All the Destination text boxes are constantly updated, and a change made to one value is immediately reflected in the values displayed in the other text boxes.

You can also enter a new tempo, bars:beats:ticks length, or time signature for regions that have tempo or Bars & Beats settings. This can be any region associated with a MIDI Metronome value (such as an overdub recorded to a MIDI click) or regions that have been processed with the Pro Tools Identify Beat command.

The Ratio slider lets you set the destination length in relation to the source length. Dragging the slider to the right increases the length of the destination file, and dragging the slider to the left decreases its length.

The controls below the bar line allow you to fine-tune the time compression and expansion process. They include the Crossfade, Min Pitch, and Accuracy sliders.

Crossfade

The Crossfade slider allows you to manually adjust the crossfade length in milliseconds to optimize performance of the Time Compression Expansion plug-in according to the type of audio material you are processing. The Time Compression Expansion plug-in achieves length modification by replicating or subtracting very small portions of audio material and very quickly crossfading between these alterations in the waveform of the audio material.

Crossfade length essentially affects the amount of smoothing performed on audio material to prevent audio artifacts such as clicks. In general, small narrow-range time (length) changes require longer crossfades while larger changes in length require shorter crossfades. The disadvantage of long crossfade times is that they smooth the signal, including any transients. While this can be desirable for audio material such as vocals, it is not appropriate for material with sharp transients such as drums or percussion.

The default setting for this parameter is Auto (leftmost position), in which crossfade times are set automatically according to the percentage of change in length for the current process. This setting should be sufficient for most applications; however, you can use this slider to manually adjust and optimize crossfade times, if necessary. For audio material with sharper attack transients, use shorter crossfade times. For audio material with softer attack transients, use longer crossfade times. The slider has a range of 0 ms to 200 ms.

Min Pitch

The Min Pitch slider lets you select the minimum (lowest) pitch that will be used in the plug-in's calculations during the time compression expansion process. The slider has a range of 40 Hz to 1000 Hz. By controlling the minimum pitch, you can focus the time compression and expansion process for maximum efficiency — it all depends on the audio's spectral shape.

This slider should be set lower when you process bass guitar or another instrument with a similarly low range. Set the min pitch higher when processing instruments such as snare drums, violins, and other higher range instruments and sounds. Experiment with combinations of the other fine-tune controls in relation to the Min Pitch slider.

Accuracy

Use the Accuracy slider to prioritize the processing resources allocated to audio quality (sound) or timing (rhythm). Dragging the slider toward sound generally results in better sonic quality and fewer audio artifacts. Dragging the slider toward rhythm puts the emphasis on keeping the tempo consistent. When working with loops, listen carefully and adjust accuracy until you find the setting that keeps timing solid within the region. Start and end times will be precise, but the perception of beats may be "shuffled" if the Accuracy slider's rhythm setting is too low.

⚠ **The smallest time ratio allowed for time compression and expansion is 0.25. The largest time ratio allowed is 4.0.**

▤ *Normalizing a selection before applying time compression and expansion can sometimes produce better-sounding results.*

Pitch Shift

The Pitch Shift plug-in allows you to adjust the pitch of any source audio file with or without a change in its duration. This powerful function allows sounds to be transposed a maximum of a full octave up or down in pitch with or without altering playback speed.
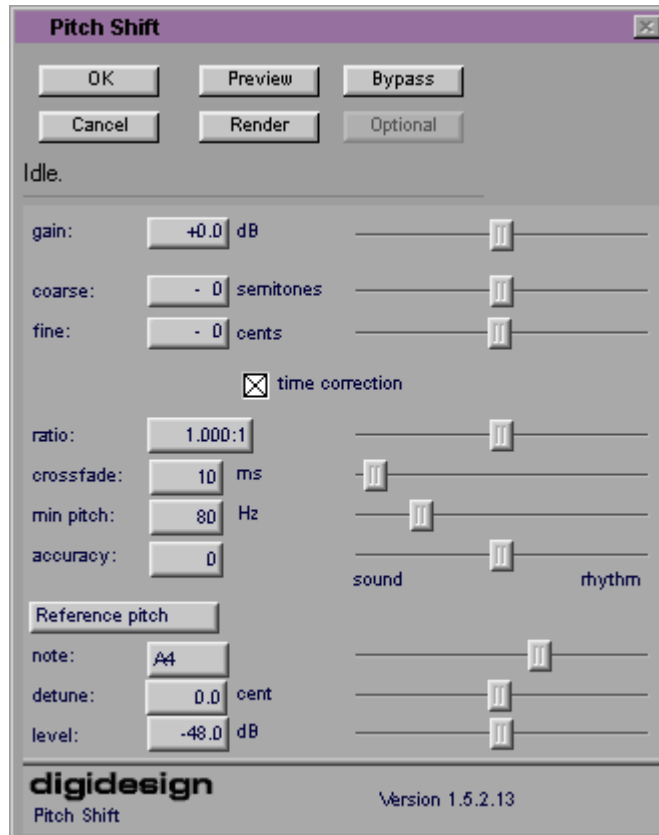
Edit the Pitch Shift parameters by double-clicking and typing in any parameter text box or by clicking and dragging the sliders. All Pitch Shift plug-in controls are linked, so that changing one changes the others.

Pitch Shift Parameters

The Pitch Shift plug-in has the following parameters:

Gain

The Gain controls set the input level, in tenths of a decibel. The input level should be set so that the plug-in can adequately handle amplitude peaks in the selection. Dragging the slider to the right increases gain, and dragging the slider to the left decreases gain.

Coarse and Fine

Adjust the pitch by dragging either of the two faders, or by typing values in the Coarse and Fine text boxes. The Coarse slider transposes in semitones (half steps); the Fine slider transposes in cents (hundredths of a semitone).

Time Correction

Clicking the Time Correction check box allows you to enable or disable time correction.

⚠ **You can deselect the Time Correction check box if you are using the Create New Master Clips feature of the AudioSuite plug-ins. The Time Correction check box must be selected, however, when you are applying AudioSuite plug-ins to audio clips in the Timeline.**

If the Time Correction check box is deselected, it will have the effect of "permanently varispeeding" your audio file. Like working with tape, the file's duration will be compressed or extended according to the settings of the Coarse and Fine controls. Playback speed will increase proportionally as the sound file is transposed up in pitch and decrease proportionally as it is transposed down in pitch, just like a tape recorder that is varispeeding.

Keep in mind that altering a file in this way has little detrimental effect on the fidelity of audio files, whereas time correction can affect fidelity in a pronounced way.

Ratio

The Ratio slider lets you set the amount of transposition (pitch change). Moving the slider to the right raises the pitch of the processed file, and moving the slider to the left decreases its pitch. Press and hold the Ctrl key (Windows) or the ⌘ key (Macintosh), and then click the slider and drag it to fine-adjust.

📄 *For a description of the Crossfade, Min Pitch, and Accuracy sliders, see .*

Reference Pitch

The Reference Pitch feature generates a sine wave tone that you can adjust to match a selected portion of audio material and then use as an audible reference when pitch-shifting other audio material in your session.

To use the Reference Pitch feature:

1. Select the audio material you want to use as a pitch reference. Click the Preview button to begin playback of the selected audio.

2. Click the Reference Pitch button to activate the reference sine wave tone.

3. Adjust the note and detune settings to match the reference tone to the pitch of the audio playback. Adjust the level setting to change the relative volume of the reference tone. It might also be helpful to switch the Reference Pitch on and off to compare pitch.

4. Select the audio material to be pitch shifted.

5. Adjust the Coarse and Fine sliders to match the pitch of the audio playback to the reference pitch.

EQ

There are two EQ plug-ins:

• 1-Band EQ II

• 4-Band EQ II

The EQ II plug-ins provide an enhanced "British EQ" sound that is favored by contemporary audio engineers and producers.

EQ II Parameters

The EQ II plug-ins have the following parameters:

Input

Allows you to control the input gain of the EQ to prevent the possibility of clipping.

Phase Invert

Allows you to invert the phase (polarity) of the input signal to change frequency response between multi-miked sources (a common technique for miking a guitar amplifier) or to correct for miswired microphone cables.

Type

Allows you to select an EQ type (High-Pass, Low-Shelf, Peak, High-Shelf, or Low-Pass).

Gain

(Peak, High-Shelf, and Low-Shelf only) Allows you to control the amount that the selected frequencies are cut or boosted.

Freq

Allows you to designate the center of the frequency region to be cut or boosted.

Q

(Peak only) Allows you to set the bandwidth of the Peak filter. Higher values represent narrower bandwidths. Lower values represent wider bandwidths.

Bypass

Bypasses the EQ. The 4-Band EQ II has individual Bypass buttons for each band (black buttons with EQ curve icons).

High-Pass

Attenuates all frequencies below the selected cutoff frequency setting at a rate of 12 dB per octave while allowing all others above the frequency to pass through. For this reason, no gain control is available for this filter. High-pass filters can be useful for removing low-frequency rumble or thinning out the lower end of a sound for special effects, such as a "telephone simulation" effect.

Low-Shelf

Produces a lift or a cut below the specified frequency.

Peak

Boosts or cuts only those frequencies around the selected center frequency. The Q button sets the bandwidth of the Peak filter, which determines the width of the filter's overall slope — from a broad "bell" shape to a narrow notch. Broad curves tend to be most useful for musical applications. Narrow curves are useful for special-purpose processing such as hum removal. Higher values represent narrower bandwidths. Lower values represent wider bandwidths.

High-Shelf

Produces a lift or a cut at the specified frequency and above it.

Low-Pass

Attenuates all frequencies above the selected cutoff frequency setting at a rate of 12 dB per octave while allowing all others below the frequency to pass through. For this reason, no gain control is available for this filter.

Compressor

The Compressor plug-in reduces the dynamic range of signals that exceed a selected threshold by a specific amount. The increase of input signal needed to cause a 1-dB increase in the output signal of the compressor is called the compression ratio. With a ratio of 4:1, for example, an 8-dB increase of input produces a 2-dB increase in the output.

Audio material often varies in loudness, and can be above the threshold at one moment and below it the next. The Attack slider sets the Compressor's response time, or attack. The Release slider sets the amount of time that it takes for the Compressor's gain to return to its original level.

Using Compression Effectively

To use compression most effectively, the attack time should be set so that signals exceed the threshold level long enough to cause an increase in the average level. This helps to ensure that gain reduction doesn't decrease the overall volume.

Release times should be set long enough so that if signal levels repeatedly rise above the threshold, they cause gain reduction only once. If the release time is too long, a loud section of the audio material could cause gain reduction that persists through a soft section. Of course, compression has many creative uses that break these rules.

The Compressor has built-in metering that allows you to monitor the amount of gain reduction taking place. The Gain Reduction meter usually remains at 0 level when the input signal is below the threshold, and falls to the left to show the amount of gain reduction in decibels when the input signal exceeds the threshold.

Compressor Parameters

The Compressor plug-in has the following parameters:

Input Meter

Indicates the level of the unprocessed input signal to the Compressor.

Output Meter

Indicates the output level of the Compressor, including any gain compensation added via the Gain parameter.

Reduction

Indicates the amount of gain reduction in dB.

Phase Invert

Allows you to invert the phase (polarity) of the input signal to change frequency response between multi-miked sources or to correct for miswired microphone cables.

Gain

Provides overall output gain adjustment. It allows you to compensate for heavily compressed signals.

Threshold

Allows you to set the threshold level. Signals that exceed this level will be compressed. Signals that are below it will be unaffected. A level setting of 0 dB is equivalent to no compression. Unlike scales on analog compressors, metering scales on a digital device reflect a 0-dB value, which indicates full scale (fs) — the full-code signal level. There is no headroom above 0 dB.

Ratio

Allows you to set the compression ratio. The range is based on decibels above the threshold. If this parameter is set to 2:1, for example, it will compress changes in signals above the threshold by one half.

Attack

Allows you to set the Compressor's attack time. The smaller the value, the faster the attack. The faster the attack, the faster the Compressor applies attenuation to the signal. In general, if you use fast attack times and heavy limiting, you should use a proportionally longer release time, particularly with material that contains many peaks in close proximity.

Release

Allows you to control how long it takes for the Compressor to be fully deactivated after the input signal drops below the threshold level. In general, if you use heavy compression, you should use proportionally longer release times. This will prevent pumping, which may occur when

the Compressor is forced to jump back and forth between compressed and uncompressed signal levels. Lengthening the release time will help smooth these changes in level by introducing a lag in the ramp-up and ramp-down times of attenuation. Use shorter release times on material with few peaks that do not occur in close proximity to each other.

Knee

Allows you to set the rate at which the compressor reaches full compression once the threshold has been exceeded. This parameter ranges from 0 (hardest response) to 200 (softest response).

Graph

Displays the response curve set by the Compressor's Threshold, Ratio, and Knee settings. As you adjust these parameters, refer to the graph to see how the shape of this curve changes. It allows you to see the effect of your settings.

External Key

This parameter has no effect on the AudioSuite plug-ins.

Key Listen

This parameter has no effect on the AudioSuite plug-ins.

Limiter

The Limiter plug-in is used to prevent signal peaks from exceeding a chosen level so that they don't overload amplifiers or recording devices. Most limiters have ratios of 10:1 or 20:1, although some provide ratios of up to 100:1. Large ratios effectively limit the dynamic range of the signal to a specific value by setting an absolute ceiling for the dynamic range.

Limiting is used to prevent short-term peaks from reaching their full amplitude. Used carefully, limiting allows you to achieve higher average levels while avoiding overload (clipping or distortion) by limiting some short-term transients in the source audio. To prevent the ear from hearing the gain changes, use extremely short attack and release times.

Limiting is used to remove occasional peaks because gain reduction on successive peaks wouldn't be noticeable. If audio material contains many peaks, the threshold should be raised and the gain manually reduced so that only occasional, extreme peaks are limited.

The Limiter's ratio is internally set to 100:1, and the attack time is automatically set to 0 milliseconds. The Limiter is similar to heavy compression. It can be useful for reducing pops and clicks, or for hard-limiting dynamic range for broadcast or band-limited media such as cassette.

Limiter Parameters

The Limiter plug-in has the following parameters:

Input Meter

Indicates the level of the unprocessed input signal to the Limiter.

Output Meter

Indicates the output level of the Limiter, including any gain compensation added via the Gain parameter.

Reduction

Indicates the amount by which the signal is being attenuated.

Phase Invert

Allows you to invert the phase (polarity) of the input signal to change frequency response between multi-miked sources or to correct for miswired microphone cables.

Gain

Provides overall output Gain adjustment.

Threshold

Allows you to set the threshold level. Signals that exceed this level will be limited. Signals that are below it will be unaffected.

Attack

Allows you to set the Limiter's attack time. The smaller the value, the faster the attack. The faster the attack, the faster the Limiter applies attenuation to the signal. In general, if you use fast attack times and heavy limiting, you should use a proportionally longer release time, particularly with material that contains many peaks in close proximity.

Release

Allows you to control how long it takes for the Limiter to be fully deactivated after the input signal drops below the threshold level. In general, if you use heavy limiting, you should use proportionally longer release times.This will prevent pumping, which may occur when the Limiter is forced to jump back and forth between limited and unlimited signal levels. Lengthening the release time will help smooth these changes in level by introducing a lag in the ramp-up and ramp-down times of attenuation. Use shorter release times on material with few peaks that do not occur in close proximity to each other.

Graph

Displays the response curve set by the Limiter's Threshold setting. As you adjust this parameter, refer to the graph to see how the shape of this curve changes. It allows you to see the effect of your settings.

External Key

This parameter has no effect on the AudioSuite plug-ins.

Key Listen

This parameter has no effect on the AudioSuite plug-ins.

Gate

The Gate plug-in reduces noise by decreasing the gain of signals that fall below a user-selectable threshold.

Gate Parameters

The Gate plug-in has the following parameters:

Phase Invert

Allows you to invert the phase (polarity) of the input signal to change frequency response between multi-miked sources or to correct for miswired microphone cables.

Gating (Reduction Meter)

Indicates the amount of reduction in dB.

Threshold

Allows you to set the threshold level. Signals that exceed this level will pass through. Signals that are below it will be gated, depending on the settings of the Attack, Hold, Decay, and Range parameters (explained below).

Attack

Allows you to set the attack time of the Gate.

Hold

Allows you to specify a duration (in seconds or milliseconds) that the Gate will stay open after the initial attack cycle. This parameter can be used as a one-time function to keep the Gate open for longer periods of time with a

single crossing of the threshold. It can also be used to prevent gate chatter, which may occur if varying input levels near the threshold cause the Gate to open and close very rapidly.

Decay

Allows you to control how long it takes for the Gate to close after the signal falls below the threshold level.

Range

Sets the depth of the Gate when closed. This parameter has a maximum depth of –80 dB. Setting the Gate to higher range levels allows more of the gated audio that falls below the threshold to peek through the gate at all times. This is useful for problems such as drum leakage, where you might want to suppress the overall drum kit sound by a specific amount while emphasizing the gated instrument such as a snare.

Graph

Displays the response curve set by the Gate's Threshold and Range settings. As you adjust these parameters, refer to the graph to see how the shape of this curve changes. It allows you to see the effect of your settings.

External Key

This parameter has no effect on the AudioSuite plug-ins.

Key Listen

This parameter has no effect on the AudioSuite plug-ins.

Expander/Gate

The Expander/Gate plug-in reduces noise by decreasing the gain of signals that fall below a user-selectable threshold. Expanders are particularly useful for reducing noise or signal leakage that creeps into recorded material as the signal level falls, which often occurs with headphone leakage.

Expanders can be thought of as soft-noise gates because they provide a gentler way of cutting off noisy low-level signals than the typically abrupt cutoff of a gate. If you want, however, you can use this plug-in as Gate by setting the Ratio to its maximum value and using short Attack, Decay, and Hold settings.

Expander/Gate Parameters

The Expander/Gate plug-in has the following parameters:

Phase Invert

Allows you to invert the phase (polarity) of the input signal to change frequency response between multi-miked sources or to correct for miswired microphone cables.

Reduction Meter

Indicates the amount of signal reduction in dB.

Threshold

Allows you to set the threshold level. Signals that fall below the threshold will be reduced in gain. Signals that are above it will be unaffected. (When adjusting the Threshold slider, be sure that audio material is playing through the Expander/ Gate to see changes reflected in the Reduction meter.)

Ratio

Allows you to set the amount of expansion. If this parameter is set to 2:1, for example, it will lower signals below the threshold by one half. At higher ratio levels (30:1 or 40:1, for example), the Expander/Gate functions as a gate by reducing lower level signals dramatically. As you adjust the Ratio parameter, refer to the built-in graph to see how the shape of the expansion curve changes.

Attack

Allows you to set the Expander's attack time. This parameter determines how quickly a signal's level is reduced once it falls below the threshold. This setting, along with the Ratio setting, allows you to control how soft the Expander's gain reduction curve is.

Hold

Allows you to specify a duration (in seconds or milliseconds) that the Expander/Gate will stay open after the initial attack cycle. This parameter can be used as a one-time function to keep the Expander/Gate open for longer periods of time with a single crossing of the threshold. It can also be used to prevent gate chatter, which may occur if varying input levels near the threshold cause the Gate to open and close very rapidly.

Decay

Allows you to control how long it takes for the Gate to close after the input signal falls below the threshold level and the hold time has passed.

Range

Sets the depth of the Gate when closed. This parameter has a maximum depth of –80 dB. Setting the Gate to higher range levels allows more of the gated audio that falls below the threshold to peek through the Gate at all times.

Key HPF

This parameter has no effect on the AudioSuite plug-ins.

Key LPF

This parameter has no effect on the AudioSuite plug-ins.

Graph

Displays the response curve set by the Expander/Gate's Threshold, Ratio, and Range settings. As you adjust these parameters, refer to the graph to see how the shape of this curve changes. It allows you to see the effect of your settings.

External Key

This parameter has no effect on the AudioSuite plug-ins.

Key Listen

This parameter has no effect on the AudioSuite plug-ins.

Mod Delay

The Mod Delay plug-ins provide time-delay-based effects. Effects obtained through the use of Mod Delay include slap echo, doubling, chorusing, and flanging.

There are four Mod Delays, each of which is capable of a different maximum delay time:

- *Short Delay* provides 1024 samples of delay (23.2 ms at 44.1 kHz or 21.3 ms at 48 kHz).

- *Slap Delay* provides 7186 samples of delay (162 ms at 44.1 kHz or 149 ms at 48 kHz).

- *Medium Delay* provides 16384 samples of delay (371 ms at 44.1 kHz or 341 ms at 48 kHz).

- *Long Delay* provides 162474 samples of delay (3.68 seconds at 44.1 kHz or 3.38 seconds at 48 kHz).

Mod Delay Parameters

The Mod Delay plug-ins have the following parameters:

Input

Allows you to control the input volume of the delay to prevent clipping.

Wet/Dry

Allows you to control the balance between the delayed signal and the original signal. If you are using a delay for flanging or chorusing, you can control the depth of the effect somewhat with the Wet/Dry setting.

LPF (Low-Pass Filter)

Controls the cutoff frequency of the low-pass filter. This parameter allows you to attenuate the high-frequency content of the feedback signal. The lower the setting, the more high frequencies are attenuated.

Delay

Allows you to set the delay time between the original signal and the delayed signal.

Depth

Allows you to control the depth of the modulation applied to the delayed signal.

Rate

Allows you to control the rate of modulation of the delayed signal.

Feedback

Allows you to control the amount of feedback applied from the output of the delay back into its input. It also controls the number of repetitions of the delayed signal. Negative Feedback settings give a more intense "tunnel-like" sound to flanging effects.

Additional Supported Plug-Ins

The following AudioSuite plug-ins can be purchased separately and have been qualified for this version:

- Digidesign Intelligent Noise Reduction (DINR) — Broadband Noise Reduction (BNR)

- Focusrite d3

- Maxim

- Digidesign D-Fi

These plug-ins come with their own documentation. For more information, go to www.digidesign.com.

Digidesign Intelligent Noise Reduction (DINR) — Broadband Noise Reduction (BNR)

The BNR feature of the Digidesign Intelligent Noise Reduction™ (DINR™) plug-in provides broadband and narrow-band noise reduction for suppressing unwanted elements such as tape hiss, air-conditioning rumble, and microphone preamplifier noise.

Focusrite d3

Focusrite® d3 is a high-quality, dynamics processor plug-in that contains a compressor and a limiter. The d3 compressor reduces the dynamic range of audio signals that exceed a user-selectable threshold by a specific amount. The d3 does this by reducing output levels when input levels increase above the threshold.

The d3 limiter operates as a fast-attack compressor with a high compression ratio. Like the compressor, the limiter is activated when the signal exceeds a user-selectable threshold. The limiter then compresses any signal above the selected threshold to the lower threshold limit that you have set.

There are two versions of the plug-in:

- *ff d3 Mono*, which operates on channels (tracks) separately.

- *ff d3 Stereo*, which operates on a composite of the two channels of the stereo signal. It prevents image shift when signal levels differ between the two channels.

Maxim

The Maxim™ plug-in performs peak limiting and sound maximizing. Maxim takes advantage of the random-access nature of disk-based recording to anticipate peaks in audio material and preserve their transient attacks when performing reduction. It helps to preserve the character of the original audio signal without clipping peaks or introducing distortion.

Digidesign D-Fi

The set of D-Fi™ plug-ins provides analog synthesizer effects:

- *Lo-Fi*™ adds noise generation, bit-rate reduction, distortion, and saturation to sound.

- *Sci-Fi*™ adds analog synthesizer-type ring modulation, frequency modulation, and variable frequency resonator.

- *Recti-Fi*™ generates new harmonics and subharmonics through waveform rectification.

- *Vari-Fi*™ adds tape and turntable "start up" and "slow down" effects.

Chapter 3

Using an External Fader Controller or Mixer

This appendix describes how your Avid system supports the following external fader controllers or mixer for Audio Gain Automation recording:

- *JL Cooper FaderMaster Pro MIDI automation controller*. This low-cost unit allows you to make fine adjustments to audio clips. This unit does not support "flying faders," which means that the faders don't move automatically as you record audio gain information and they must be zeroed manually prior to recording. For information on setting the faders manually, see "Position Indicator Lights" in the Help.

- *JL Cooper MCS-3000X MIDI automation controller*. This unit supports touch-sensitive flying faders. While recording gain, the faders automatically move. You can grab a fader and move it during an automation gain recording to quickly punch in a small change in volume.

- *Yamaha 01V digital mixing console*. This unit is a full-feature digital mixer that also supports Audio Gain Automation with flying faders. The faders are not touch sensitive. The Avid system uses the MIDI controller portion of the Yamaha 01V mixer for automation gain control.

📄 *An external fader controller or mixer is optional. It is not required to perform Audio Gain Automation recording.*

Table 49 compares the external fader controllers and mixer.

Table 49   External Fader Controller and Mixer Features

Feature	FaderMaster Pro	MCS-3000X	Yamaha 01V
Record gain	Yes	Yes	Yes
Flying faders	No	Yes	Yes
Touch-sensitive faders	No	Yes	No
Solo/mute	Yes	Yes	Yes[a]
Supports audio mixing	No	No	Yes
Snap mode	No	Yes	No
Number of steps of accuracy between 0 – max	127	1023	255

a. Solo works only if you don't use the unit for audio mixing.

The following list provides additional information on touch sensitivity and Snap mode:

*   **Touch sensitivity:** As soon as you touch a moving fader on the MCS-3000X, the unit passes control of the fader to you. For more information, see "MCS-3000X Buttons" on page 128.

    On the Yamaha 01V, you must press the fader's On button to gain control of a moving fader. For a description of how to control the faders on the Yamaha 01V, see "Operational Notes for the Yamaha 01V" on page 134.

*   **Snap mode:** In Snap mode, the fader controller automatically stops recording as soon as you release the fader. In addition, the fader continues to display the volume information in the Timeline. For more information, see "Using the Snap Mode Feature on the MCS-3000X" on page 129.

For more information on using these external fader controllers or mixer, see "Recording Automation Gain Information" in the Help.

Configuring the USB-to-MIDI Software

The setup guide for your Avid system describes how to connect a fader controller to your Avid system. This section describes how to complete the connection by installing the USB-to-MIDI software and by configuring the software to recognize your fader controller.

The term fader controller applies to the following controllers:

- JL Cooper FaderMaster Pro MIDI automation controller
- JL Cooper MCS-3000X MIDI automation controller
- Yamaha 01V digital mixing console

Avid supports the MIDIMAN™ MIDISPORT™ 2x2 USB-to-MIDI converter.

⚠ **To reduce traffic on the USB, connect the USB-to-MIDI converter only if you need to use the JL Cooper FaderMaster Pro, JL Cooper MCS-3000X, or Yamaha 01V fader box.**

Installing USB-to-MIDI Software (Windows)

To install the MIDISPORT 2x2 driver software:

1. Make sure the MIDISPORT 2x2 USB-to-MIDI converter is *not* connected to the system. When you are ready to load the drivers, you will use a USB connector to connect the MIDISPORT 2x2 USB-to-MIDI converter to your Avid system.

2. Download the latest MIDISPORT 2x2 drivers from the following Web site:

   www.m-audio.com

   The system downloads a compressed, executable file.

3. Double-click the downloaded file to uncompress the driver files to a floppy disk or to a folder on your Avid system.

4. Double-click the Install.txt file included with the downloaded files. This file contains the instructions for loading the drivers.

5. To initiate the driver installation, use a USB connector to connect the MIDISPORT 2x2 USB-to-MIDI converter to the system. It is not necessary to connect the external fader to the MIDISPORT 2x2 device.

   The system automatically detects that a new device has been connected and opens the Found New Hardware Wizard dialog box.

6. Follow the instructions in the Install.txt file.

> *If you uncompressed the files to a folder on your system, two drivers might appear in the list. Choose either one.*

Installing USB-to-MIDI Software (Macintosh)

> *The Mac OS X operating system contains automatic support for USB-to MIDI devices.*

To install the MIDISport 2x2 driver software:

1. Download the latest MIDISPORT 2x2 drivers from the following Web site:

   www.m-audio.com

   The system downloads a compressed, executable file.

2. Double-click the downloaded file to uncompress the driver files to a floppy disk or to a folder on your Avid system.

3. Double-click the installer file.

4. Follow the on-screen instructions to load the software.

Testing the Fader Connections

To test the external fader controller connections:

1. Connect all MIDI hardware devices as described in the setup guide for your Avid system.

📑 *MIDI port A is the default port used by the Avid system. To change the port configuration, see "Switching Between MIDI Connections on the USB-to-MIDI Converter (Windows)" on page 124 and "Switching Between MIDI Connections on the USB-to-MIDI Converter (Macintosh)" on page 125.*

2. Move the sliders on the fader controller, and confirm that the MIDI IN LED indicator on the USB-to-MIDI converter turns on and off appropriately.

   The USB LED indicator pulses — this is expected behavior.

3. Start the Avid editing application, and select Tools > Automation Gain.

4. Click the Automation Gain Tool Fast Menu button, and select Calibrate Hardware Sliders.

   If the external fader controller is connected and the system is using the correct MIDI port, then the Automation Gain tool displays the following:

   Position indicator lights
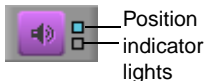
   - At least one of the position indicator light is on (blue).

   - The Recording Status Light changes to gold.

5. If the lights do not change to blue, see "Troubleshooting the MIDI Connections" on page 126.

6. To disable the hardware calibration, click the Automation Gain Tool Fast Menu button, and select Calibrate Hardware Sliders.

   The Recording Status Light changes to black.

7. Move the sliders on the external fader controller.

   The corresponding sliders move in the Automation Gain tool.

Now you are ready to use the fader controller with the Avid application software. For more information on using the Automation Gain tool, see "Using Audio Gain Automation" in the Help.

Switching Between MIDI Connections on the USB-to-MIDI Converter (Windows)

By default, the system expects the MIDI cables to be connected to MIDI port A (OUT-A and IN-A) on the MIDISPORT 2x2 device. If you need to switch to a different port connection, create a system environment variable as described in this section.

To switch between MIDI port connections:

1. Make sure the cables on the MIDISPORT 2x2 USB-to-MIDI converter are connected to the port you want to use. For information on connecting the MIDISPORT device to the fader controller, see the setup guide for your Avid system.

2. Click the Start button, and select Settings > Control Panel.

3. Double-click System.

   The System Properties dialog box opens.

4. Click the Advanced tab.

5. Click the Environment Variables button.

   The Environment Variables dialog box opens.

6. Do one of the following:

   ▶ To switch from port A to port B:

      a. Click New in the System Variables area.

         The New System Variables dialog box opens.

      b. Type **OTHER_MIDI_PORT** in the Variables Name text box.

      c. Type **1** in the Variable Value text box.

      d. Click OK.

         The OTHER_MIDI_PORT entry appears in the System Variables list of the Environment Variables dialog box.

   ▶ To switch from port B to the default port A:

      a. Select OTHER_MIDI_PORT in the System Variables list.

      b. Click Delete.

7. Click OK.

8. Click OK to close the System Properties dialog box.

9. Start the Avid application, and then select Tools > Automation Gain.

   The indicator lights on the Automation Gain tool should change to blue. If the lights do not change to blue, see "Troubleshooting the MIDI Connections" on page 126.

Switching Between MIDI Connections on the USB-to-MIDI Converter (Macintosh)

By default, the system expects the MIDI cables to be connected to MIDI port A (OUT-A and IN-A) on the MIDISPORT 2x2 device. If you need to switch to a different port connection, use a Console command to reconfigure the Avid system.

To switch between MIDI port connections:

1. Select Tools > Console.

   The Console window opens.

2. Type **SelectMIDIPort** in the text box, and press Return.

   The system displays information for each port it recognizes. For example, with a MIDISPORT 2x2 MIDI device connected using MIDI connection A, the system displays the following information:

   ```
   * 1: Device: MIDISport Port: Port A
     2: Device: MIDISport Port: Port B
   ```

   The asterisk indicates the port being used. In this example, port A is being used.

3. To switch to another port, type **SelectMIDIPort** *n*.

   Replace *n* with the port number you want to use, for example, 1 for port A, 2 for port B, and so on.

Troubleshooting the MIDI Connections

Perform the following procedures if the Automation Gain tool does not respond to the external fader controller.

1. Make sure the MIDI hardware devices are connected as described in the setup guide for your Avid system.

2. Make sure the MIDISport driver software is installed. See "Installing USB-to-MIDI Software (Windows)" on page 121 and "Installing USB-to-MIDI Software (Macintosh)" on page 122.

3. Check that the MIDI cable connections match the port configuration of the Avid system:

   a. Select Tools > Console.

   b. Locate the following lines in the Console window:

   For Windows:

   ```
   Midi In device: In-A USB MidiSPORT 2x2

   Midi Out device: Out-A USB MidiSPORT 2x2
   ```

   For Macintosh:

   Type **SelectMIDIPort** in the text box and press Return.

   ```
   * 1: Device: MIDISport Port: Port A
     2: Device: MIDISport Port: Port B
   ```

   The asterisk indicates the port being used. In this example, port A is being used.

   c. Check that the MIDI connections on the MIDISPORT 2x2 USB-to-MIDI converter match the connections listed in the Console window (either A or B).

   d. If necessary, quit the Avid application, switch the MIDI cables to match the output in the Console window, and then restart the Avid application.

   Position indicator lights

   e. If the position indicator lights are still not blue, recheck the connections according to the instructions in the setup guide.

4. (Macintosh only) Use the Apple System Profiler to check whether the system is recognizing the MIDI device:
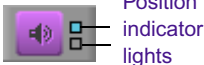
a. Select Apple menu > About This Mac.

b. Click More Information.

The Apple System Profiler opens.

c. Click the Devices and Volumes tab.

The USB Information portion of the display identifies the USB devices that the system recognizes. The system might not display the name of each device, but the number of USB devices should match the number of devices you have connected to the system.

Using the FaderMaster Pro and MCS-3000X

The setup procedure is similar for both units. To connect and initialize the fader controllers, see the setup guide for your system.

⚠ **For the MCS-3000X to recognize the Avid application software, you must set the rear DIP switch #4 down (ON).**

To test the external fader controller:

1. Select Tools > Automation Gain.

   The Automation Gain tool opens.

2. Click the Automation Gain Tool Fast Menu button, and select Calibrate Hardware Sliders.

   The box changes to blue.

 Position indicator lights

3. Check the color of the position indicator lights. If the external fader controller is connected, at least one of the lights should be on (blue). If the external fader controller is not connected properly, the lights will probably appear gray.

4. Move the faders on the external fader controller.

   The corresponding fader should move in the Automation Gain tool.

📄 *An external fader controller is optional. It is not required to perform Audio Gain Automation recording.*

MCS-3000X Buttons

There are four rows of unlabeled buttons at the top of the MCS-3000X fader controller.

The following illustration labels each row of buttons:
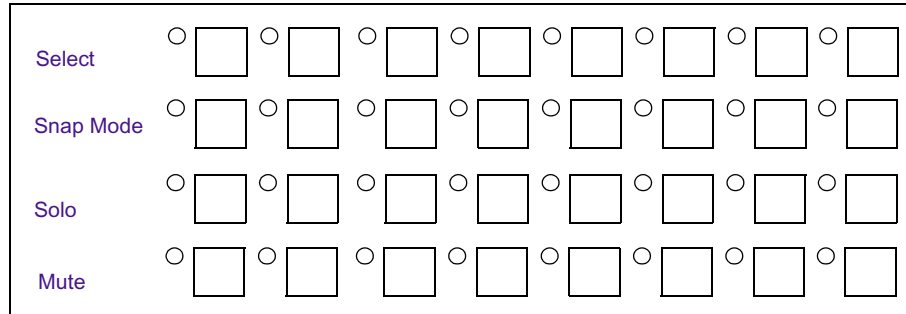
- *Select buttons:* The green light next to the Select button for a track is on when you are recording Audio Gain Automation on the track. The green light is off when you are listening to the volume level in the Timeline.

  If the track is in Snap mode, as soon as you touch the fader, the Select button light turns on to indicate that you are recording. When you release the fader, the Select button light turns off and the fader begins moving with the Timeline volume.

  When the track is not in Snap mode, as soon as you touch the fader, the Select button light turns on to indicate that you are recording. However, when you release the fader, the Select button light stays on, indicating that you are still recording. To stop recording, press the Select button.

- *Snap Mode buttons:* For information on these buttons, see "Using the Snap Mode Feature on the MCS-3000X" on page 129.

- *Solo buttons:* These buttons solo the selected tracks.

- *Mute buttons:* These buttons mute the selected tracks.

Using the Snap Mode Feature on the MCS-3000X

The MCS-3000X has a Snap Mode button for each track that allows you to easily punch-in and punch-out small sections of automation gain information. The second row from the top contains the Snap Mode buttons. For more information on button locations, see "Understanding The Automation Gain Tool" in the Help.

In Snap mode, the fader automatically stops recording as soon as you release the fader. In addition, the fader continues to display the volume information in the Timeline.

To use Snap mode:

1. Click the Snap Mode button for the appropriate tracks on the external fader controller. You can click the button before or during a recording session.

2. Set your IN and OUT points, and click the Record button. The system begins playing the section and the faders move accordingly.

3. When you want to make an adjustment, grab the fader and move it to change the volume. The system immediately begins recording.

4. When you are finished adjusting the section, release the fader. The system stops recording (but keeps playing) and the fader snaps back to the level that is in the Timeline.

When the track is not in Snap mode, the system continues to record audio volume information after you release the fader. Press the Select button (top row) to stop recording and snap the button back to its current Timeline position.

The green light next to the Select button for a track is on when you are recording Audio Gain Automation on the track. The green light is off when you are listening to the volume level in the Timeline.

Ganging Faders on the FaderMaster Pro

You can use the features available on the FaderMaster Pro to gang faders. When the faders for two tracks are ganged, the fader sends identical volume messages for both tracks when you move one fader. This can be useful when you have stereo tracks.

The ganged faders do not move together physically. For information on ganging the faders, see the FaderMaster Pro user's manual.

For example, if you have two stereo tracks and want to gang faders 1 and 2 to respond to movement on fader 1:

1. On the FaderMaster Pro, press the PROG button to light the Fader LED.

2. Press the Group button, and move fader 2 until 1 is displayed.

3. Press the PROG button to turn off the Fader LED.

Now, when you move fader 1, the Avid system will receive identical volume information for fader 2.

To turn off the group feature, repeat steps 1 to 3, but assign fader 2 to 0.

You cannot gang faders on the MCS-3000X fader controller or Yamaha 01V mixer.

Using the Yamaha 01V

The Avid system supports the Yamaha 01V digital mixing console. The Yamaha 01V is a fully functional digital audio mixer that also supports Automation Gain recording.

The following illustration shows the Yamaha 01V controls. The exploded view shows the buttons that you use to operate the unit for Audio Gain Automation recording. For a comparison with external fader controllers, see Table 49.
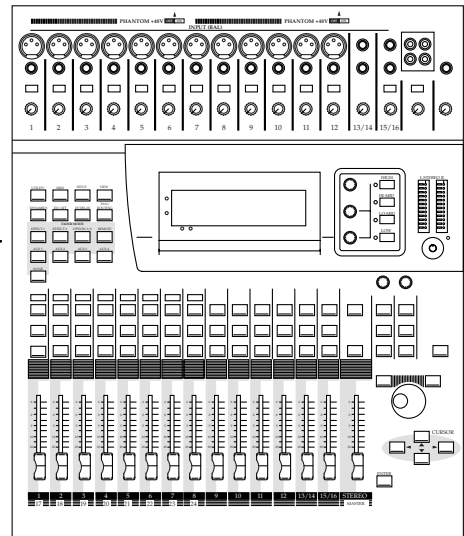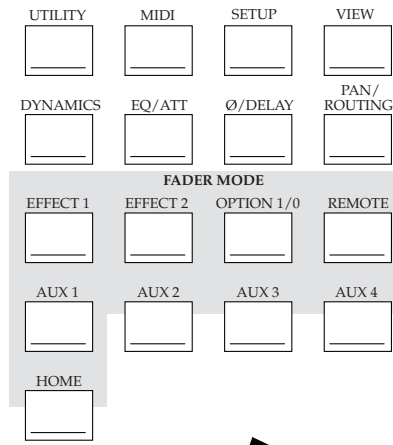
Setting Up the Yamaha 01V

This section describes how to set up the Yamaha 01V digital mixer. For instructions on connecting the Yamaha 01V to your Avid system, see the setup guide for your system.

Initializing the Yamaha 01V

This section describes how to initialize the Yamaha 01V digital mixer. These steps should have to be done only once and repeated only if the mixer's operational parameters have been manually changed to settings that are incompatible with the Avid system.

You should perform these steps when you first set up the unit. You might also find it necessary to perform the steps if the unit stops working correctly with your Avid system. Because you can perform a wide variety of mixing tasks with the Yamaha 01V, it is possible that some changes you make to the unit might cause it to stop working with the Avid system. If this happens, use these steps to reinitialize the mixer to the factory defaults.

To return to factory defaults:

1. Turn on the mixer while pressing and holding the red Memory button.

Memory button
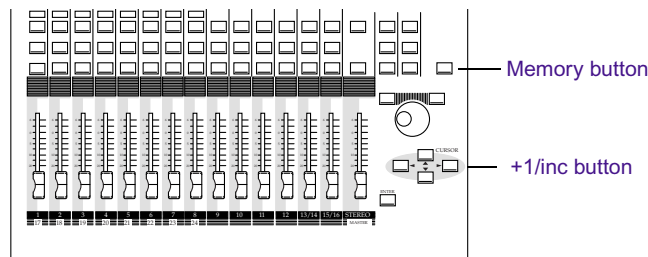
+1/inc button

The LCD panel displays a message asking if you want to reset the system.

2. Answer yes by pressing the +1/inc button.

Configuring the Mixer to Recognize MIDI Control Messages

After you initialize the mixer, you must configure it to receive and transmit MIDI messages.

To reconfigure the mixer:

1. Press the MIDI button.

   The system displays the first pane of the MIDI Options window.

2. Set the following controls in the MIDI Options window:

   - Set Control Change TX to ON.

   - Set Control Change RX to ON.

Starting the Avid System with the Yamaha 01V Attached

When you start your Avid system with the Yamaha 01V attached, you can use the faders for mixing audio channels or for performing Audio Gain Automation recording. You use the Home and Option I/O buttons to switch between the two modes. This section describes how the Yamaha 01V utilizes the faders.

The Yamaha 01V digital mixer allows you to work with 24 input channels as follows:

- 12 mono input channels (1 through 12)

- 2 stereo input channels (13/14 and 15/16)

- 8 digital inputs (17 through 24)

Channels 17 through 24 use the same physical controls as channels 1 through 8, as shown in the following illustration. You use the Home and Option I/O buttons to switch the assignments from 1 through 8 to 17 through 24.

Channels 1–12 (mono)

Channels 17– 24

Channels 13–16
(Two stereo inputs)
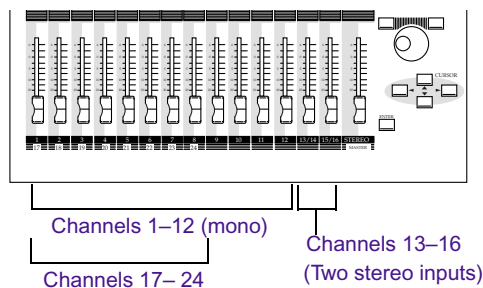
When you start the Avid system, it automatically configures the Yamaha 01V to use channels 17 through 24 for automation gain control. Use the Home and Option I/O buttons to switch between audio mixing (Home) and audio gain recording (Option I/O).

The Yamaha 01V supports a digital I/O option that uses channels 17 through 24. If you intend to use the digital I/O option, you should move the digital I/O option to channels 1 through 8 by using the Swap mode. You can access Swap mode from pane 5 of the OPTION I/O screen. For more information, see the Yamaha documentation.

Operational Notes for the Yamaha 01V

Using the Yamaha 01V for Audio Mixing

To access the audio mix (channels 1–16):

▶ Press the Home button. When the Home button is lit, you can use the faders for audio mixing.

For information on audio mixing, see the Yamaha 01V documentation.

Accessing Audio Gain Automation Recording

To record automation gain in the Automation Gain tool, you must be in Option I/O mode, and then do the following:

1. Press the Option I/O button.

   The faders move into the correct position for recording automation gain.

2. When recording automation gain, use the On button on each channel to switch between Timeline control of audio gain to user control of audio gain.

   You can punch-in and punch-out of gain recording as many times as you want.

The Yamaha 01V faders are not touch sensitive in the same way as the JL Cooper MCS-3000X MIDI fader controller. As soon as you touch a moving fader on the MCS-3000X, the unit passes control of the fader to you. On the Yamaha 01V, you must press the fader's On button to gain control of a moving fader.

If a fader is not moving, you can move the fader to take control without pressing the On button.

If you attempt to catch a moving fader, the mixer will try to control the fader. Press the On button to take control of the fader.

Soloing Avid System Channels

If you are not using the Yamaha 01V to mix the audio outputs of the Avid system, you can use the Solo button on the Yamaha 01V to solo audio channels during automation gain recording.

To enable Solo mode:

1. Press the MIDI button.

   The mixer displays pane 1 of the MIDI Options window in the LCD display.

2. Set the following controls in the MIDI Options window:

   - Set Param Change TX to ON.

   - Set Param Change RX to ON.

If Solo mode is on when you are mixing audio, however, it interferes with the normal operation of the mixing board functions. If the Avid system audio outputs are connected to the Yamaha 01V, leave the Param Change TX and Param Change RX controls set to OFF.

Chapter 3 **Using an External Fader Controller or Mixer**

Chapter 4

Working with Broadcast Wave Format (BWF) Files

Avid editing applications support Broadcast Wave Format (BWF), an industry-standard audio file format that supports metadata. This metadata can include the shoot date, scene, take, and other production information.

This appendix includes the following sections:

Support for BWF Files

Avid editing applications support any BWF files that adhere to the BWF specification. Some BWF information always appears in bin columns.

You can use Avid-specific coding to add additional information. Currently, the following vendors have products that can provide this additional information:

- Aaton
- Zaxcom

- Nagra

- Fostex

Avid editing applications support 24-bit audio data, and up to 16 tracks in a single file. You can use the AutoSync™ feature to sync these tracks. You can also use AutoSync to sync picture and sound.

BWF Information Displayed in Bins

The following information from BWF files always appears in bin columns:

Bin Column	BWF Source
Clip name	Imported file name. If scene and take information is provided, the clip name is created as *scene/take*.
Tape ID	Imported file name
Start	The start timecode specified in the file.
Shoot date	The origination date specified in the file.
Tape Name	If there is no tape name specified in the file, a name is created by concatenating the origination date and the imported file name.

Preparing Custom BWF Information

Additional information can be displayed in bin columns, but this information needs to be coded in a particular format. The recording device must provide this information in the BWF Description field, using the following keyword/value pairs:

*u*KEYWORD=*data*[CR/LF]

Syntax	Definition
u	Letter code of the manufacturer. Use the letter u unless otherwise instructed by Avid.
KEYWORD	Designation of the bin column.
=	Terminates the keyword.
data	Information to include in the bin column.
[CR/LF]	(carriage return/line feed) Terminates the data.

For example,

```
uSCENE=1A[CR/LF]
```

after importing, displays "1A" in the Scene column of the bin into which it was imported.

The following table describes how to code BWF information for particular bin columns:

Bin Column	BWF Source
Comments (editable text field that appears in the bin script view)	*u*NOTE=*x,* where *x* is text.
Scene	*u*SCENE=*x,* where *x* is text.
Take	*u*TAKE=*x,* where *x* is text.
Tape Name	*u*TAPE=*x,* where *x* is text. If there is no tape name specified, a name is created by concatenating the origination date and the file name.
TRK1 through TRK8	*u*TRK*n*=*x* where *n* is the track number, and *x* is text.

Take	*u*TAKE=*x,* where *x* is text.
Tape Name	*u*TAPE=*x,* where *x* is text. If there is no tape name specified, a name is created by concatenating the origination date and the file name.
TRK1 through TRK8	*u*TRK*n*=*x* where *n* is the track number, and *x* is text.

In addition, to assign a file to a particular track number, the file name needs to end in _*n*, -*n*, or a space followed by *n* (where *n* is the track number). For example, a file named Orchestra_1.bwf would create the audio on track A1.

To avoid display of a dialog box during import, you can specify the frame rate using the following syntax:

```
uFRAMERATE=nDF or
uFRAMERATE=nND
```

where *nn* is the frame rate (25, 29.97, or 30), DF is drop-frame, and ND is non-drop-frame.

Importing and Syncing BWF Files

You can import BWF files into an Avid editing application approximately 10 to 12 times faster than capturing in real time. The files maintain pure digital quality for all audio post processing. For basic information on importing audio files, see the documentation for your Avid system.

During import of NTSC BWF files, if no frame rate is specified in the file, a dialog box appears and asks if the conversion should use 29.97 fps or 30 fps , and drop-frame or non-drop-frame. Your choices depend on how the audio was recorded.

After you capture video, use the AutoSync™ feature to sync picture and sound or multiple tracks of sound. If you are using BWF files from a 24-fps shoot in a PAL project, you must use use the PAL Method 2 approach, in which picture and sound are captured separately.

If you are working in a PAL 24p project, you need to take an extra step to make sure the picture and sound are correctly synced.

To import and sync BWF files:

3. Create a project, based on the source footage.

4. Import the log file, and capture the video footage.

5. Import the BWF file into the same bin in which you captured the video footage.

6. For 24p PAL projects, you need to create a new bin column:

   a. Highlight the Start timecode column.

   b. Select Edit > Duplicate.

   c. From the list of columns, select Aux TC 24 and click OK.

   d. In the dialog box, click Convert.

   e. Display the Auxiliary TC1 column.

   f. Highlight the Aux TC 24 column, and copy it to the Auxiliary TC1 column.

   Use Auxiliary TC 1 only as a sync point reference for AutoSync. Do not use it for data tracking or EDL generation.

   Use the Aux TC24 column to generate a 24-frame EDL for audio only. Use the Film TC column to generate a 24-frame EDL for video only. This timecode field represents the video timecode of a HD downconvert to standard definition video.

7. Make sure all entries in the Shoot Date column use the same syntax. Currently, some BWF files use the format 2003/10/03 as the Shoot Date while some ALE files use 2003-10-03. This field is used as part of the AutoSync process to guarantee the uniqueness of the timecode. To fix this problem, do one of the following:

   - Manually change the format of one set of clips to match the other.

   - If you do need the information, create a custom column with a different name, select Edit > Duplicate to copy the information into the custom column, and delete the Shoot Date column.

8. Highlight the picture and audio clips and select Bin > AutoSync.

9. For 24p PAL projects, use Auxiliary TC1 as a sync point. For other projects, use the Start timecode.

   The editing application creates new subclips with synced picture and sound, which are ready for editing.

Reimporting BWF Files

You can reimport BWF files in the same way as you reimport other audio files. You can also batch capture from a source tape, because the clips are associated with a tape name. For more information on reimporting and batch capturing, see the documentation for your Avid system.

Chapter 5

Film-to-Tape Transfer Methods

To capture and edit film-originated footage in your Avid system, you must transfer the footage to videotape. This chapter presents the following information about film-to-tape transfer methods:

- Understanding the Transfer Process
- Transferring 24-fps Film to NTSC Video
- Transferring 24-fps Film to PAL Video
- How the Avid System Stores and Displays 24p and 25p Media

To help you plan the transfer, this chapter includes the following sections:

- Film-to-Tape Transfer Guidelines
- Film-to-Tape Transfer Options

Understanding the Transfer Process

You have your film rolls from the day's shooting, and you're ready to edit on your Avid system. To capture that footage into the system, you first need to transfer the film to videotape. This process uses a special film projector called a telecine (the term loosely translates as "video-film"). The telecine is usually part of a production system that includes audiotape recorders, a controller, and other equipment.

After you've decided on a telecine facility and have supplied your requirements (see "Film-to-Tape Transfer Guidelines" on page 154 and "Film-to-Tape Transfer Options" on page 155), the telecine facility performs the film-to-tape transfer. The steps in the process differ, depending on whether you include audio and whether the transfer produces NTSC or PAL videotapes. The following sections describe these steps.

Transferring 24-fps Film to NTSC Video

If you use an NTSC transfer, the film-to-video process takes place in two stages:

- Stage 1: Transferring Film to Video

- Stage 2: Digitizing at 24 fps

The following illustration shows a simplified view of the NTSC film-to-video transfer process. For information about this workflow, see "Planning a 24p or 25p Project" in the Help.

Telecine
2:3 pulldown
23.976 fps

Stage 1

Film shot at 24 fps

Beta-cam

Betacam or
Digital Betacam
video signal 29.97 fps

Capture and reverse
pulldown to 24 fps.

Stage 2

Avid editing system at 24 fps
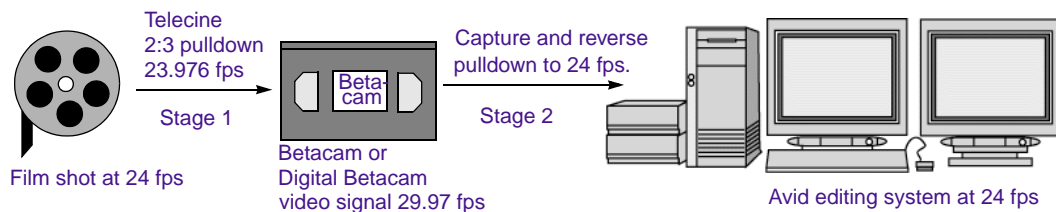
Stage 1: Transferring Film to Video

The NTSC film-to-video transfer occurs as a two-part process: the telecine adds extra frames during transfer and, at the same time, slightly reduces the film's running speed.

Frames Versus Fields

To understand how the telecine transfers film to videotape, you need to understand the relationship between frames and fields.

An NTSC video image consists of 525 horizontal lines of information. The electron gun on a video monitor displays the odd-numbered lines first and then the even-numbered lines. Each full scan of odd-numbered or even-numbered lines constitutes a *field*. At 30 fps, each field takes 1/60th of a second to display; therefore, an entire frame of two fields is scanned each 1/30th of a second. The combination of these two fields (odd and even) is called *interlacing*.

A film frame, in contrast, is one full picture; it has no fields. The telecine process takes each film frame and creates a two-field video frame.

Part 1: Using a 2:3 Pulldown to Translate 24-fps Film to 30-fps Video

Film runs at 24 fps, and NTSC video runs at 30 fps. The difference in frame rates between film and video prevents a direct frame-to-frame transfer.

To compensate, the telecine process creates an extra six frames every second (the difference between 24 and 30). That is, it creates five video frames for every four film frames. But remember, each video frame is subdivided into two video fields. To be more precise, the telecine creates ten video fields (the equivalent of five video frames) for every four film frames. This is referred to as a 4:5 ratio. Table 50 states this relationship between film and video.

Table 50   Ratio of Film to Video

Film	Video
24 fps	30 fps
4 frames	5 frames (10 fields)

The telecine uses a method known as *pulldown* to create the extra frames. As each film frame moves through the telecine projector, it is held in place (pulled down) while a specific number of fields are recorded on videotape. To transfer four film frames to ten video fields, the telecine process alternates between creating two and three video fields per film frame (referred to as 2:3 pulldown). To transfer four film frames to ten video fields, the telecine pulls down the first film frame and records two video fields, pulls down the second film frame and records three video fields, and repeats the process.

The four frames in each series are referred to as A, B, C, and D. The standard method for identifying the resulting fields is to label them as A1, A2, B1, B2, and so forth. The following diagram illustrates the 2:3 pulldown process.
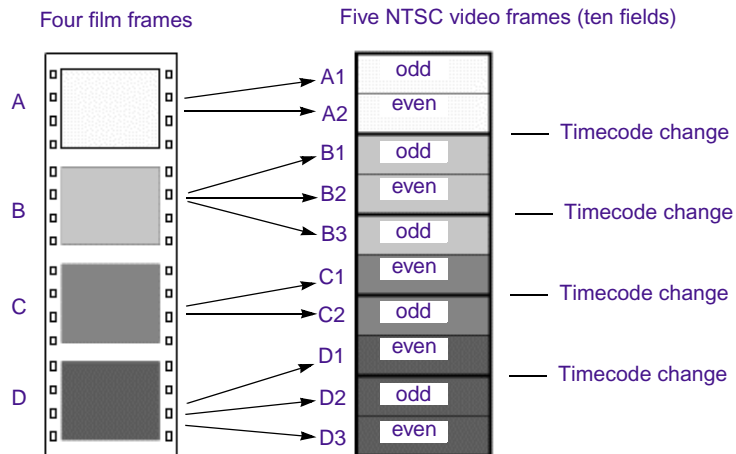
The telecine alternates between capturing odd-numbered and even-numbered fields. For example, B1 and B3 both contain the odd-numbered scan lines of the B film frame. Later in the transfer process, when the Avid system captures the fields, it must capture an odd-numbered and an even-numbered field for each frame.

When you view the resulting video, you get the impression that you are watching the video at 24 fps even though it is playing at 30 fps (or more precisely, at 29.97 fps).

Part 2: Slowing the Film Speed to 23.976 fps

NTSC video, the broadcast standard used in the United States, Japan, and other countries, plays at an actual rate of 29.97 fps, although it is usually referred to as 30 fps.

An accurate conversion requires exact adherence to the 4:5 ratio, but this ratio breaks down when you compare 24 fps to 29.97 fps. To achieve a true 4:5 ratio, the film frame rate is slowed down to 23.976 fps. The telecine process makes this correction automatically, slowing NTSC video 0.1 percent from the original film speed, so that the video plays at 99.9 percent of its original speed.

Table 51 adds this new ratio.

Table 51   Ratio of Film to Video with FPS

Film	Video
24 fps	30 fps
4 frames	5 frames (10 fields)
23.976 fps (0.999 x 24)	29.97 fps (0.999 x 30)

Maintaining Synchronized Sound

In most cases, the sound for your production has been recorded on a digital audio system, such as a DAT (digital audiotape), or ¼-inch tape system, such as a Nagra recorder. You need to synchronize the sound with the picture and make sure they are in sync in the Avid system. You can take one of three basic paths:

- Transfer the original sound recording to mag track, sync the mag track to the film work print, and transfer both to videotape through a telecine process.

- Sync the original sound recordings to picture during the telecine process, and transfer both to videotape.

- Transfer only the picture through the telecine process, capture picture and sound separately, and sync them in the Avid system.

If the telecine transfers sound along with picture (one of the first two paths), the sound is slowed by 0.1 percent to maintain sync with the picture. The reference signal slows from 60 Hz to 59.94 Hz and the rate at which the audio is recorded changes from 44100 Hz to 44056 Hz, or from 48000 Hz to 47952 Hz.

Stage 2: Digitizing at 24 fps

The telecine has converted your film footage into video running at 29.97 fps. Now you're ready to use the digitizing process to input the material as a 24p NTSC project.

To capture audio transferred at 29.97 fps (video rate) you must set the pulldown switch to 0.99 in the Capture tool. For more information, see "Setting the Pulldown Switch" in the Help.

During the digitizing process, the Avid system reverses the pulldown procedure to capture the film footage at 24 fps. It removes the extra fields added by the pulldown process to create full-frame, 24p media. The capture process captures video and audio at the slowed-down speed (0.999).

The following illustration shows each stage of the film-video-24p process.

Four film frames   Five NTSC video frames (ten fields)   Four captured frames

Film at 24 fps   Betacam or Digital Betacam 29.97 fps   24p media at 24 fps
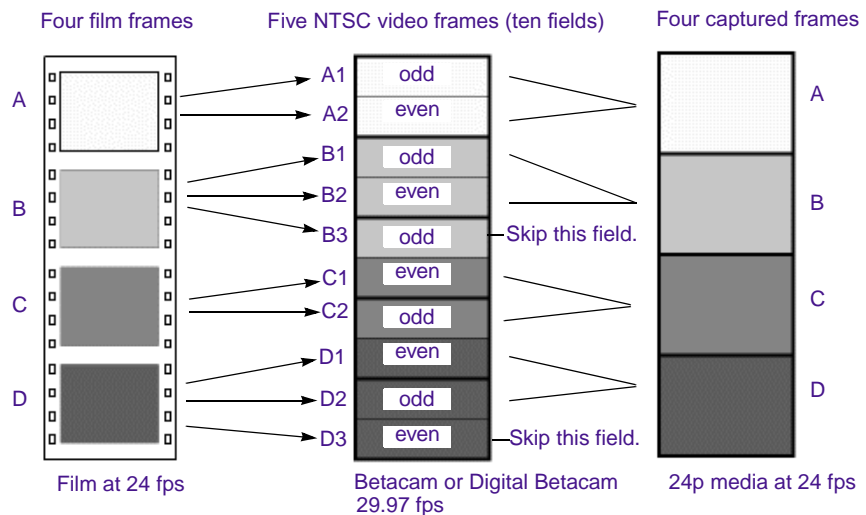
If you have transferred sound along with picture, the Avid system captures audio at the slowed-down speed. Then during editing and playback, the system speeds up the play rate by 0.1 percent to play in sync with the 24-fps video. Audio plays at 44100 Hz (44.1 kHz) or 48000 Hz (48 kHz).

Now you can edit the material at 24 fps on the Avid system. This approach ensures that all your edits correspond to true film frames so you see an accurate representation of the finished film.

Transferring 24-fps Film to PAL Video

If you use a PAL transfer, the film-to-video process also takes place in two stages:

• Stage 1: Transfer the film to videotape by speeding up the film rate during the telecine process.

• Stage 2: Capture the transferred videotape into the Avid system at the sped-up rate.

The following illustration shows a simplified view of the PAL film-to-video transfer process. For information about this workflow, see "Planning a 24p or 25p Project" on page 229.

Telecine transfer with 4.1% speedup
Stage 1
Film shot at 24 fps
Capture
Stage 2
Betacam or Digital Betacam video signal 25 fps
Avid editing system at 24 fps
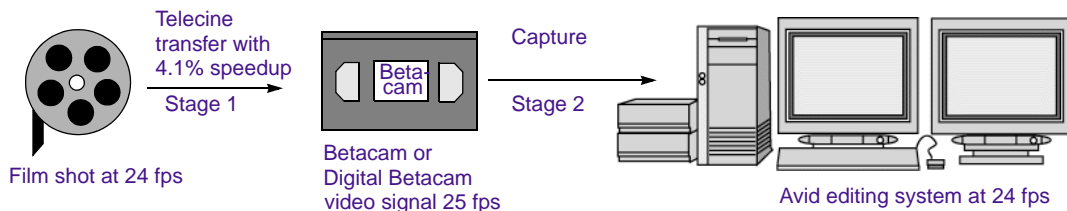
There are two approaches to synchronizing sound, which are often referred to as PAL Method 1 and PAL Method 2.

PAL Method 1

With PAL Method 1, you synchronize sound with picture during the telecine process.

Stage 1: Transferring Sound and Picture to Videotape

Some PAL film-to-tape transfers use pulldown. This method is not currently supported in Avid systems.

As with an NTSC film-to-tape transfer, the telecine process creates two video fields for each film frame. However, because the film rate of 24 fps is close to the PAL video rate of 25 fps, most PAL film-to-tape transfers involve simply speeding up the frame rate. This speedup changes the frame rate from 24 to 25 (an increase of 4.1 percent). There is no pulldown that creates extra fields.

With PAL Method 1, there are two ways to sync sound with picture in the telecine process:

• Transfer the original sound recording to mag track, sync the mag track to the film work print, and transfer both to videotape through a telecine process.

• Sync the original sound recordings to picture during the telecine process, and transfer both to videotape.

In either case, the telecine process speeds up sound at the same rate as picture: 4.1 percent.

Stage 2: Digitizing at 24 fps

After you've received the PAL transfer tapes, the next step is digitizing the footage in a 24p PAL project. During the digitizing process, the Avid system captures the material at the PAL rate of 25 fps, capturing every picture frame. It stores the two video fields as a single progressive frame, which you edit at 24 fps.

You must capture audio along with video at the PAL rate of 25 fps if you want to use audio that was transferred along with picture during the telecine process. You set the Audio Transfer rate as Video Rate (100+%) in the New Project dialog box. For more information, see "Audio Transfer Options for 24p PAL Projects" in the Help.

Select this option in the Film Settings dialog box. For more information, see "Selecting Settings" in the Help.

You have the option of playing back the footage at 24 fps or 25 fps. If you select 24 fps, the system slows both the picture and the sound by 4.1 percent for playback. This approach lets you edit at the original film rate, but the slowdown creates a limitation for audio. Because you capture the audio at a rate faster than playback, some audio samples are duplicated during playback, and sound quality is compromised.

If you select 25 fps, there is a different limitation with audio. Because you are playing back at the sped-up rate (4.1 percent), the audio pitch rises slightly. This is usually acceptable for broadcast, so PAL Method 1 is primarily used for PAL television broadcast.

PAL Method 2

With PAL Method 2, you capture sound and picture separately.

Stage 1: Transferring Picture to Videotape

Some PAL film-to-tape transfers use pulldown. This method is not currently supported in Avid systems.

With PAL Method 2, you use the same telecine process for picture (create a video frame of two fields for each film frame, speed up rate by 4.1 percent). The difference is that you do not synchronize sound as part of the telecine process.

Stage 2: Digitizing at 24 fps

Now that you have your picture-only videotapes (at the rate of 25 fps) and your source recording tapes, you need to follow a two-step process:

1. Capture the picture to create 24p media.

2. Capture the sound at the film rate of 24 fps.

When you created the project, you set the Audio Transfer rate as Film Rate (100%) in the New Project dialog box. For more information, see "Audio Transfer Options for 24p PAL Projects" in the Help.

In most cases, you will choose to edit at 24 fps. The sound will maintain source quality (44.1 kHz and 48 kHz) and will play in sync with 24-fps video.

PAL Method 2 is used primarily for film projects.

How the Avid System Stores and Displays 24p and 25p Media

When the Avid system captures video that has been transferred from film (or video shot at 24 fps), it creates 24p media. It creates this media by capturing the video fields, by dropping extra pulldown fields (NTSC transfers only), by combining (deinterlacing) two fields for each film frame (A1+A2, B1+B2, and so forth), and by storing the fields together as a full

frame. The system always stores media as a fully reconstructed, progressive frame. It is the construction of this full frame that gives you the flexibility to create multiformat output.

You typically use 25p media when digitizing film or video shot at 25 fps. In this case, the system also stores the media as a fully reconstructed, progressive frame. The difference is that there is no need for pulldown fields since there is a 1:1 correspondence between the source tape and the captured frames.

Displaying Media While Editing

When you click the Play button while editing a clip or a sequence (sometimes referred to as Edit Play), the system separates (interlaces) the progressive frames into fields and does the following:

- On the Source, Record, Playback, or pop-up monitor, the system displays the footage at 23.976 fps, 24 fps, or 25 fps, depending on your project and editing preference.

- On an NTSC monitor, the system does one of two things:

    - If playing at 23.976 fps (audio pulldown ON), the system performs a 2:3 pulldown that replicates the telecine pulldown, and displays the interlaced media at 29.97 fps.

    - If playing at 24 fps (audio pulldown OFF), the system performs a 2:3 pulldown, drops every 1000th frame in the Client monitor, and displays the interlaced media at 29.97 fps.

- On a PAL monitor, the system does one of two things:

    - If playing at 24 fps, the system duplicates two fields per second to display the interlaced media at 25 fps.

    - If playing at 25 fps, the system performs a 4.1 percent speedup, maintains 1:1 transfer of film frames to video frames, and displays the interlaced media at 25 fps.

      For 25p projects, 25 fps is the only playback rate. The playback rate is 1:1 with no speed change.

By default, the system uses a mode called Fast Frame Display (available from the Special menu), which displays one field of the progressive frame. You can display the full frame if necessary, such as when checking for dropouts created during the film-to-tape transfer, and step through frame by frame. However, the display will be slower.

Displaying Media During a Digital Cut

The Digital Cut tool lets you output multiple formats at various play rates, all from 24p and 25p media. When you click the Play Digital Cut button, the system displays the sequence as described in the previous section, depending on your selection in the Digital Cut tool. For more information, see "Outputting Directly to a DV Device" in the Help.

Film-to-Tape Transfer Guidelines

Observe the following general guidelines when transferring film to tape:

- Instruct the telecine facility to record timecode on the address track.

- Instruct the facility to use only a telecine transfer process when transferring to NTSC videotape. Do not use a film chain or any other transfer device.

- PAL transfers do not require pulldown, so you can use either a telecine or a film chain. However, quality is much better on a telecine.

- Transfer all of the project's source film footage to disk or tape by using either the NTSC or PAL method.

   - For NTSC projects, you can mix footage transferred at 24 fps (23.976 fps) or 30 fps (29.97 fps), and mix sound transferred at 1.0 or 0.99.

> 📄 *Do not mix 24-fps and 30-fps transfers on the same transfer tape.*

- For PAL projects, you cannot mix audio that has been transferred at 4.1 percent speedup (PAL Method 1) with audio that has not been sped up (PAL Method 2).

> 📄 *PAL film-to-tape transfers that use pulldown are not currently supported in Avid systems.*

Film-to-Tape Transfer Options

This section describes options for transfer quality and various screening and editing aids you can request during the transfer process, based on the considerations of budget and available facilities.

Transfer Quality

The quality of the film-to-tape transfers depends upon several options for the telecine transfer. The transfer-quality options available from a telecine facility include:

- **One-light:** This transfer involves a single setting of color correction values, resulting in the simplest, fastest, and least-costly type of transfer. One-light transfers are often used during offline stages of editing.

- **Best-light:** This transfer involves optimum settings of the color-grade controls, but without scene-by-scene color correction. Best-light transfers are an intermediate level in terms of both quality and cost.

- **Timed (scene-by-scene):** This transfer involves color correcting each scene or shot during transfer. Timed transfers are the most expensive and time consuming. This option sets up the proper black and white levels so that you can perform a tape-to-tape color correction from the source tapes, if needed.

You can use the film-tape-film-tape feature to perform two separate telecine processes for a project:

- Perform a one-light or best-light transfer to obtain the most material for the initial edits.

- After editing is complete, perform a timed, fully color-corrected transfer of the clips that will be used in the final cut.

After you perform the final telecine operation, you can capture at a finishing resolution, such as 1:1 (uncompressed).

Additional Film Transfer Aids

The transfer facility might have available one or more of the following production aids, which you can include in your film-to-tape transfer:

- **Automatic logging:** Whenever possible, you should instruct the facility to log tracking information directly into a computer database program. Logs generated automatically are more accurate than manual logs and can be imported easily into the Avid system (see "Preparing Log Files for Import" in the Help). A log file typically indicates the relative timecode, key numbers, and pullin ("A" frames) for each clip that will be captured.

- **A keypunch at the head of each camera roll:** Ask the lab or transfer house to punch the head of each camera roll at the zero frame and give you a list of the corresponding key numbers. After you have captured, you can match this list with your captured material to check for potential transfer errors.

- **Burn-in code:** If the transfer facility is equipped with a timecode or film-code character generator, you can instruct the facility to display or "burn-in" tracking codes on the videotape transfer. Burn-in code provides visual feedback for logging and tracking footage.

⚠ **Burn-in code cannot be removed from the image and should be used only for the offline stage of a project.**

- **16:9 wide-screen format:** The Avid system supports the 16:9 wide-screen display format. You can either shoot your footage by using a 16:9 lens, or transfer the footage anamorphically to display a larger

area of the film aspect ratio during offline and online editing. Also, this aspect ratio lets you create media that takes advantage of new 16:9 monitors that conform to SDTV and HDTV standards.

Chapter 6

File Format Specifications

To be compatible with a variety of imaging standards, your Avid system can accommodate many file types and formats. For import and export procedures, see "Importing Files" in the Help and "Exporting Frames" in the Help. This appendix contains descriptions, specifications, and notes for importing and exporting specific file formats.

To ensure usability and high quality, the files in some formats require preparation before being imported to the Avid application. Consequently, this appendix contains many more notes for import than for export. When you export a file, you select a file format from the Export Settings dialog box and select options appropriate for the format. For descriptions of the dialog box options, see "Export Settings Dialog Box Options" in the Help.

Graphics (Image) Files

Media Composer uses Image Independence® to produce usable files from a large number of graphics formats. Once you have imported a file in a particular format, you can export it in the same or different format, with the exception of Photo CD™; you cannot export a file to a Photo CD. (You can only import the Photo CD format on a Macintosh).

This list briefly describes the supported graphics (image) file formats:

- **Alias:** Alias PIX image format, developed by Alias Research, Inc. (now Alias|Wavefront, a division of Silicon Graphics Limited) for use with their animation and visualization software.

- **BMP:** Developed by Microsoft Corporation as the standard image file format used by Microsoft Windows.

- **Chyron:** Developed by Chyron Corporation for use with video frame buffers of Chyron character-generator titles.

- **Cineon:** Developed by Eastman Kodak for use in the Cineon Digital Film System. It is a subset of the SMPTE DPX (Digital Picture Exchange) format.

- **Framestore:** Developed by NewTek for use with their Video Toaster system.

- **IFF:** Developed by Electronic Arts. IFF (Interchange File Format), or more specifically IFF-ILBM (InterLeaved BitMap), is the standard file format by which applications on the Amiga platform transfer image files.

- **JPEG:** Developed by the Joint Photographic Experts Group (JPEG). This format is highly suited for image storage and transmission purposes because of its ability to dramatically reduce the storage requirements for a file. JFIF files (JPEG File Interchange Format, the standard for constructing JPEG files) can also be imported and exported.

- **OMFI: (import only)** Developed by Avid Technology, Inc. and many industry and standards partners for the interchange of digital media data between platforms and applications.

- **PCX:** Developed by Zsoft Corporation for use with its PC Paintbrush paint software.

- **(Macintosh only) Photo CD: (import only)** Developed by Kodak for use with the Kodak Photo CD storage medium. If you have difficulty importing this format directly into your Avid system, open the file in an application such as Photoshop, and use the Save As feature to save the file in a format that can be imported (such as TARGA, PICT, or TIFF).

- **Photoshop:** Developed by Adobe Systems Incorporated for use with its Adobe Photoshop image-editing software.

- **PICT:** Developed by Apple Computer, Inc. as the format for Macintosh QuickDraw® images.

- **Pixar:** Developed by Pixar for stored pictures.

- **PNG:** Developed by the PNG Development Group originally as an alternative to the GIF image format. PNG is an acronym for Portable Network Graphics and is pronounced "ping."

- **QRT:** Developed on the Amiga personal computer to run on several operating systems. Used by many ray tracing programs, such as DKB Ray Trace and the QRT ray tracer.

- **Rendition:** Developed by Numerical Design Ltd.

- **SGI:** Developed by Silicon Graphics, Inc. for use as the standard format on their line of workstations.

- **Softimage:** Developed by Softimage, Inc. (now a division of Avid Technology, Inc.) for use in their Softimage software.

- **Sun Raster™:** Developed by Sun Microsystems, Inc. and supported mainly in Sun applications.

- **Targa:** Developed by Truevision, Inc. (now Pinnacle Systems) and originally intended for support of the Truevision image-capturing hardware.

- **TIFF:** Developed by Aldus Corporation (now Adobe Systems Incorporated) and Microsoft Corporation. TIFF is an acronym for Tag Image File Format.

- **Wavefront:** Developed by Wavefront Technologies, Inc. (now Alias|Wavefront, a division of Silicon Graphics Limited) for storing pictures in a machine-independent manner.

- **XWindows:** Developed by the MIT X Consortium and supported by many X Window System applications on workstations and some personal computers.

- **YUV:** Defined by Abekas Video Systems (now Accom, Inc.), the YUV format is the raw data sent to the Abekas$^{®}$ machines.

Preparing Graphics Files for Import

Before you import a graphics file to your Avid system, you can use third-party image-editing software, such as Adobe Photoshop, to make adjustments such as the following:

- Convert the file to the appropriate size, resolution, and bit depth.

- Crop or color-correct an image.

- Eliminate jagged edges in an image by using the image-editing application's anti-aliasing or high-quality option.

- Add transparency (to some formats) by setting the resolution to 32 bits per pixel to add an alpha channel.

- In some cases, you can convert an image file that does not support an alpha channel to a format that does, in order to add transparency.

📄 *You can import and key the image over video by using key effects within the Avid application. However, importing an image with an existing alpha channel provides the best results.*

For specific procedures and file formats, see the documentation that accompanies the image-editing software.

Graphics File Import Specifications

Table 52 contains graphics file import specifications. The table uses the following terms:

- **Bit depth:** These numbers refer to color-depth resolution of the image based on the number of bits per pixel. For example, 2-bit images are displayed in black and white; 8-bit images are displayed in 256 colors; 16-bit images are displayed in thousands of colors; 24-bit images are displayed in millions of colors; and 32-bit images are displayed in millions of colors with an alpha channel.

- **Alpha channel:** This column states whether or not alpha channel import is supported. An alpha channel determines regions of transparency in the picture when it is keyed over a background.

- **NA:** This notation means Not Applicable

For recommended image sizes, see "Screen Resolution for Imported Graphics and Sequences" on page 166.

Table 52   Graphics File Import Specifications

Format	Default File Name Extension	Bit Depth Support	Alpha Channel Support	Notes
Alias	.als	24-bit color, 8-bit grayscale	No	—
BMP	.bmp	1-, 4-, 8-, and 24-bit	No	Dots-per-inch (dpi) information is preserved. Four-bit BMP files saved with RLE (run-length encoded) compression are not supported. Photoshop does not support four-channel BMP files.
Chyron	.chr	32-bit	Yes	—
Cineon	.cin	10-bit (logarithmic)	NA	Dots-per-inch (dpi) information is preserved.
Framestore	.fs	24-bit	No	Pixel aspect information is saved with image data. When importing files generated from Video Toaster, select the option Force to Fit Screen.
IFF	.iff	1-bit to 24-bit color; 1-bit to 8-bit grayscale; 64-color EHB; 4096-color HAM; 262,144-color HAM8; SHAM; A-HAM; A-RES	1-bit alpha only	Dots-per-inch (dpi) information is preserved. Pixel aspect information is saved with image data.

Table 52   Graphics File Import Specifications (Continued)

Format	Default File Name Exten-sion	Bit Depth Support	Alpha Channel Support	Notes
JPEG	.jpg	24-bit color, 8-bit grayscale	No	—
OMFI	.omf	—	—	See "OMFI Files" on page 174.
PCX	.pcx	Color-mapped and 24-bit color	NA	Dots-per-inch (dpi) information is preserved. PCX files with 1-bit color depth or odd-numbered pixel widths are not supported.
Photo CD (Macintosh only)	—	—	NA	If you are importing Photo CD files, you must install QuickTime software and a compatible QuickTime driver for Photo CD. Most Photo CD files are high resolution. If the photo has a portrait orientation, the image will be automatically rotated upon import. Use a paint or image-processing program to crop or resize the image before importing.
Photoshop	.psd	Grayscale, indexed color, RGB, and duotone variations	Yes	Duotone files are loaded as grayscale. Multichannel (greater than four channels) files are not supported.
PICT	.pic	2-, 4-, 8-, 16-, and 32-bit	Yes	Dots-per-inch (dpi) information is preserved. If no dpi is specified, 72 dpi is used.
Pixar	.pxr	24-bit, 36-bit	Yes	—
PNG	.png	1-bit to 32-bit	Yes	—
QRT	.dbw	24-bit	No	—
Rendition	.6rn	32-bit	Yes	—

Table 52   Graphics File Import Specifications (Continued)

Format	Default File Name Extension	Bit Depth Support	Alpha Channel Support	Notes
SGI	.rgb	8-bit or 16-bit grayscale; 8-bit grayscale plus 8-bit alpha channel; 24- and 48-bit color; 24-bit color plus 8-bit alpha channel; 64-bit (16 bits per component)	Yes	—
Softimage	.pic	24-bit plus 8-bit alpha	Yes	Pixel aspect information is saved with the image. ⚠ **(Windows only) Double-clicking a Softimage file will start the application associated with PICT files because they use the same file name extension. Avoid double-clicking Softimage files to view them.**
Sun Raster	.sun	1-, 8-, or 24-bit	No	—
Targa	.tga	8-, 15-, 16-, or 24-bit; 32-bit	Yes	—

Table 52   Graphics File Import Specifications (Continued)

Format	Default File Name Exten- sion	Bit Depth Support	Alpha Channel Support	Notes
TIFF	.tif	8-bit color-mapped; 8-bit or 16-bit grayscale; 24- and 48-bit color; 24-bit color plus 8-bit alpha; 36-bit color plus 12-bit alpha; 42-bit color plus 14-bit alpha; 48-bit color plus 16-bit alpha	Yes	Dots-per-inch (dpi) information is preserved. The following types of files are not supported: Multichannel (greater than four channels) files; Group 3-compressed (fax) files; CMYK files with extra channels; and JPEG-compressed files. Four-channel files from Avid Matador™ are imported as three-channel files.
Wavefront	.rla	32-bit and 64-bit	Yes	—
XWindows	.xwd	1-, 2-, 4-, 8-, 16-, 24-, and 32-bit	No	—
YUV	.yuv	24-bit	No	Pixel aspect information (based on the video format) is saved with image data. When importing, select the option Force to Fit Screen.

Screen Resolution for Imported Graphics and Sequences

The tables in this section show the frame sizes to use when importing graphics and sequences for different resolutions for NTSC and for PAL.

These numbers describe the recommended width and height, in pixels, to create a source image that will be displayed full-screen after import. Using these dimensions helps minimize distortion after conversion to the Avid

application native resolution. An image with smaller dimensions will take up less of the screen or will be distorted, while an image that exceeds these dimensions might appear distorted. Avid recommends an image resolution of 72 pixels per inch.

For example, when you are using an application such as Adobe After Effects to process a sequence that you want to bring into the Avid application, use the values shown in the following tables when you render the sequence.

Table 53 provides information about the resolutions for interlaced media (30i NTSC and 25i PAL projects).

Table 53   Graphic Import Frame Sizes: Interlaced

Resolution	Frame Size (Pixels)	Resolution	Frame Size (Pixels)
15:1s	352 x 243 (NTSC) 352 x 288 (PAL)	**10:1**	720 x 486 (NTSC) 720 x 576 (PAL)
4:1s	352 x 243 (NTSC) 352 x 288 (PAL)	**3:1**	720 x 486 (NTSC) 720 x 576 (PAL)
2:1s	352 x 243 (NTSC) 352 x 288 (PAL)	**2:1**	720 x 486 (NTSC) 720 x 576 (PAL)
20:1	720 x 486 (NTSC) 720 x 576 (PAL)	**1:1**	720 x 486 (NTSC) 720 x 576 (PAL)

Table 54 provides information for progressive media (24p NTSC, 24p PAL, and 25p projects).

Table 54   Graphic Import Frame Sizes: Progressive

Resolution	Frame Size (Pixels)	Resolution	Frame Size (Pixels)
35:1	720 x 486 (NTSC) 720 x 576 (PAL)	3:1	720 x 486 (NTSC) 720 x 576 (PAL)
28:1	720 x 486 (NTSC) 720 x 576 (PAL)	2:1	720 x 486 (NTSC) 720 x 576 (PAL)
14:1	720 x 486 (NTSC) 720 x 576 (PAL)	1:1	720 x 486 (NTSC) 720 x 576 (PAL)

Table 55 provides information for interlaced and progressive multicamera media.

Table 55   Graphic Import Frame Sizes: MultiCamera

Interlaced Resolution	Frame Size (Pixels)	Progressive Resolution	Frame Size (Pixels)
4:1m	288 x 243 (NTSC) 288 x 288 (PAL)	3:1m	288 x 243 (NTSC) 288 x 288 (PAL)
10:1	288 x 243 (NTSC) 288 x 288 (PAL)	8:1m	288 x 243 (NTSC) 288 x 288 (PAL)

Table 56 provides information for DV media (30i and 25i projects).

Table 56   Graphic Import Frame Sizes: DV

Resolution	Frame Size (Pixels)	Resolution	Frame Size (Pixels)
DV 25	720 x 480 (NTSC) 720 x 576 (PAL)	DV 50	720 x 480 (NTSC) 720 x 576 (PAL)

Animation Files

Your Avid system supports the following animation file formats:

- **ERIMovie:** Developed by Elastic Reality, Inc. (now a division of Avid Technology, Inc.) for quick playback of rendered movies on Silicon Graphics, Inc. platforms.

- **(Macintosh only) PICS:** Developed by Apple Computer, Inc. A PICS file is a sequence of PICT images. Many applications that handle multiple image formats on the Macintosh platform also support PICS files.

- **QuickTime:** Developed by Apple Computer, Inc. for multimedia on multiple platforms.

- **(Windows only) AVI (Audio Video Interleave):** Developed by Microsoft for storing video and audio information as part of its Video for Windows standard.

Table 57 shows animation file import specifications. QuickTime import and export information appears in Table 58. AVI import and export information appears in Table 59.

Your Avid system imports the file at the frame rate that is set in the project (29.97 fps, 25 fps, or 24 fps). Set the appropriate frame rate for the project when you export from a third-party application.

Table 57 shows animation file import specifications.

Table 57   Animation File Import Specifications

Format	Default File Name Extension	Bit Depth Support	Alpha Channel Support	Notes
ERIMovie	.mov or .eri	24-bit packed and 32-bit raw movie files	Yes	QuickTime for Windows also uses the .mov file name extension. However, QuickTime does not support ERIMovie, and double-clicking an ERIMovie file will cause an error. *There is no player for ERIMovie on Windows or Macintosh platforms; the* mview *program supports ERIMovie on Silicon Graphics systems.*
(Macintosh only) PICS Animation	.pcs	2-, 4-, 8-, 16-, and 32-bit	Yes	Only uncompressed data can be stored in PICS format. PICS export does not allow PICS containers larger than 16 MB.
Sequenced image files	Various	—	Yes	Name each file in the sequence *NameN.ext*, with *Name* identifying the animation, *N* indicating the file order, and *.ext* indicating the file type (for example, Image1.jpg, Image2.jpg, Image3.jpg). The numbering can start at any number except 0, or use any numbering format (for example, Image010.jpg, Image012.jpg, or Imagef28.jpg, Imagef29.jpg).

Table 58 shows the QuickTime file import and export specifications.

**Table 58   QuickTime File Import and
             Export Specifications**

QuickTime File Import and Export Specifications	Notes
QuickTime files	QuickTime import and export requires QuickTime software. For supported versions of QuickTime, see the release notes for your Avid system. • (Windows only) QuickTime software is installed when you install your Avid application. • (Macintosh only) QuickTime software is automatically installed as part of the Mac OS operating system.
Avid Codec for QuickTime files	The Avid Codec for QuickTime enables you to import and export QuickTime files at a rate of three to four times real time. To use the codec in a third-party application, see "Exporting from a Third-Party QuickTime or AVI Application" in the Help.
Resolution	Use Export settings to specify the video resolution of a QuickTime file for export. For more information, see "Export Settings Dialog Box Options" in the Help. The video resolution of a QuickTime file is set at export time from a third-party application equipped with the Avid Codec for QuickTime. The Avid system imports the file at this resolution. For more information on exporting from a third-party application, see "Exporting from a Third-Party QuickTime or AVI Application" in the Help.
Image size	To take advantage of the Avid Codec for QuickTime speed, you must export the files from the QuickTime application at the following frame sizes in order to import to Media Composer v6.0 and later: 720 x 486 pixels for NTSC images (non-square pixels) 720 x 576 pixels for PAL images (non-square pixels)
File name extension	After you import a QuickTime file, the file maintains the .mov file name extension, which is visible in a bin. The .mov file name extension is the default for export.

Table 58	QuickTime File Import and Export Specifications (Continued)

QuickTime File Import and Export Specifications	Notes
QuickTime alpha	To save a QuickTime movie with alpha channel in a third-party QuickTime application, use the Avid Codec for QuickTime or a codec that supports a color depth or "millions +." The Avid application does not support matte key or alpha channel for QuickTime export; it does import alpha channel when one exists.

Table 59 shows the AVI file import and export specifications.

Table 59	AVI File Import and Export Specifications

AVI File Import and Export Specifications	Notes
Resolution	Use Export settings to specify the video resolution of an AVI file for export. For quick export of files using the Avid Codec for AVI, select the "Use Source Compression" option in the Export Settings dialog box. To control the resolution when using the Avid Codec for AVI, deselect the "Use Source Compression" option, click Compression Settings, and select the resolution you want from the Avid AVI Codec Configuration dialog box. For more information, click the dialog box and then press the F1 key (Windows) or Help key (Macintosh). The resolution of an AVI file is set at export time from a third-party application equipped with the Avid Codec for AVI. The Avid system imports the file at this resolution. For more information on exporting from a third-party application, see the "Exporting from a Third-Party QuickTime or AVI Application" in the Help.
File size	Avid AVI files can be quite large, especially at high video resolutions. They require adequate storage and transfer capabilities.

Table 59   AVI File Import and Export
             Specifications (Continued)

AVI File Import and Export Specifications	Notes
File name extension	After you import an AVI file, the file maintains the .avi file name extension, which is visible in a bin. The .avi file name extension is the default for export.
AVI alpha channel	Media Composer does support alpha channel for AVI import or export.

Audio File Formats

This list briefly describes the supported audio file formats:

- **Audio Interchange File Format (AIFF-C):** Format for audio files developed by Apple Computer, Inc.

- **(Macintosh only) Sound Designer II (SDII or SD2):** Native format of the Sound Designer II application developed by Digidesign, Inc., a division of Avid Technology, Inc.

- **Wave Format (WAVE):** Format for audio files developed jointly by Microsoft and IBM. WAVE files are playable by nearly all Windows applications that support sound.

You can capture, render, and edit audio in AIFF-C, Sound Designer II (Macintosh only), or WAVE file formats.

MXF Files

Material Exchange Format (MXF) allows for easy exchange of material between file servers, tape streamers and digital archives. MXF is an ideal interchange format to enable workflow efficiencies in news broadcasting, post production, asset management, and archiving applications. For example, Avid|DS and ProTools support MXF files.

You can select the MXF format when capturing, importing, creating titles, or rendering effects.

OMFI Files

OMFI was developed by Avid Technology, Inc. and many industry and standards partners for the interchange of digital media data between platforms and applications. For information about creating an OMFI file on a non-Avid application, see the documentation for the application.

The information in Table 60 applies to importing OMFI files.

Table 60   OMFI File Import Specifications

OMFI File Import Specifications	Notes
Resolution	For optimum import speed and quality, export or render the file from the source application at the resolution you want, and then import the file into the Avid application at that resolution. For more information, see "Import Settings" in the Help.
Frame or Edit rate	You must import sequences and clips to projects that have the same edit rate (29.97 fps or 23.976 fps for NTSC, 25 fps for PAL, 24 fps for film). If the edit rates do not match, you will receive an error message.
	cannot import an OMFI audio file that was produced with an edit rate equal to the audio sampling rate. Trying to import such a file results in an "Unrecognized file type" error message. Create the source file with an edit rate at the project edit rate (29.97 fps, 25 fps, 24 fps, or 23.976 fps).

Table 60   OMFI File Import Specifications (Continued)

OMFI File Import Specifications	Notes
OMFI version	Media Composer recognizes and supports OMFI 1.0 composition and media files and OMFI 2.0 composition files.
	The following OMFI 2.0 effects are supported generally:
	• Video effects: dissolves, wipes, freeze frame, film pulldown, slow motion, fade to black
	• Audio effects: pan and volume, audio dissolves
	Other effects can be imported from other Avid applications.
Film pulldown	To import audio media, set the pulldown switch to 1.0.
Audio sample rate	Audio media is imported at the sample rate that is set on the Avid system.
	Media Composer cannot import an OMFI audio file that was produced with an edit rate equal to the audio sampling rate. Trying to import such a file results in an "Unrecognized file type" error message. Set the edit rate to the project edit rate (29.97 fps, 25 fps, 24 fps, or 23.976 fps).
Avid MCXpress™ for Windows NT® files	If you are importing OMFI compositions from Avid MCXpress for Windows NT, you might receive an error if the sequence includes video or audio effects. If this happens, create a cuts-only version of the sequence in Avid MCXpress and export it again. You cannot import video media from Avid MCXpress for Windows NT; if you import a composition, you must recapture the media.
File transfer	If you are transferring an OMFI file over a network, transfer it as a binary file.
Reimporting Avid media files	If you import OMFI files that contain media you exported from the same system, you need to delete the original media. Otherwise, the new media will not overwrite the original media. To learn how to find related media files for a sequence, see "Finding a Related Media File" in the Help.

Field Ordering in Graphic Imports and Exports

Graphic images are composed of one or more image files, each of which contains a full frame. These frames contain fields (formed from the odd-numbered and even-numbered lines of the image frame) that have three basic arrangements:

- **Progressive or still frame:** The upper and lower fields in the frame originated at the same instant of time, or are coherent with each other, as shown in the following illustration.

Dashed lines = Field 1
Solid lines = Field 2
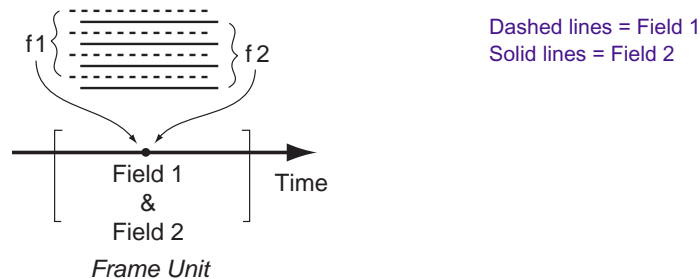
- **Upper field is first:** The upper field in the frame (odd-numbered lines, when the frame lines are numbered starting from 1) occurs temporally before the lower field, as shown in the following illustration. This arrangement is termed "upper field first" (or "lower field second").
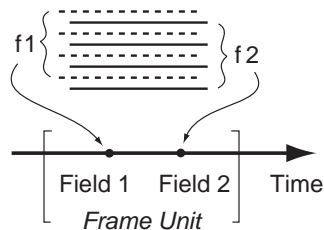
- **Lower field is first:** The lower field in the frame (even-numbered lines) occurs temporally first, as shown in the following illustration. This arrangement is termed "lower field first" (or "upper field second").

Field 1 Field 2 Time

Frame Unit
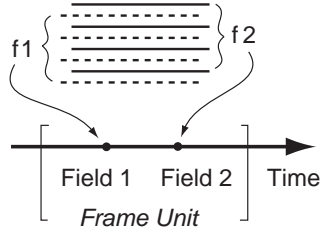
Preventing a Spatial Field Mismatch on Import

Table 61 shows the proper spatial field position for each of the common video formats in Avid systems.

Table 61   Recommended Field Settings for Two-Field Import and Export

Avid Video Format	Import/Export Frame Size	Upper/Lower Field Spatial Setting	Field Setting for Import and Export[a]
AVR NTSC	720 x 243 x 2	Upper field is first.	Odd Field
AVR PAL	720 x 288 x 2	Upper field is first.	Odd Field
Meridien NTSC	720 x 243 x 2	Lower field is first.	Even Field
Meridien PAL	720 x 288 x 2	Upper field is first.	Odd Field
DV25 NTSC	720 x 240 x 2	Lower field is first	Even Field
DV50 NTSC	720 x 240 x 2	Lower field is first	Even Field
DV25 PAL	720 x 288 x 2	Lower field is first	Even Field
DV50 PAL	720 x 288 x 2	Lower field is first	Even Field

a. Odd Field or Even Field specifies whether the temporally first field in the frame has the odd or even numbered lines, starting from 1.

Graphics utilities, such as Adobe After Effects, permit selection of either spatial relation for the fields when rendering a sequence of interlaced fields. If the rendering is performed as shown in Table 61, then the import will be correct.

If the spatial positions of the two fields are reversed (for example, the upper field should be a lower field), the import cannot be done without correcting the spatial relationship. In this spatial mismatch situation, the Avid system will convert the upper field to a lower field by deleting the top line of the upper field and replicating the bottom line. The field will thus be converted to a lower field relative to the other field. The import operation can now proceed.

When exporting to DVD for TV playback, it is recommended to transcode any clips that do not match the field ordering of the majority of the clips. Not doing this will result in field ordering being swapped during playback.

Spatial Field Relationship on Export

The default export operation is automatically carried out as shown in Table 61. The fields will be properly interleaved in the export frames (one frame per file).

If an import comes in mismatched and the dropping of the top line and repeating of the bottom line is performed, you might decide to have the export operation performed to prevent a shift up or down by a line. The Export Settings dialog box permits you to select the spatial arrangement that is the opposite of what is otherwise recommended. This option should rarely be used.

24p and 25p Import and Export

The spatial field selection options do not apply for 24p and 25p projects because the frames in these projects are already in progressive or still-image form.

Field Dominance

Editing in Avid systems is frame based. All timecode is expressed in frame numbers, and all cuts are at frame boundaries. A raw video stream has no concept of frames (ignoring color framing) until the frame unit is defined. Defining the *dominant field* for the system defines the "***frameness"*** of the video stream, as shown in the following figure.

Field-1
Dominant
Frame

Field-2
Dominant
Frame
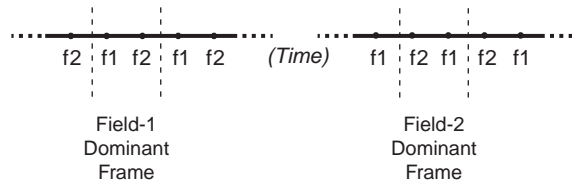
Avid editing systems all use field 1 as the dominant field. This means that the first field temporally in the edit frame will always be field 1. Field 2 will always be the second frame in the edit frame. Cuts will always precede field 1.

Fields in Video

In the video signal, fields have a temporal position that is unambiguously and uniquely tied to the details of the video signal, regardless of whether the signal is analog or digital (SDI). This means that working around a field spatial mismatch should be done by correcting the spatial relation between the two fields rather than the temporal position. In some cases, it is possible to modify the field dominance of the input image files, but this is cumbersome, results in the loss of two fields, and is more difficult to carry out than either the workaround provided in Avid systems or rerendering properly to the other spatial relationship.

Chapter 7

Resolutions and Storage Requirements

This appendix describes the different resolutions and lists their specifications. It also explains how to estimate the drive space you will require to store your captured media. This appendix includes the following sections:

- Compression and Avid Editing Systems
- Screen Resolution
- Compression and Resolutions
- Storage Requirements
- Maximizing Drive Space
- Managing Storage to Improve Playback Performance

The resolutions available on your Avid system depend on its model and options.

Compression and Avid Editing Systems

When an Avid editing system captures and stores video, it employs compression techniques that affect the size of the resulting files and the resolution of the images they contain. The less the data is compressed, the higher the image resolution, and the more drive space the file requires.

Large media files at high resolutions can use very large amounts of drive space. When you are choosing an image resolution for your project, you need to balance your requirements in terms of image quality with your available drive resources.

You can use lower resolutions when your work does not require very high image quality (for example, in offline work, or in CD-ROM or Web authoring projects), and higher resolutions when you need excellent image quality. You can also mix different resolutions within the same project as long as those resolutions are compatible with one another.

Your Avid application also supports the digitizing and storage of video that is not processed by a data compression scheme.

- Uncompressed video (1:1) conforms to ITU-R 601 standards. The image quality of uncompressed video is very high, but uncompressed files require very large amounts of drive space.

- DV (digital video) and MPEG video are compressed media formats. SMPTE standards specify how to take 601 video and convert it to the compressed formats. When recording through a 1394 connection (Windows only) or an MPEG SDTI-CP connection (Windows only), the Avid editing system records DV and MPEG media in their native formats, and does not compress them further.

Screen Resolution

The screen resolution for the Avid application is different for NTSC and for PAL:

- NTSC ITU-R 601 resolution is 720 x 486 non-square pixels covering all the active video. The stored media includes 10 lines of blanking or vertical interval timecode (VITC) per frame (5 lines per field).

- NTSC DV and MPEG resolutions are 720 x 480 non-square pixels covering all the active video.

- PAL ITU-R 601 resolution is 720 x 576 non-square pixels covering all the active video. The stored media includes 16 lines of blanking or VITC per frame (8 lines per field).

- PAL DV and MPEG resolutions are 720 x 576 non-square pixels covering all the active video.

Compression and Resolutions

Avid resolutions use a simple notation — *x:1* — to identify the level of compression. The value of *x* indicates the level of compression that is applied to the image data. For example, a 3:1 compression ratio compresses the original data to one-third of its uncompressed size.

A lower compression ratio (a lower number to the left of the colon) results in better image quality but requires more drive space to store the captured media. A lower compression ratio might also require drive striping to keep up with the high volume of data.

For information on resolutions to use when importing graphics or sequences from a third-party application, see "Screen Resolutions for Imported Graphics and Sequences" in the Help.

Mixing Resolutions

In a single sequence, you can mix resolutions, but you cannot mix interlaced with progressive resolutions.

Avid Resolutions

Table 62 lists the five groups of Avid resolutions.

Table 62   Avid Resolution Groups

NTSC 30i and PAL 25i Projects			24p and 25p Projects	
Single-Field	Two-Field	Uncompressed (Interlaced)	Progressive	Uncompressed (Progressive)
15:1s	20:1	1:1	35:1	1:1
4:1s	10:1		28:1	
2:1s	3:1		14:1	
	2:1		3:1	
			2:1	

DV Resolutions

Table 63 lists the two groups of DV resolutions:

Table 63   DV Resolution Groups

NTSC 30i Projects	PAL 25i projects
DV 25 4:1:1	DV 25 4:1:1, DV 25 4:2:0
DV 50 4:2:2	DV 50 4:2:2

You can mix NTSC DV resolutions (DV 25 and DV 50), or you can mix PAL DV resolutions (DV 25 and DV 50). However, you cannot record a digital cut to a DV deck with mixed DV resolutions. You need to perform a mixdown first. You can record mixed DV resolutions to an SDI or to an analog deck.

Advantages to Mixing Resolutions

Mixing resolutions in a sequence saves time and effort in a variety of circumstances:

- You can do most of your work at a resolution that can play back real-time effects, digitizing only the most complex shots and graphics at a high-quality, single-stream resolution.

- For storage and playback efficiency, you can capture complex footage at the draft-quality online resolution and edit it along with other online resolutions.

- You can avoid some recapturing by importing complex graphics at a high-quality resolution and by digitizing the remaining footage at draft quality during the offline phase.

- You can exchange material between projects with a minimum of recapturing.

- You can develop material among workstations at different resolutions and bring the material together for a final cut without recapturing.

For information on resolutions to use when importing graphics or sequences from a third-party application, see "Screen Resolutions for Imported Graphics and Sequences" in the Help.

Resolution Groups and Image Quality

Although it is generally true that a lower compression ratio means higher image quality, the resolution group itself (single-field, two-field, progressive, or uncompressed) is also a factor in the quality of the final image.

Single-field resolutions work with smaller amounts of original image data than two-field or progressive resolutions. They use only half the image width of two-field resolutions, and they use only one of the two fields in the standard video signal.

For example, there is a 2:1 resolution for both single-field and two-field resolutions. In both cases, the image data is compressed to one-half of its original size. However, the image quality of these two resolutions is different. The single-field 2:1 resolution has lower image quality because it processes only one-quarter of the original image data used by the two-field 2:1 resolution.

Video Streams

Whenever you have more than one video track, or a transition effect on a single track, you have two streams of data ("dual streams"). Some effects create a second stream. When you render effects, you combine two streams into one. Two streams demand a significantly higher throughput than one stream. Sometimes, drive striping is required to accommodate two streams, even though a single stream at the same resolution would not require striping.

Compression Specifications

The following tables provide information about the Avid resolutions, DV resolutions, and MPEG resolutions:

- "Resolution Specifications: Interlaced" on page 186

- "Resolution Specifications: Progressive" on page 188

Progressive media is stored as a full frame. For more information, see "How the Avid System Stores and Displays 24p and 25p Media" on page 152.

For information on drive striping requirements for different resolutions, see "Getting Information About Striped Drives" in the Help.

For detailed guidelines on estimating space requirements, see "Storage Requirements" on page 189.

Resolution Specifications: Interlaced

Table 64 provides information about the Avid resolutions for interlaced media (30i NTSC and 25i PAL projects).

Table 64   Resolution Specifications: Interlaced

Resolution	Field Size (Pixels)	Fields Per Frame	Quality
15:1s	352 x 248 (NTSC) 352 x 296 (PAL)	1	Offline Maximum storage with enough image detail to make basic editing decisions (you can check lip sync on a medium shot)
4:1s	352 x 248 (NTSC) 352 x 296 (PAL)	1	Offline A good storage resolution combined with a good offline image quality
2:1s	352 x 248 (NTSC) 352 x 296 (PAL)	1	Online Provides enough detail for finishing multimedia jobs such as CD-ROM and Web authoring
20:1	720 x 248 (NTSC) 720 x 296 (PAL)	2	Offline Useful for mixing storage-efficient offline footage with online-quality resolutions
10:1	720 x 248 (NTSC) 720 x 296 (PAL)	2	Offline/online A good compromise for high-quality, two-field offline or low-quality online that saves drive space
3:1	720 x 248 (NTSC) 720 x 296 (PAL)	2	Online A medium-quality online resolution that can sustain two-stream playback on 2-way striped drives
2:1	720 x 248 (NTSC) 720 x 296 (PAL)	2	Online Provides the highest image quality of any compressed resolution and sustains two-stream playback on 4-way striped drives
1:1	720 x 248 (NTSC) 720 x 296 (PAL)	2	Online uncompressed Provides the highest image quality possible

Resolution Specifications: Progressive

Table 65 provides information about the Avid resolutions for progressive media (24p NTSC and 24p PAL projects).

Table 65   **Resolution Specifications: Progressive**

Resolution	Frame Size (Pixels)	Quality
35:1	720 x 496 (NTSC) 720 x 592 (PAL)	Offline Maximum storage with enough image detail to make basic editing decisions
28:1	720 x 496 (NTSC) 720 x 592 (PAL)	Offline Low storage requirements combined with a good offline image quality
14:1	720 x 496 (NTSC) 720 x 592 (PAL)	Offline The best offline image quality
3:1	720 x 496 (NTSC) 720 x 592 (PAL)	Online A medium-quality online resolution that can sustain two-stream playback on 2-way striped drives
2:1	720 x 496 (NTSC) 720 x 592 (PAL)	Online Provides the highest image quality of any compressed resolution and sustains two-stream playback on 4-way striped drives
1:1	720 x 496 (NTSC) 720 x 592 (PAL)	Online uncompressed Provides the highest image quality possible

Storage Requirements

You should plan the use of drive volumes in advance, especially when you capture numerous reels.

This section contains recommendations for achieving efficient storage for your digital media. It explains how playback performance can be affected by the way you set up the storage drives and target them when you capture.

Estimating Drive Space Requirements

You need to select a resolution that provides adequate picture quality for your project. However, you might be limited by the amount of media drive space available. Before you capture, estimate your media drive space requirements.

To estimate media drive space requirements:

1. Use the appropriate resolution specifications table (see "Compression Specifications" on page 186) and the information in your media drive documentation to select a resolution that is compatible with the drive and striping capacity on your system.

2. Open the Capture tool, select a resolution and target drive or drives, and note the time remaining on the selected drives (see "Interpreting the Time-Remaining Display" in the Help).

3. Get a total duration for all the clips to be captured. Use the Console and the Get Bin Info commands, as described in "Getting Information with the Console" in the Help.

4. Use the appropriate estimated storage requirements table (see "Estimated Storage Requirements" on page 190) to estimate your drive space requirements based on the resolution and the number of audio tracks. To get an estimate of the number of gigabytes needed, do one of the following:

   ▶ Calculate by dividing the duration of your material (number of minutes) by the estimated minutes per gigabyte.

▶ Calculate by combining storage figures from the "Drive space Needed for *x* Minutes of Media" columns as necessary to match the number of minutes of material you have.

5. Compare the gigabytes available on your drives with the result of step 4. If your needs are greater than your drive space, select a lower resolution and recalculate.

Estimated Storage Requirements

The tables in the following topics show estimated drive space requirements for each resolution, including uncompressed. They show figures for estimated minutes per gigabyte and also figures for the drive space required for certain amounts of material.

📄 *The figures in the table represent drive space for video material that includes typical variations in image complexity. Actual drive space requirements might vary slightly from these estimates, depending on the overall complexity of the video you capture and store.*

Consider the following when you interpret this information:

• For 30-fps media (NTSC) and 25-fps media (PAL), the minutes per gigabyte are approximately the same because PAL video contains approximately 17 percent fewer frames per second, but each frame contains approximately 16 percent more pixels.

For 24p media, which uses the same frame rate for both NTSC and PAL, 24p footage from a PAL transfer requires more storage space.

• Figures for audio storage in the table are based on the standard rates for audio sampling (16 bits per sample, 44.1 kHz). To calculate additional audio storage (for numbers of channels not listed in the table), add 88.2 KB per second (approximately 5.3 MB per minute) to your estimate for each additional audio channel.

• Storage requirements are affected by the number of channels of audio, not the frequency of the captured audio signal. The difference in storage requirements between 44.1-kHz and 48-kHz audio is negligible, while the difference between two or three channels is more significant, as reflected in the table.

📑 *Rolling titles add 1.4 MB (NTSC) or 1.6 MB (PAL) per second to storage requirements. If you are on the upper edge of the requirements for drive capacity or striping, adding a rolling title might prevent you from playing real-time material.*

Estimated Storage Requirements: Interlaced

Before using Table 66, read the information in "Estimating Drive Space Requirements" on page 189 and "Estimated Storage Requirements" on page 190.

Table 66   Estimated Storage Requirements: Interlaced

Resolution	Audio Tracks	Minutes Per Gigabyte	Drive Space Needed for 1 Minute of Media	Drive Space Needed for 10 Minutes of Media	Drive Space Needed for 30 Minutes of Media
15:1s	0	48.5	20.6 MB	206 MB	618 MB
	1	38.6	25.9 MB	259 MB	777 MB
	2	32.1	31.2 MB	312 MB	936 MB
	3	28.2	35.5 MB	355 MB	1.07 GB
	4	24.5	40.8 MB	408 MB	1.22 GB
	8	16.1	62.0 MB	620 MB	1.86 GB
4:1s	0	11.6	85.8 MB	858 MB	2.57 GB
	1	11.0	91.1 MB	911 MB	2.73 GB
	2	10.5	95.4 MB	954 MB	2.86 GB
	3	9.9	101 MB	1.01 GB	3.03 GB
	4	9.4	106 MB	1.06 GB	3.18 GB

**Table 66   Estimated Storage Requirements: Interlaced
(Continued)**

Resolution	Audio Tracks	Minutes Per Gigabyte	Drive Space Needed for 1 Minute of Media	Drive Space Needed for 10 Minutes of Media	Drive Space Needed for 30 Minutes of Media
	8	7.9	127 MB	1.27 GB	3.81 GB
2:1s	0	5.8	172 MB	1.72 GB	5.16 GB
	1	5.7	177 MB	1.77 GB	5.28 GB
	2	5.5	182 MB	1.82 GB	5.46 GB
	3	5.4	187 MB	1.87 GB	5.61 GB
	4	5.2	193 MB	1.93 GB	5.79 GB
	8	4.7	214 MB	2.14 GB	6.42 GB
20:1	0	16.6	60.1 MB	601 MB	1.80 GB
	1	15.3	65.4 MB	654 MB	1.96 GB
	2	14.1	70.7 MB	707 MB	2.12 GB
	3	13.2	76.0 MB	760 MB	2.28 GB
	4	12.3	81.3 MB	813 MB	2.44 GB
	8	9.8	103 MB	1.03 GB	3.09 GB
10:1	0	8.3	120 MB	1.20 GB	3.60 GB
	1	7.9	126 MB	1.26 GB	3.78 GB
	2	7.6	131 MB	1.31 GB	3.93 GB
	3	7.3	136 MB	1.36 GB	4.08 GB
	4	7.2	140 MB	1.40 GB	4.20 GB
	8	6.2	161 MB	1.61 GB	4.83 GB

Table 66 **Estimated Storage Requirements: Interlaced (Continued)**

Resolution	Audio Tracks	Minutes Per Gigabyte	Drive Space Needed for 1 Minute of Media	Drive Space Needed for 10 Minutes of Media	Drive Space Needed for 30 Minutes of Media
3:1	0	2.9	344 MB	3.44 GB	10.32 GB
	1	2.9	349 MB	3.49 GB	10.47 GB
	2	2.8	354 MB	3.54 GB	10.62 GB
	3	2.8	360 MB	3.60 GB	10.80 GB
	4	2.7	365 MB	3.65 GB	10.95 GB
	8	2.6	386 MB	3.86 GB	11.58 GB
2:1	0	1.9	516 MB	5.16 GB	15.48 GB
	1	1.9	521 MB	5.21 GB	15.63 GB
	2	1.9	526 MB	5.26 GB	15.78 GB
	3	1.9	531 MB	5.31 GB	15.94 GB
	4	1.9	537 MB	5.37 GB	16.11 GB
	8	1.8	558 MB	5.58 GB	16.74 GB
1:1 (Uncompressed)	0	0.8	1.22 GB	12.2 GB	36.6 GB
	1	0.8	1.23 GB	12.3 GB	36.9 GB
	2	0.8	1.23 GB	12.3 GB	36.9 GB
	3	0.8	1.24 GB	12.4 GB	37.2 GB
	4	0.8	1.24 GB	12.4 GB	37.2 GB
	8	0.8	1.26 GB	12.6 GB	37.8 GB

Estimated Storage Requirements: Progressive

Before using Table 67, read the information in "Estimating Drive Space Requirements" on page 189 and "Estimated Storage Requirements" on page 190.

Table 67   Estimated Storage Requirements: Progressive

Resolution	Audio Tracks	Minutes Per Gigabyte	Drive Space Needed for 1 Minute of Media	Drive Space Needed for 10 Minutes of Media	Drive Space Needed for 30 Minutes of Media
35:1	0	36.4 (NTSC)	27.5 MB	275 MB	824 MB
		30.3 (PAL)	33.0 MB	330 MB	990 MB
	1	30.5 (NTSC)	32.8 MB	328 MB	983 MB
		26.1 (PAL)	38.3 MB	383 MB	1.14 GB
	2	26.3 (NTSC)	38.1 MB	381 MB	1.14 GB
		22.9 (PAL)	43.6 MB	436 MB	1.30 GB
	3	23.1 (NTSC)	43.4 MB	434 MB	1.30 GB
		20.4 (PAL)	48.9 MB	489 MB	1.47 GB
	4	20.5 (NTSC)	48.7 MB	487 MB	1.46 GB
		18.4 (PAL)	54.2 MB	542 MB	1.63 GB
	8	14.3 (NTSC)	69.9 MB	699 MB	2.10 GB
		13.3 (PAL)	75.4 MB	754 MB	2.26 GB
28:1	0	29.1 (NTSC)	34.4 MB	344 MB	1.03 GB
		24.3 (PAL)	41.2 MB	412 MB	1.23 GB
	1	25.2 (NTSC)	39.7 MB	397 MB	1.19 GB
		21.5 (PAL)	46.5 MB	465 MB	1.39 GB
	2	22.2 (NTSC)	45.0 MB	450 MB	1.35 GB
		19.3 (PAL)	51.8 MB	518 MB	1.55 GB

Table 67   Estimated Storage Requirements: Progressive (Continued)

Resolution	Audio Tracks	Minutes Per Gigabyte	Drive Space Needed for 1 Minute of Media	Drive Space Needed for 10 Minutes of Media	Drive Space Needed for 30 Minutes of Media
	3	19.9 (NTSC) 17.5 (PAL)	50.3 MB 57.1 MB	503 MB 571 MB	1.51 GB 1.71 GB
	4	18.0 (NTSC) 16.0 (PAL)	55.6 MB 62.4 MB	557 MB 624 MB	1.67 GB 1.87 GB
	8	13.0 (NTSC) 12.0 (PAL)	76.8 MB 83.6 MB	768 MB 836 MB	2.30 GB 2.51 GB
14:1	0	14.6 (NTSC) 12.1 (PAL)	68.5 MB 82.6 MB	685 MB 826 MB	2.05 GB 2.48 GB
	1	13.6 (NTSC) 11.4 (PAL)	73.8 MB 87.9 MB	738 MB 879 MB	2.21 GB 2.64 GB
	2	12.6 (NTSC) 10.7 (PAL)	79.1 MB 93.2 MB	791 MB 932 MB	2.37 GB 2.80 GB
	3	11.8 (NTSC) 10.1 (PAL)	84.4 MB 98.5 MB	844 MB 985 MB	2.53 GB 2.96 GB
	4	11.1 (NTSC) 9.6 (PAL)	89.7 MB 103 MB	897 MB 1.04 GB	2.69 GB 3.12 GB
	8	9.0 (NTSC) 8.0 (PAL)	111 MB 125 MB	1.11 GB 1.25 GB	3.33 GB 3.75 GB
3:1	0	3.6 (NTSC) 3.0 (PAL)	278 MB 333 MB	2.78 GB 3.33 GB	8.33 GB 10.0 GB
	1	3.5 (NTSC) 3.0 (PAL)	283 MB 339 MB	2.83 GB 3.39 GB	8.49 GB 10.2 GB
	2	3.5 (NTSC) 2.9 (PAL)	288 MB 344 MB	2.88 GB 3.44 GB	8.65 GB 10.3 GB

Table 67   Estimated Storage Requirements: Progressive (Continued)

Resolution	Audio Tracks	Minutes Per Gigabyte	Drive Space Needed for 1 Minute of Media	Drive Space Needed for 10 Minutes of Media	Drive Space Needed for 30 Minutes of Media
	3	3.4 (NTSC)	294 MB	2.94 GB	8.81 GB
		2.9 (PAL)	349 MB	3.49 GB	10.5 GB
	4	3.3 (NTSC)	299 MB	2.99 GB	8.97 GB
		2.8 (PAL)	355 MB	3.55 GB	10.6 GB
	8	3.1 (NTSC)	320 MB	3.20 GB	9.61 GB
		2.7 (PAL)	376 MB	3.76 GB	11.3 GB
2:1	0	2.4 (NTSC)	417 MB	4.17 GB	12.5 GB
		2.0 (PAL)	500 MB	5.00 GB	15.0 GB
	1	2.4 (NTSC)	422 MB	4.22 GB	12.7 GB
		2.0 (PAL)	505 MB	5.05 GB	15.2 GB
	2	2.3 (NTSC)	427 MB	4.27 GB	12.8 GB
		2.0 (PAL)	510 MB	5.11 GB	15.3 GB
	3	2.3 (NTSC)	433 MB	4.33 GB	13.0 GB
		1.9 (PAL)	516 MB	5.16 GB	15.5 GB
	4	2.3 (NTSC)	438 MB	4.38 GB	13.1 GB
		1.9 (PAL)	521 MB	5.21 GB	15.6 GB
	8	2.2 (NTSC)	459 MB	4.59 GB	13.8 GB
		1.8 (PAL)	542 MB	5.42 GB	16.3 GB
1:1 (Uncompressed)	0	1.0 (NTSC)	1.00 GB	10.0 GB	30.0 GB
		0.9 (PAL)	1.15 GB	11.5 GB	34.5 GB
	1	1.0 (NTSC)	1.01 GB	10.1 GB	30.3 GB
		0.9 (PAL)	1.15 GB	11.5 GB	34.6 GB
	2	1.0 (NTSC)	1.01 GB	10.1 GB	30.3 GB
		0.9 (PAL)	1.16 GB	11.6 GB	34.8 GB

Table 67   Estimated Storage Requirements: Progressive (Continued)

Resolution	Audio Tracks	Minutes Per Gigabyte	Drive Space Needed for 1 Minute of Media	Drive Space Needed for 10 Minutes of Media	Drive Space Needed for 30 Minutes of Media
	3	1.0 (NTSC)	1.02 GB	10.2 GB	30.6 GB
		0.9 (PAL)	1.17 GB	11.7 GB	35.1 GB
	4	1.0 (NTSC)	1.02 GB	10.2 GB	30.6 GB
		0.9 (PAL)	11.7 GB	11.7 GB	35.1 GB
	8	1.0 (NTSC)	1.04 GB	10.4 GB	31.3 GB
		0.8 (PAL)	1.19 GB	11.9 GB	35.8 GB

Estimated Storage Requirements: DV

Table 68 provides information to help you estimate the storage requirements for DV media.

Before using this table, read the information in "Estimating Drive Space Requirements" on page 189 and "Estimated Storage Requirements" on page 190.

Calculations are approximate. They are based on dual-stream playback with four channels of audio, and include a 10 percent system overhead factor.

Table 68   Estimated Storage Requirements: DV

Resolution	Minutes Per Gigabyte	Drive Space Needed for 1 Minute of Media	Drive Space Needed for 10 Minutes of Media	Drive Space Needed for 30 Minutes of Media
DV 25 (NTSC)	2.1	480 MB	4.8 GB	14.4 GB

Table 68   Estimated Storage Requirements: DV

Resolution	Minutes Per Gigabyte	Drive Space Needed for 1 Minute of Media	Drive Space Needed for 10 Minutes of Media	Drive Space Needed for 30 Minutes of Media
DV 25 (PAL)	2.7	384 MB	3.8 GB	11.5 GB
DV 50 (NTSC)	1.1	930 MB	9.3 GB	27.9 GB
DV 50 (PAL)	1.4	744 MB	7.4 GB	22.3 GB

Maximizing Drive Space

If your media drive space is limited or you are digitizing a large amount of source material, follow these suggestions to maximize your usage of the media drive space:

For more information on batch digitizing and recapturing, see "Batch Capturing" in the Help.

• Capture only the audio channels required for the edit.

• Log in advance. Batch capture only the footage required for the edit.

• Capture at a lower resolution for editing. Recapture only the clips included in the final cut at a higher resolution.

Managing Storage to Improve Playback Performance

The way you set up the media drives and target them when you capture can affect playback performance. Here are some suggestions for working with complex video images at high resolution, multiple video layers, or multicamera material:

• For more effective playback of multiple streams of video at higher resolutions, stripe the media drives. Some resolutions *require* drive striping; see "Getting Information About Striped Drives" in the Help.

• For more effective playback of multiple streams of video at higher resolutions without drive striping, distribute the video tracks as evenly as possible among available drives, and target separate drives for audio and video.

• Try to target one volume per reel.

Chapter 8

Avid Log Specifications

This section explains the Avid log file format. The Avid editing system can import logs that meet Avid log specifications. These logs must follow the formatting requirements described in this appendix.

Understanding Avid Log Specifications

You can prepare an Avid log on any type of IBM-compatible or Macintosh computer by using a word processing application or a text editor. You can use the file name extension .txt, but it is not required.

To ensure accuracy, you must follow the Avid log specifications described in this appendix.

An Avid log is composed of three sections, in this order:

- Global headings
- Standard and custom column headings
- Data headings

When you create an Avid log, you must follow the order precisely. The tables in this section follow this order.

For an example of a simple log file, see "Sample Avid Log" on page 210.

Avid Log Specifications

This section contains tables that show how to enter headings and data to create an Avid log. The tables use the following conventions:

- A heading appears in the first column, without angle brackets or standard brackets. For example, FIELD_DELIM is the first global heading.

- A <supported value> is surrounded by angle brackets. <Alternative supported values> appear underneath, also in angle brackets. You must enter exactly one of these values. For example, **<29.97>** is one of the supported values for the FPS heading; to specify that value, type **29.97**.

- *<A variable data value>* is also surrounded by angle brackets, but it is italicized. For example, **<timecode>** is the data entry for the Start heading; type the correct timecode, in the format **08:19:10:00** (or **08;19;10;00**, for drop-frame timecode).

- [Tab] and [Enter] (Windows) or [Return] (Macintosh) keys are surrounded by standard brackets.

- A column contains the word "Required" if the heading must be included in the log.

- The final column contains notes about the heading or values.

You can decide not to display a defined heading (including a required heading), except for *Name*. *Name* must always be displayed.

The maximum number of combined global, standard, and custom headings in a log file is 64.

Global Headings

The global headings must come first in an Avid log file, and you must enter one value for each heading.

Table 69 shows the format for the global headings and the supported values for each heading.

Table 69   Avid Log Global Headings

GLOBAL HEADINGS: Global headings are case sensitive and must be spelled exactly as shown. Include all required headings. Other headings are optional but might be necessary for your project. The maximum number of combined global, standard, and custom headings in a log file is 64.					
Heading			[Enter] or [Return]	Required	This marks the start of the global headings.
FIELD_DELIM	[Tab]	<TABS>	[Enter] or [Return]	Required	Enter TABS to show that the file is Tab delimited.
VIDEO_FORMAT	[Tab]	<NTSC> <PAL>	[Enter] or [Return]	Required	
FILM_FORMAT	[Tab]	<16mm> <35mm,3perf> <35mm,4perf>	[Enter] or [Return]		
AUDIO_FORMAT	[Tab]	<22kHz> <24kHz> <44kHz> <48kHz>	[Enter] or [Return]		Audio sampling rate for digitizing. You can override this for individual clips.
TAPE	[Tab]	*<tape name>*	[Enter] or [Return]	Required	Name of the videotape reel you are logging. If you omit this heading, the file name becomes the global tape name. You can override this for individual clips.

Table 69   Avid Log Global Headings (Continued)

FPS	[Tab]	<23.98> <24> <25> <29.97>	[Enter] or [Return]	Required	Capture rate is 23.98 fps (23.978 fps) for NTSC, 24 fps for NTSC or PAL, 25 fps for PAL, or 29.97 fps for NTSC.
			[Enter] or [Return]		Press Enter (Windows) or Return (Macintosh) a second time after entering the FPS value. This marks the end of the global headings.

Column Headings

The standard column headings appear after the global headings in the Avid log file.

You do not enter the data for a column heading along with the heading. You enter the data later, in a separate data section.

You must include the five required standard column headings; they are listed first in Table 70.

You can create your own custom column headings. Enter them after the standard headings (see the last heading in Table 70). To create a custom heading, substitute the custom heading name for <*Your_heading*>. You can create several custom headings, as long as the total of global, standard, and custom headings does not exceed 64.

Table 70   Avid Log Column Headings

COLUMN HEADINGS: Column headings are case sensitive and must be spelled exactly as shown. Note that the first five headings are required. Other headings are optional but might be necessary for your project. This table lists only the column headings that are relevant to shot log files. Some data, such as Creation Date, is gathered by the system. The following table does not include headings for such data. The maximum number of combined global, standard, and custom headings in a log file is 64.

Table 70   Avid Log Column Headings (Continued)

Column	[Enter] or [Return]	Required	Indicates the start of the column headings.
Name	[Tab]	Required	Heading for clip name.
Tracks	[Tab]	Required	Heading for tracks you select for digitizing.
Start	[Tab]	Required	Heading for video timecode of sync point — the timecode IN for clip. From address track of video.
End	[Tab]	Required	Heading for timecode OUT for clip. From address track of video.
Audio	[Tab]		Heading for the audio resolution (sample rate). If omitted, the global entry for AUDIO_FORMAT applies.
Auxiliary Ink	[Tab]		Heading for a second ink number used for the clip.
Auxiliary TC1	[Tab]		Heading for auxiliary timecode.
Auxiliary TC2	[Tab]		Heading for auxiliary timecode.
Auxiliary TC3	[Tab]		Heading for auxiliary timecode.
Auxiliary TC4	[Tab]		Heading for auxiliary timecode.
Auxiliary TC5	[Tab]		Heading for auxiliary timecode.
Camera	[Tab]		Heading for the camera used to film this clip. This feature is used in multicamera shoots.
Camroll	[Tab]		Heading for the camera roll ID containing this clip.
Duration	[Tab]		Heading for timecode Start to timecode End, the length of the video clip.
FPS	[Tab]		Heading for video frames per second rate for digitizing the individual clip. If omitted, the global entry applies.
Film TC	[Tab]		Heading for the timecode used on the film.
Ink Number	[Tab]		Heading for the ink number used for the clip.

Table 70   Avid Log Column Headings (Continued)

KN Duration	[Tab]	Heading for the length of the clip, expressed in feet and frames.
KN End	[Tab]	Heading for the ending key number for the clip.
KN Start	[Tab]	Heading for the starting key number for the clip.
Labroll	[Tab]	Heading for the lab roll ID for the clip. Lab rolls are a combination of several camera rolls.
Perf	[Tab]	Heading for the film-edge perforations format used for 3-perf projects.
Pullin	[Tab]	Heading for the telecine pulldown of the first frame of the clip (pulldown phase). Pullin can have the values A, B, C, or D.
Pullout	[Tab]	Heading for the telecine pulldown of the last frame of the clip (pulldown phase). Pullout can have the values A, B, C, or D.
Reel #	[Tab]	Heading for the source reel number.
Scene	[Tab]	Heading for the scene number of the clip.
Shoot date	[Tab]	Heading for the date the footage was shot.
Sound TC	[Tab]	Heading for Nagra timecode, Arri code, and so on, at the sync point. Syncs with the Start timecode. Required if tracking the sync sound. Capture rate can be 25 or 30 fps.
Soundroll	[Tab]	Heading for sound roll ID for clip.
TC 24	[Tab]	Heading for 24-fps timecode.
TC 25P	[Tab]	Heading for 25-fps timecode with pulldown.
TC 25	[Tab]	Heading for 25-fps timecode.
TC 30	[Tab]	Heading for 30-fps timecode.
Take	[Tab]	Heading for take ID for clip.
Tape	[Tab]	Heading for source tape ID for the individual clip. If omitted, the global entry applies.

Table 70   Avid Log Column Headings (Continued)

DESCRIPT	[Tab]		Heading for description of clip.
COMMENTS	[Tab]		Heading for comments about clip.
<Your_heading>	[Tab]		Add any category of information you want. Add as many headings as you want, but do not use more than a total of 64 global and column headings in the file. Press the Tab key between each heading. Do not press the Tab key after the last heading.
	[Enter] or [Return]	[Enter] or [Return]	Press [Enter] (Windows) or [Return] (Macintosh) twice (do not press Tab) after the last heading.

Data Entries

The data entries come after the Custom column headings. Table 71 shows the format for entering data. Enter a line of data in this format for every clip. Be sure to start the data section *for each clip* with the word **Data** [Enter] (Windows) or **Data** [Return] (Macintosh).

Table 71   Avid Log Data Headings

DATA HEADINGS: The word Data marks the start of the data for each clip.			
Data	[Enter] or [Return]	Required	Enter the word Data to mark the start of the logged clip entries.
DATA FOR EACH CLIP: Enter a line of data for each clip. Enter the data so it aligns with its column heading. (The data that goes with the ninth column heading must be the ninth data entry.) Be sure to enter data for all the required values. To leave a data position unfilled, press the Tab key instead of typing data. Press Enter (Windows) or Return (Macintosh) at the end of each line. Your Avid system supports up to four audio tracks in imported and exported logs.			
<clip name>	[Tab]	Required	Under **Name** heading. Enter a clip identifier (32 characters maximum).

Table 71   Avid Log Data Headings (Continued)

\<V\> \<VA1\> \<VA2\> \<VA1A2\> \<A1A2\> \<A1\> \<A2\>	[Tab]	Required	Under **Tracks** heading. Enter the tracks you want captured for the clip. Enter V for MOS takes. Enter A1, A2, or A1A2 for wild sound.
\<timecode\>	[Tab]	Required	Under **Start** heading. Enter the video timecode for the sync point, the first frame of the clip. Use colons for non-drop-frame (for example, 01:00:12:20). Use one or more semicolons for drop-frame (for example, 01;18;00;02).
\<timecode\>	[Tab]	Required	Under **End** heading. Enter the video timecode for the last frame of the clip.
\<22kHz\> \<24kHz\> \<44kHz\> \<48kHz\>	[Tab]		Under **Audio** heading. Enter the audio sampling rate for this clip only. If omitted, global entry applies.
\<inknumber\>	[Tab]		Under **Auxiliary Ink Number** heading. Identify a second ink number for the start of the clip.
\<timecode\>	[Tab]		Under **Auxiliary TC** heading. Enter a Nagra timecode, Arri code, and so on, for the sync point. Syncs with the Start timecode.
\<camera ID\>	[Tab]		Under **Camera** heading. Identify the camera, using letters or numbers. For multicamera shoots.
\<camera roll ID\>	[Tab]		Under **Camroll** heading. Identify the camera roll, using letters and numbers.
\<timecode\>	[Tab]		Under **Duration** heading. Enter the length of the video clip, Start to End.
\<23.98\> \<24\> \<25\> \<29.97\>	[Tab]		Under **FPS** heading. Enter the video capture rate for this clip only. If omitted, the global entry applies. Use 23.98 fps (23.978 fps) for NTSC, 24 fps for NTSC or PAL, 25 fps for PAL, or 29.97 fps for NTSC.
\<timecode\>	[Tab]		Under **Film TC** heading. Identify the timecode used for the film, usually at 24 fps.

Table 71   Avid Log Data Headings (Continued)

<inknumber>	[Tab]	Under **Ink Number** heading. Identify the ink number for the start of the clip.
<keynumber>	[Tab]	Under **KN Start** heading. Identify the complete key number for the start of the clip, for example, KU 31 2636-8903&12.
<keynumber>	[Tab]	Under **KN End** heading. Identify the key number for the end of the clip. You need to identify only feet and frames, for example, 0342&07.
<keynumber>	[Tab]	Under **KN Duration** heading. Identify the length of the clip, in feet and frames.
<lab roll ID>	[Tab]	Under **Labroll** heading. Identify the lab roll, using letters and numbers.
<1> <2> <3>	[Tab]	Under **Perf** heading. Edit the perf for this clip only.
<A> <B> <X> (matchback only) <C> <D>	[Tab]	Under **Pullin** heading. Identify the telecine pulldown of the first frame of the clip (pulldown phase). NTSC only.
<A> <B> <X> (matchback only) <C> <D>	[Tab]	Under **Pullout** heading. Identify the telecine pulldown of the last frame of the clip. NTSC only.
<reel ID>	[Tab]	Under **Reel #** heading. Identify the reel, using numbers.
<scene ID>	[Tab]	Under **Scene** heading. Identify the scene, using letters and numbers.
<shoot date>	[Tab]	Under **Shoot Date** heading. Identify the date the footage was shot, in numbers or in letters and numbers.
<timecode>	[Tab]	Under **Sound TC** heading. Identify the sound timecode at the sync point. Syncs with the Start timecode.

Table 71   Avid Log Data Headings (Continued)

<sound roll ID>	[Tab]	Under **Soundroll** heading. Identify the sound roll, using letters and numbers.
<timecode>	[Tab]	Under **TC 24** heading. Identify the start of the clip for 24p timecode.
<timecode>	[Tab]	Under **TC 25p** heading. Identify the start of the clip for 25p timecode (PAL pulldown).
<timecode>	[Tab]	Under **TC 25** heading. Identify the start of the clip for 25-fps timecode (PAL).
<timecode>	[Tab]	Under **TC 30** heading. Identify the start of the clip for 30-fps timecode.
<take ID>	[Tab]	Under **Take** heading. Identify the take, using letters and numbers.
<source tape ID>	[Tab]	Under **Tape** heading. Enter the source videotape ID for this clip only.
<clip description>	[Tab]	Under **DESCRIPT** heading. Describe the clip.
<clip comments>	[Tab]	Under **COMMENTS** heading. Comment on the clip.
<information>	[Tab]	Under the headings you created yourself, type the appropriate information.
	[Enter] or [Return]	Press Enter (Windows) or Return (Macintosh) after the last entry for the clip.
		Do not press Tab after the last entry for the clip.
Enter an additional line of data for each remaining clip.		

Sample Avid Log

This section contains a sample Avid log for an NTSC video project, in Windows and Macintosh formats.

Formatting keys (such as [Tab] and [Enter] (Windows) or [Return] (Macintosh)) are shown in brackets.

Windows

Heading [Enter]

FIELD_DELIM [Tab] TABS [Enter]

VIDEO_FORMAT [Tab] NTSC [Enter]

AUDIO_FORMAT [Tab] 44kHz [Enter]

TAPE [Tab] 001 [Enter]

FPS [Tab] 29.97 [Enter]

[Enter]

Column [Enter]

Name [Tab] Tracks [Tab] Start [Tab] End [Enter]

[Enter]

Data [Enter]

CU Josh & Mary [Tab] V [Tab] 01:00:00:00 [Tab] 01:15:05:00 [Enter]

Macintosh

Heading [Return]

FIELD_DELIM [Tab] TABS [Return]

VIDEO_FORMAT [Tab] NTSC [Return]

AUDIO_FORMAT [Tab] 44kHz [Return]

TAPE [Tab] 001 [Return]

FPS [Tab] 29.97 [Return]

[Return]

Column [Return]

Name [Tab] Tracks [Tab] Start [Tab] End [Return]

[Return]

Data [Return]

CU Josh & Mary [Tab] V [Tab] 01:00:00:00 [Tab] 01:15:05:00 [Return]

International Character Support

This document describes how to take advantage of international character support (ICS) on your Avid® editing system.

ICS allows you to display and input characters in languages other than English. There are two basic methods for using ICS:

- (Windows® only) Install the local language operating system, and work within the operating system.

- (Macintosh® or Windows) Use the standard English language operating system, install the language pack, and set the locale to your local language.

Avid Unity™ MediaNetwork v3.2 or later also supports ICS. For more information, see the MediaNetwork documentation.

Using a Local Language Operating System (Windows Only)

If you use a local language operating system, consider the following items:

- When you start the Avid editing application for the first time, it automatically creates a keyboard setting for that language. You can view the keyboard mapping by clicking the appropriate Keyboard setting in the Settings scroll list. If you are using a language other than English, French, Italian, German, or Spanish, you might need to adjust

the mapping for the keyboard so the keys in the Keyboard palette match the keys on your physical keyboard. See "Using Foreign Keyboard Mapping" on page 221.

- If you are bringing older projects and bins forward to this version, you might need to use the CleanEncode utility to convert the file names so they can be viewed correctly in Windows Explorer and in the Avid editing application. See "Moving Older Projects to this Version on Windows" on page 222.

Choosing a Locale on an English Language Operating System (Windows and Macintosh)

This method is common on Windows systems, and it is the only option on Mac OS® X systems. When you use this method, you typically instruct your operating system to allow you to choose between English and a specific locale such as French, German, Chinese, or Japanese. This allows you to input and display characters in your chosen language even though you are using the basic English language operating system.

To take advantage of ICS on an English language operating system:

- Instruct your operating system to display the appropriate language in menus and dialog boxes and specify the language you want to use for keyboard layouts. Follow the instructions in one of the following sections:

    - "Non-English Character Support (Macintosh)" on page 215

    - "Non-English Character Support (Windows 2000)" on page 218

- (Windows only) If you are using a language other than English, French, Italian, German, or Spanish, you might need to adjust the mapping for the keyboard so the keys in the Keyboard palette match the keys on your physical keyboard. See "Using Foreign Keyboard Mapping" on page 221.

- • (Windows only) If you are bringing older projects and bins forward to this version, you might need to use the CleanEncode utility to convert the file names so they can be viewed correctly in Windows Explorer and in the Avid editing application. See "Moving Older Projects to this Version on Windows" on page 222.

Non-English Character Support (Macintosh)

You can instruct the Mac OS X operating system to allow you to choose between English and a specific locale such as French, German, Chinese, or Japanese. This allows you to input and display characters in your chosen language even though you are using the basic English language operating system.

You need to specify the language in System Preferences and in the Get Info dialog box.

Setting the Language in System Preferences

In System Preferences, you need to specify which language should appear in operating system menus and dialog boxes. You can also add the language in which you want keyboard layouts and input methods to function.

To set the language in the International window:

1. Select Apple menu > System Preferences > International.

   The International window opens.

2. Click the Language tab.

3. In the Languages list, click the language you want, and drag it to the top of the list. If you do not see the language you want in the list, click Edit, select the language, and click OK.

4. In the Script list, select the Script you want.

5. Click the Behaviors pop-up menu, and select the text behavior you want to be associated with your script.

6. (Option) Select options in the other International dialog box tabs.

To add your language's keyboard layouts and character set to the operating system's Input menu:

1. Click the Input Menu tab.
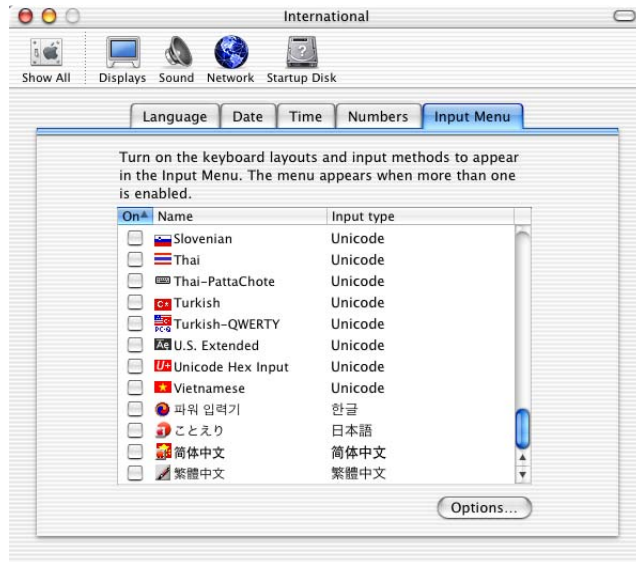
2. Select the language or languages in which you want to type.

   If you select more than one language, they appear in the Input menu.

3. Click the Close button.

4. In the Finder™ title bar, select Input > *language*.

   The Input menu is not labeled in the title bar. Look for the Flag icon in the title bar.

Specifying the Language in the Get Info Dialog Box

If you are attempting to enter text within your Avid application and you are not seeing characters from your language, you need to specify the language in the application's Resources folder.

   You do not need to perform this procedure if all of your language's characters appear correctly in the Avid application.

To specify the languages in the Get Info dialog box:

1. Locate the Avid editing application on your Macintosh HD. For example:

   Applications/Avid Media Composer Adrenaline/MediaComposer Adrenaline

2. Click the application icon, and select File > Get Info.

   The Get *application* Info dialog box opens.

3. Click the triangular opener for Languages.

4. Locate your language in the list and select it if it is not already selected.

5. Close the Get *application* Info dialog box.

The next time you start the application, you will be using the language that you specified in the International window. System menus and dialog boxes appear in your selected language. The Avid menus and buttons still appear in English. You can now enter characters in your selected language.

The Get Info dialog box makes use of files known as language resource files to specify the language and regional code to use. The Avid software installation program automatically installs a set of language resource files for supported languages.

For more information about language and region codes, see the following Web sites:

www.loc.gov/standards/iso639-2/englangn.html

www.iso.ch/iso/en/prods-services/iso3166ma/02iso-3166-code-lists/list-en1.html

Non-English Character Support (Windows 2000)

You can specify a non-English keyboard layout and text entry format for the language in which you want to type.

📑 *The operating system does not need to be in the same language as that in which you are typing.*

To specify a language in which to type:

1. (Option) Plug in a regional keyboard.

2. Click the Start button, and select Settings > Control Panel.

3. Double-click Regional Options.

   The Regional Options dialog box opens.
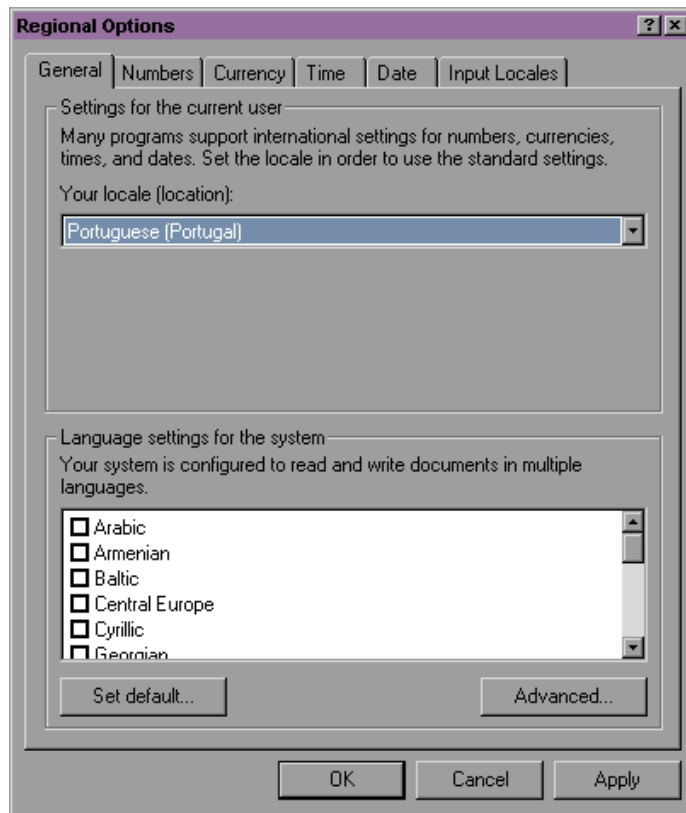
4. In the General tab, do the following:

   a. Click the "Your locale (location)" pop-up menu, and select a locale.

   b. In the "Language settings for the system" area, select a language.

       c.   Click "Set default."

5. (Option) Select options in the other Regional Options dialog box tabs.

6. Click the Input Locales tab.
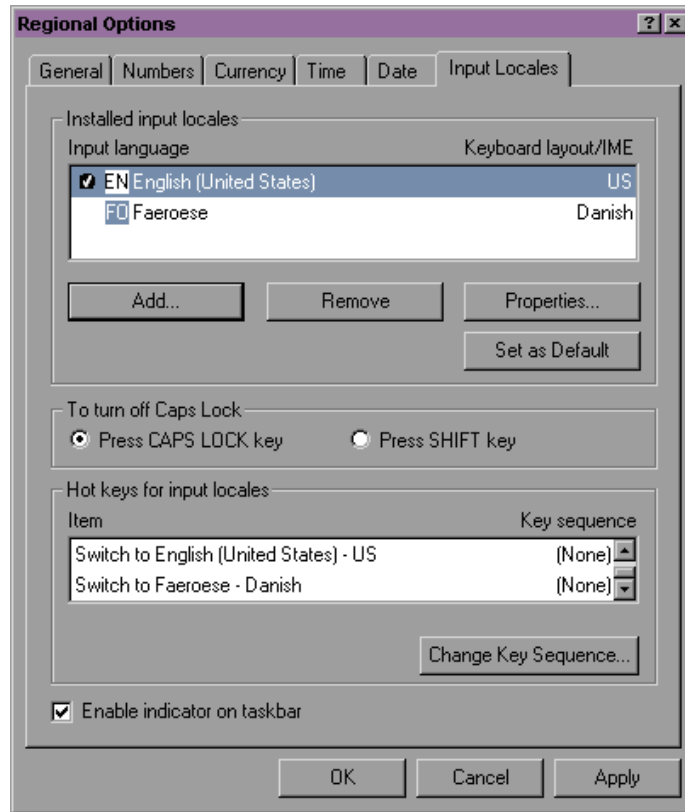
7. In the "Installed input locales" area, select an input language.

8. If the language you want is not in the list, click Add, and select an input locale and a keyboard layout for the language.

9. Click Set as Default.

10. Click Apply. If you need to install additional files, the Insert CD-ROM dialog box opens.

11. Click OK.

    The Files Needed dialog box opens.

12. Follow the instructions, and then click OK.

13. To have your selected language appear on the taskbar, select "Enable indicator on taskbar."

14. Click OK.

15. Restart the system.

Using Foreign Keyboard Mapping

When you start the Avid editing application under a new locale, the application automatically creates a Keyboard setting for your language. You can view the keyboard layout by clicking the appropriate Keyboard setting in the Settings scroll list.

The default Avid keyboard layouts for English, French, Italian, German, and Spanish languages map correctly to the characters on the physical keyboard. However, if you are using a different language, the display in the Keyboard palette might not match your physical keyboard layout. You can use the Foreign Keyboard Mapping button in the Keyboard palette to display the correct character in the Keyboard palette.

The Foreign Keyboard Mapping function is not needed for English, French, Italian, German, or Spanish.

To set the keyboard mapping for a key:

1. Double-click Keyboard in the Settings scroll list in the Project window.

   The Keyboard palette opens.

2. Compare the layout to your physical keyboard.

   If some of the letters do not match, you can change the characters displayed in the Keyboard palette.

3. Click the Foreign Keyboard Mapping button.

4. Click the key that you want to change in the Keyboard palette.

   The key changes to blue.

5. Press the corresponding key on your keyboard.

The image in the Keyboard palette changes to match your keyboard, and the mapped key remains blue.

Each language has a certain number of keys that do not map to functions in the Avid editing application. These are referred to as "dead" keys. You cannot map functions to these dead keys. If you try to do so, the system displays an error message.

Moving Older Projects to this Version on Windows

CleanEncode is a utility that changes the character encoding method for a file name from MacRoman to ANSI or vice versa. If you are moving older projects to this version on Windows, you might need to use CleanEncode to convert the older MacRoman encoding to ANSI encoding.

CleanEncode is intended for customers on Windows systems that meet the following criteria:

- If you use special characters to name projects, bins, tapes, or other Avid metadata. Specifically, this includes characters with a value greater than 127 in the ASCII character set. Such characters are common in Western European languages and include accented characters (for example, â or ê).

- If you plan to move projects from one of the following Avid editing applications (Windows only) to the current version:

    - Avid Media Composer or Film Composer v11.5 or earlier

    - Avid Symphony releases v4.5 or earlier

    - Avid Xpress v5.5 or earlier

    - Avid NewsCutter v3.5 or earlier

    - Avid Xpress DV 3.5 or earlier

    - MediaManager Release 3.5 or earlier

    - TransferManager Release 2.0.5 or earlier

Complete instructions for using CleanEncode can be found in the CleanEncodeGuide.pdf file. This file is available in the CleanEncode folder in the Utilities folder.

📃 *If you use CleanEncode to process the files in your OMFI MediaFiles folder, delete the .pmr and .mbd database files after you run CleanEncode and restart the Avid editing application. This will ensure that the Avid application recognizes the newly converted names.*

📃 *When you upgrade an Avid Unity MediaNetwork workgroup to MediaNetwork v3.2, MediaNetwork automatically converts file names to file names with characters in Unicode™. If you plan to move Avid files from a the versions listed above onto an existing MediaNetwork v3.2 system, use CleanEncode on the files before you move them onto the network.*

Recommendations and Restrictions

This section describes recommendations and restrictions for using international character support on your Avid system.

Avid Supports English Plus One Locale

Make sure that your projects do not contain characters from more than one locale. String compare searches might not work correctly if you combine file names from different locales.

📃 *On MediaNetwork, all the systems on the network must be either English or one specific locale.*

Entering ASCII Characters in Double-Byte Systems

The following restriction applies to customers who work on double-byte (two-byte) operating systems: **If you use ASCII characters to name bins, projects, tapes, or other Avid elements, use single-byte characters.** If you use double-byte characters, the characters might appear with extra space between them and the names might not be recognizable by other systems.

Operating systems that use a double-byte character system usually allow the user to choose between single-byte ASCII or double-byte ASCII characters. If you have a choice, use single-byte characters when entering ASCII text.

Characters to Avoid When Naming Avid Elements

Do not use the Japanese yen symbol in the ASCII character set. The system converts the symbol to a backslash, and this can cause problems with pathnames.

Do not use the Y-acute and Y-diaeresis characters. The system does not recognize the Y-acute character, and it can cause problems with file recognition. The system might not display the Y-diaeresis character correctly.

When you name a Mac OS X computer, use single-byte ASCII characters without spaces. The system uses the name in pathnames, and non-ASCII characters and spaces can cause problems with pathnames.

If you plan to move projects between Macintosh and Windows systems, avoid using characters that are not in both the MacRoman and Latin1 (ANSI) character sets. The following two files on the Knowledge Center list the characters you should stop using:

• MacRoman Characters not in ANSI Encoding

• ANSI Characters not in MacRoman Encoding

To access the files on the Knowledge Center:

1. Go to www.avid.com.

2. Click Support, and then click Online Support.

3. Under the Avid Knowledge Center heading, click Documentation.

   The Knowledge Center opens to the Documentation tab.

4. Select your products from the Current Product list at the top of the Web page.

5. Click Tech Notes

6. Select your Release number.

7. Click "MacRoman Latin-1 Character Differences."

8. Click the HTML files to display the contents.

The files are the same for each product.

To display the characters in the HTML files correctly, you might have to set your Web browser to display characters in Unicode format.

To display characters in Unicode format on Internet Explorer:

▶ Select View > Encoding > More > Unicode (UTF-8).

International Character Support

Chapter 10

Planning a Film Project

This chapter presents suggested workflows and other information that can help you plan your film-originated project. This chapter includes the following topics:

Working with 24p Media

With new DTV (digital television) formats expanding the options for content distribution, there is renewed interest in the oldest format in the industry: 24-fps film. In addition to its common, worldwide format, film provides the highest resolution master for archiving purposes. Through a telecine transfer and the digitizing process, the Avid system captures and stores film frames as 24-fps progressive media, or 24p.

Progressive media is composed of single frames, each of which is vertically scanned as one pass. The Avid system creates 24p media by combining (deinterlacing) two video fields into a single full, reconstructed frame. For NTSC film-to-tape transfers, the system creates 24p media by removing the extra fields inserted by the 2:3 pulldown process and by creating progressive frames.

Working in 24p simplifies digital editing of film or other 24-fps-originated content, such as HDTV video that has been downconverted to ITU-R 601 digital video. In addition, 24p media requires less storage and processing power than 30-fps media. Because 24p provides a common production format for multiversion, multiformat delivery; it promises to become the new universal format for all film and video content.

An important aspect of the 24p format is that it allows you to output either NTSC or PAL video from the same project.

For more information, see "How the Avid System Stores and Displays 24p and 25p Media" in the Help.

Working with 25p Media

The 25p format is primarily for use in countries where PAL video is standard. When you transfer 25-fps film footage to 25-fps PAL video, no modifications are necessary due to matching frame rates.

The 25-fps feature provides the following advantages:

• Simultaneous input of video and audio in sync

• Frame-accurate ink number tracking

• Digital cut recording directly to videotape

• Frame-accurate cut lists and change lists

• Frame-accurate audio EDLs for online editing of audio tracks

• Frame-accurate EDLs for assembling footage from the transfer or for preparing an online show master

The source for 25p is typically 25-fps film or 25-fps HDTV format. The methods for creating and storing 25p media are the same as for 24p. For an example of a 25p project workflow, see "25-fps Film or HD Video Source, SDTV Downconversion, Multiformat Output" on page 236.

📄   *You can capture the audio directly from the original Nagra reels or DAT tapes, and sync within the Avid system. For more information, see "Audio Transfer Options for 24p PAL Projects" on page 239.*

Planning a 24p or 25p Project

A 24p or 25p project is one that uses 24p or 25p media, which is created and stored in the Avid system. In most cases, the source footage is film shot at 24 fps (for 24p) or 25 fps (for 25p), but new technology is introducing 24p and 25p videotape formats, both for cameras and VTRs. For 24p or 25p videotape, you need to use a 24p VTR to downconvert the high-definition format of HDTV to SDTV digital video for digitizing by the Avid system.

📑   *The 24p cameras and VTRs can typically work with either 24p or 25p footage.*

Two possible workflows for 24p projects are:

*   "24-fps Film Source, SDTV Transfer, Multiformat Output" on page 230

*   "24-fps Film or HD Video Source, SDTV Downconversion, Multiformat Output" on page 233

For information about a typical 25p workflow, see "25-fps Film or HD Video Source, SDTV Downconversion, Multiformat Output" on page 236.

For film productions that screen dailies, the paths might be somewhat different. For more information, see "Viewing Dailies" on page 248.

Alternatively, you can use a Media Station XL system to capture footage or output a finished master. For more information, see the *Avid Media Station XL Workflow Guide*. For information about the Media Station XL product, contact your Avid representative or visit the Avid Web site.

24-fps Film Source, SDTV Transfer, Multiformat Output

The workflow shown in Figure 1 and Figure 2 illustrates a possible path for film footage shot at the standard 24 fps, transferred to SDTV (standard definition television or ITU-R 601) video, and captured at 24 fps. Figure 1 shows the offline stage of the workflow, using a Media Composer or Film Composer system with Universal Offline Editing. Figure 2 shows the online stage, using a Symphony system, film-tape-film-tape relinking (FTFT), and multiple output formats.

With this workflow, the sound recording is synchronized as part of the telecine transfer. For alternative audio workflows, see "Audio Transfer Options for 24p PAL Projects" on page 239.

For details on the telecine transfer process, see Chapter 5.

1. The telecine process uses one-light or best-light transfer and syncs picture and sound to create ITU-R 601 video. The process adds 2:3 pulldown to film footage to create an NTSC videotape, or uses 4.1% speedup for PAL videotape. The telecine process also creates a shot log (for example, a FLEX file).

2. Convert the shot log file with Avid Log Exchange (ALE), then import the shot log file into Media Composer or Film Composer to create a bin or bins.

3. Batch capture the footage in an offline resolution, based on the shot log. The Avid system removes the 2:3 pulldown and creates 24p media.

4. Edit at 24 fps, apply Pan and Scan and other effects, and create a final sequence.

5. Create a floppy disk with project information for transfer to the Symphony online system. Create a 24p pull list for another telecine process, to retransfer footage used in the final edit.

Telecine transfer process

Nagra or DAT playback system

Sound recording (Nagra or DAT)

(Step 1)

Film shot at 24 fps

Telecine controller and record deck

(Step 2) Log Beta-cam — Digital Betacam, D5, DCT, or D1 format (NTSC or PAL)

(Step 3) — Digital Betacam, D5, DCT, or D1 VTR

(Step 4) — Media Composer or Film Composer offline system

(Step 5) Proj Pull list

To the Symphony system

To the telecine system
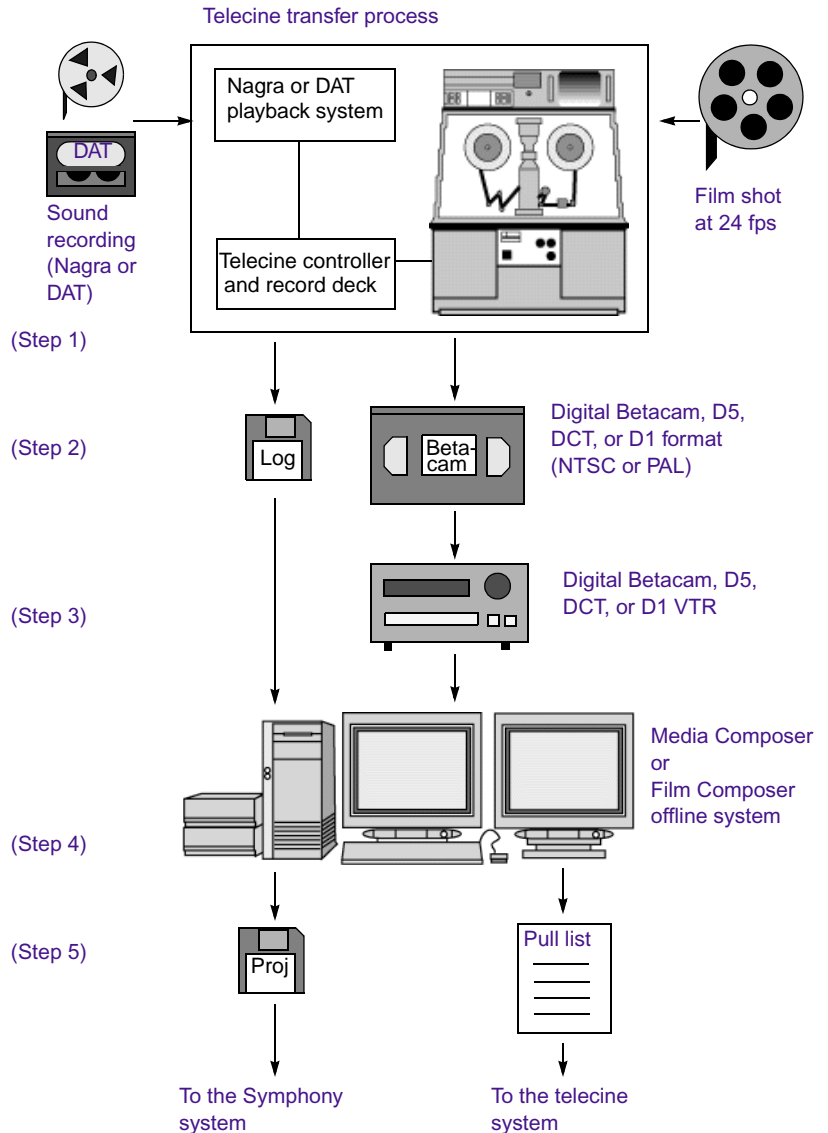
Figure 1   Offline Workflow: 24-fps Film Source, SDTV Transfer

6. The telecine process uses the pull list and a full color-corrected transfer to create NTSC or PAL videotape with selects from the original negative (picture only). The process also creates a new shot log file.

7. Copy the project information from the floppy disk to the Symphony online system.

8. Convert the new shot log with ALE and import it into the Symphony system.

9. Batch capture in an online resolution, based on the new shot log file.

10. Relink the sequence and clips by key numbers (FTFT) and complete any other finishing.

11. Generate multiple formats. For NTSC and PAL, the system reinserts the pulldown or re-creates the speedup. For conforming film, it creates a 24p cut list.

(Step 6)

From the offline system

Pull list

Telecine transfer process (picture only)

Film shot at 24 fps

(Step 7)

From the offline system

Proj

(Step 8)

Log

Digital Betacam, D5, DCT, or D1 format (NTSC or PAL)

(Step 9)

Digital Betacam, D5, DCT, or D1 VTR

(Step 10)

Symphony online system

(Step 11)

Beta-cam

or

Beta-cam

or

Cut list

NTSC 29.97 fps
4:3 or 16:9

PAL 25 fps
4:3 or 16:9

Conformed film cut
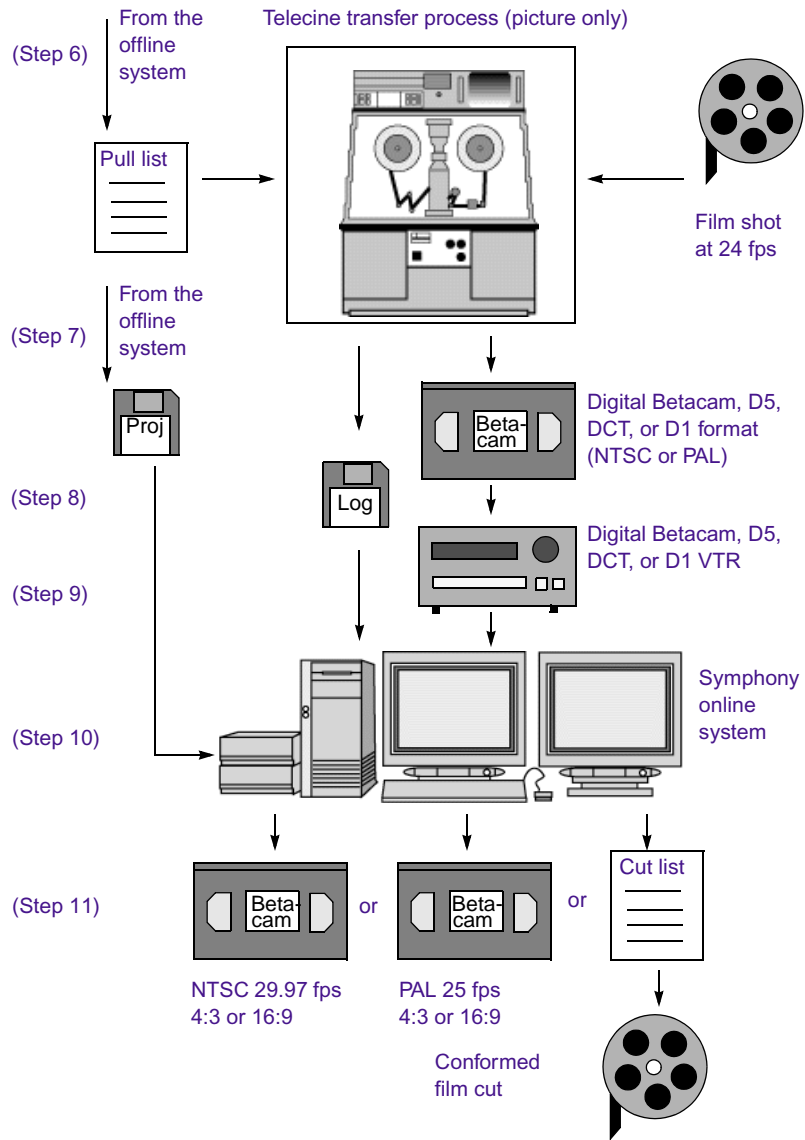
Figure 2   Online Workflow: 24-fps Film Source, SDTV Transfer, Multiformat Output

24-fps Film or HD Video Source, SDTV Downconversion, Multiformat Output

This workflow is based on film or video footage shot at 24 fps and planned for HDTV (high-definition television). Different workflows are being developed for this new technology, which includes 24p tape formats, VTRs, and cameras. This workflow presents one possible path.

Figure 3 shows the offline stage of the workflow, using a Media Composer or Film Composer system with Universal Offline Editing. Figure 4 shows the online stage, using a Symphony system with Universal Mastering and multiple output formats.

With this workflow, the sound recording is synchronized as part of the telecine transfer. For alternative audio workflows, see "Audio Transfer Options for 24p PAL Projects" on page 239.

For details on the telecine transfer process, see Chapter 5.

1. Source videotape comes either from a telecine transfer or a 24-fps video camera. The telecine process transfers 24-fps film footage at 1:1 (no pulldown). It also creates a shot log (for example, a FLEX file).

2. For telecine transfer projects, convert the shot log file with ALE and import it into Media Composer or Film Composer to create a bin or bins.

3. Batch capture the footage in an offline resolution, based on the shot log. Use a 24p deck to downconvert HDTV to ITU-R 601 video. The deck adds 2:3 pulldown (NTSC) or 4.1% speedup (PAL). The Avid system removes the extra pulldown fields and creates 24p media.

4. Edit at 24 fps, apply Pan and Scan or other effects, and create a final sequence.

5. Create a 24p pull list for another telecine process, to retransfer footage used in the final edit. Create a floppy disk with project information for transfer to the Symphony online system.

Telecine transfer process

Nagra or DAT playback system

DAT

Sound recording (Nagra or DAT)

(Step 1)

Film shot at 24 fps

Telecine controller and record deck

HD 24

Video shot by 24-fps camera

(Step 2)

Log

HD 24

1:1 transfer 24-fps HD format

(Step 3)

24p HD VTR such as an HDW-F500 VTR

(Step 4)

Media Composer or Film Composer offline system

(Step 5)

Proj

Pull list

To the Symphony system

To the telecine system
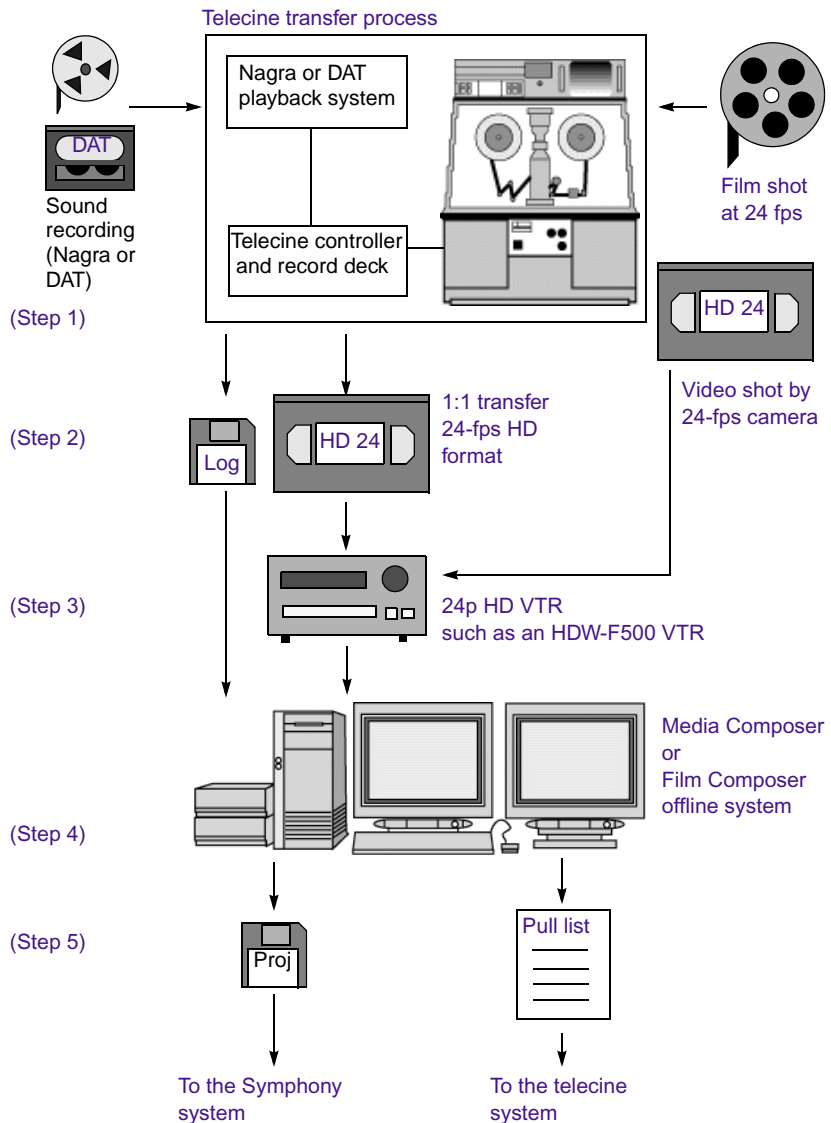
Figure 3   Offline Workflow: 24-fps Film or HDTV Source, SDTV Downconversion

6. For film-originated projects, the telecine process uses the pull list and full color-corrected transfer to create HDTV videotape with selects from the original negative (picture only). The process also creates a new shot log file.

7. Copy the project information to the Symphony online system.

8. For telecine transfer projects, convert the new shot log file with ALE and import it into the Symphony system.

9. Batch capture in an online resolution, based on the new shot log file. Downconvert either the telecine transfer tape or HDTV source tape.

10. Relink the sequence and clips by key numbers (FTFT) and complete any other finishing.

11. Generate multiple formats for output. For NTSC and PAL, the Symphony system reinserts pulldown or re-creates the speedup. For conforming film, it creates a 24p cut list. For HDTV, it creates a 24p EDL for use in an online suite.

(Step 6)

(Step 7)

(Step 8)

(Step 9)

(Step 10)

(Step 11)

Telecine transfer process (picture only)

From the offline system

Pull list

Film shot at 24 fps

From the offline system

Proj

Log

HD 24

HD 24

Video shot by 24-fps camera

Symphony online system

NTSC 29.97 fps
4:3 or 16:9

Beta-cam

or

Beta-cam

PAL 25 fps
4:3 or 16:9

or

Cut list

Conformed film cut

or

24p EDL

EDL

HD

Conformed HDTV master
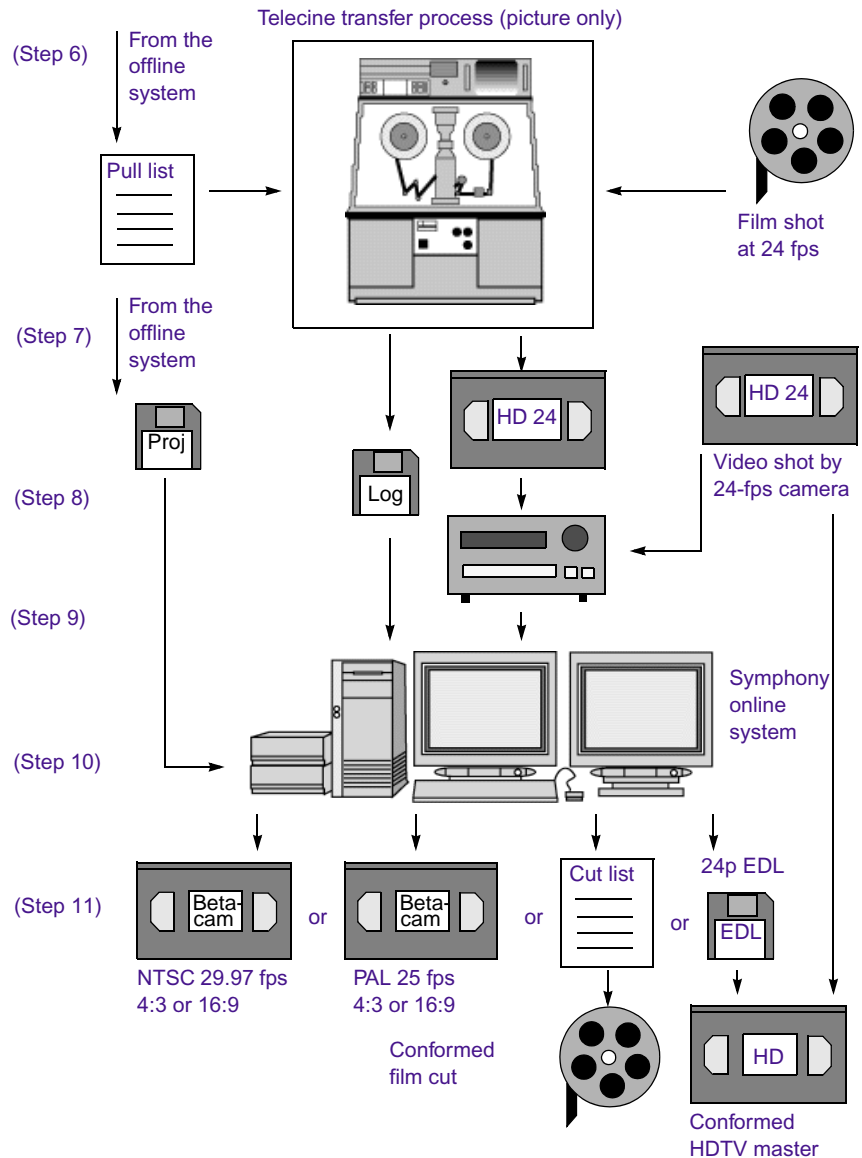
Figure 4   Online Workflow: 24-fps Film or HDTV Source, SDTV Downconversion, Multiformat Output

25-fps Film or HD Video Source, SDTV Downconversion, Multiformat Output

This workflow is based on film or video footage shot at 25 fps and planned for HDTV (high-definition television). Different workflows are being developed for this new technology, which includes 25p tape formats, VTRs, and cameras. This workflow presents one possible path.

Figure 5 shows the offline stage of the workflow, using a Media Composer or Film Composer system with Universal Offline Editing. Figure 6 shows the online stage, using a Symphony system with Universal Mastering and multiple output formats.

With this workflow, the sound recording is synchronized as part of the telecine transfer. For more information about digitizing and synchronizing audio, see "Audio Transfer Options for 24p PAL Projects" on page 239.

For NTSC output this method slows the audio by 4 percent. If you plan to output to both NTSC and PAL, you might want to shoot at 24 fps and use 24p instead of 25p.

For details on the telecine transfer process, see Chapter 5.

1. Source videotape comes either from a telecine transfer or a 25-fps video camera. The telecine process transfers 25-fps film footage at 1:1 (no pulldown). It also creates a shot log (for example, a FLEX file).

2. For telecine transfer projects, convert the shot log file with ALE and import it into Media Composer or Film Composer to create a bin or bins.

3. Batch capture the footage in an offline resolution, based on the shot log. Use a 25p deck to downconvert HDTV to ITU-R 601 video. The deck does not need to add pulldown or speed up the audio since the footage will remain at 25 fps. The Avid system creates 25p media.

4. Edit at 25 fps, apply Pan and Scan or other effects, and create a final sequence.

5. Create a 25p pull list for another telecine process, to retransfer footage used in the final edit. Create a floppy disk with project information for transfer to the Symphony online system.
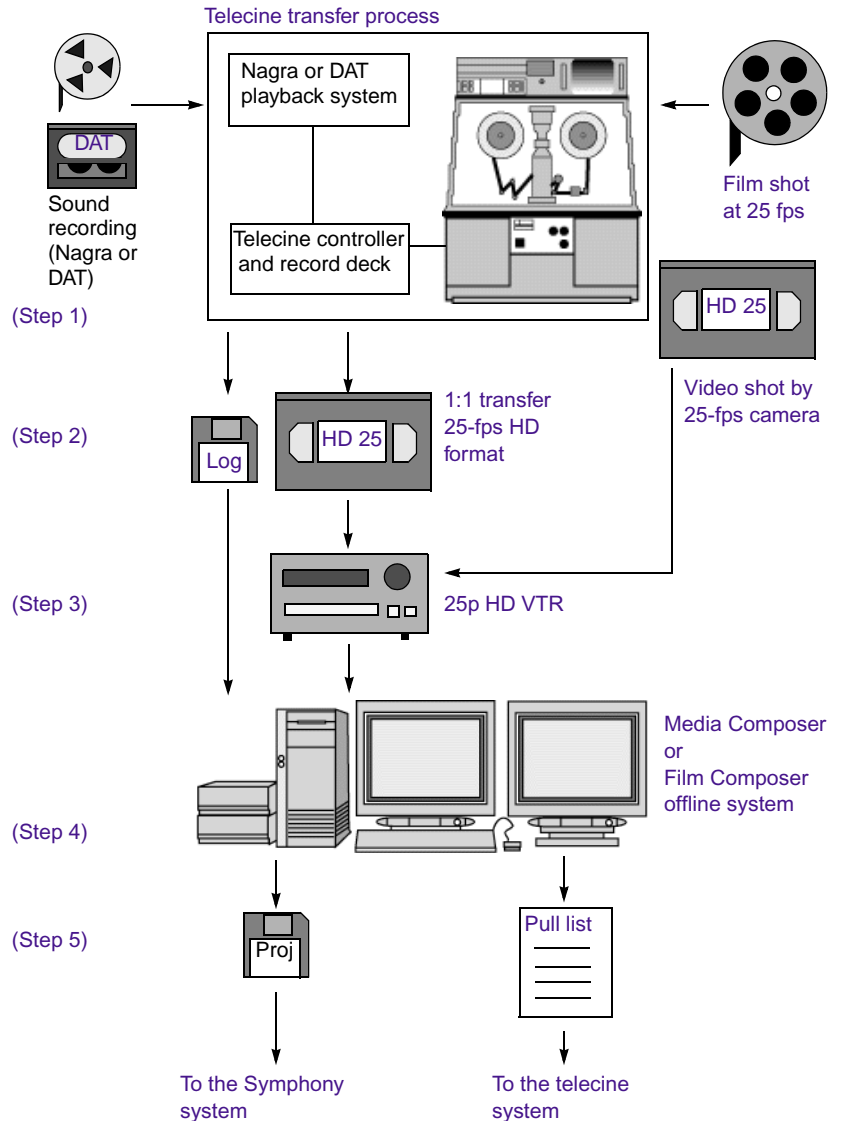
Figure 5   Offline Workflow: 25-fps Film or HDTV Source, SDTV Downconversion

6. For film-originated projects, the telecine process uses the pull list and full color-corrected transfer to create HDTV videotape with selects from the original negative (picture only). The process also creates a new shot log file.

7. Copy the project information to the Symphony system.

8. For telecine transfer projects, convert the new shot log file with ALE and import it into the Symphony system.

9. Batch capture in an online resolution, based on the new shot log file. Downconvert either the telecine transfer tape or HDTV source tape.

10. Relink the sequence and clips by key numbers (FTFT) and complete any other finishing.

11. Generate multiple formats for output. For NTSC, the system inserts 2:3 pulldown and slows down the audio by 4%. No adjustment is needed for PAL. For film, it creates a 25p cut list. For HDTV, it creates a 25p EDL for use in an online suite.
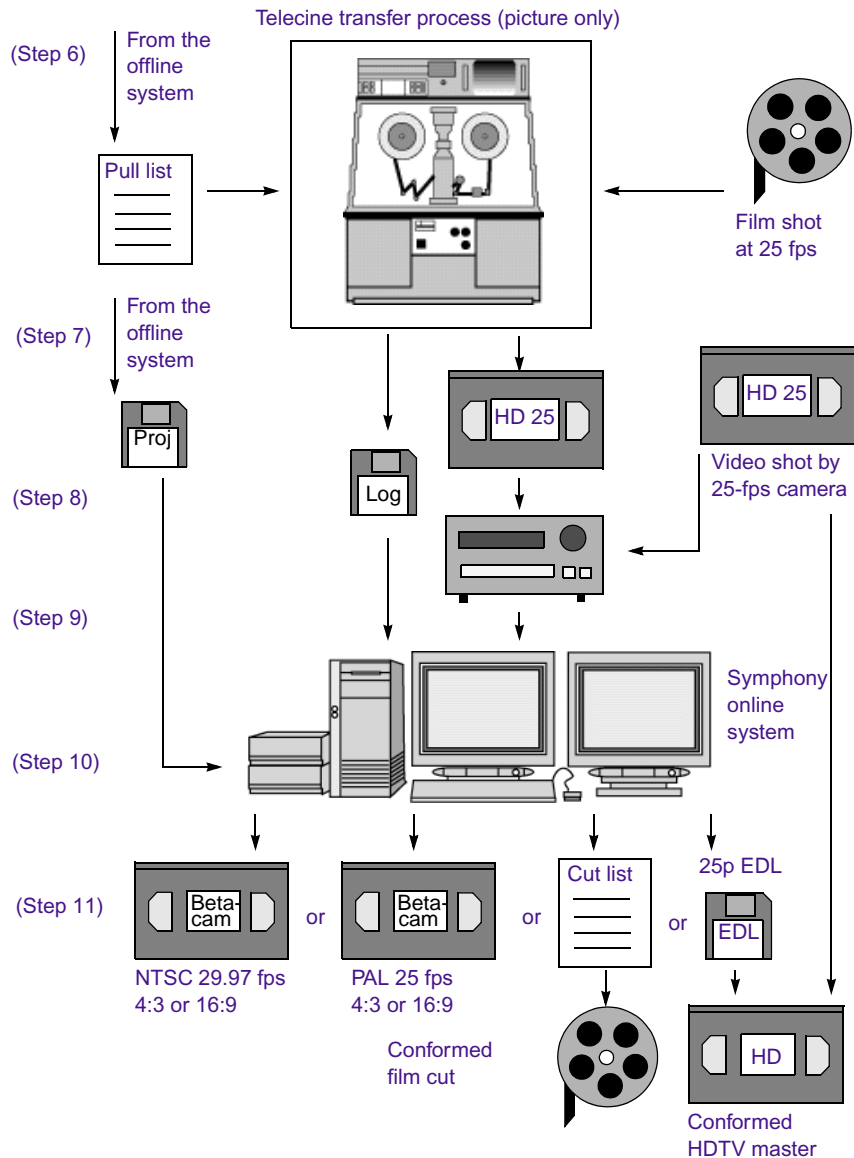
Figure 6 **Online Workflow: 25-fps Film or HDTV Source, SDTV Downconversion, Multiformat Output**

Audio Transfer Options for 24p PAL Projects

When you create a 24p PAL project, you must specify the appropriate audio transfer rate for the project. (This is not necessary for a 25p PAL project because there is no film speedup during the transfer.) The New Project dialog box provides Audio Transfer options that allow you to select either Film Rate or Video Rate. This value is project specific and should not be changed after you create the project unless you have a specific element that you need to transfer at a different rate.

The Audio Transfer options are also located in the Film Settings dialog box and can be changed after the project is created. See "Transfer Settings for Film Projects" in the Help.

The Audio Transfer options are:

- **Film Rate (100%)**: Select this option when your 24-fps film footage has been transferred MOS (roughly translated as "without sound") to 25 fps by speeding up the film, and the audio comes in separately at 100 percent of the actual speed (PAL Method 2).

- **Video Rate (100%+)**: Select this option when your 24-fps film footage has been transferred to 25 fps by speeding up the film, and the audio is synchronized to the video picture. This means that the audio speed is increased by 4.1 percent (PAL Method 1).

The Info tab in the Project window allows you to view the audio transfer rate you selected when you created the project. The actual audio transfer rate might be different from the display if you used the Film Settings dialog box to change the audio transfer rate.

Planning a 23.976p NTSC Project

Avid editing systems that include 24p support include a 23.976p NTSC project type. This project type is especially designed for capture and output of digital audio that has been transferred or recorded at 48 kHz, in sync with picture at 23.976 fps. A 23.976p project lets you maintain digital standards for all NTSC input and output at 23.976 fps.

Select this project type for one of the following reasons:

- Your film and audio sources have been synced in the telecine process and transferred to Digital Betacam® or other digital videotape formats. Audio from digital videotapes can now be directly input and output through the AES/EBU connections on the Gryphon I/O box.

- Your audio and video sources have been shot at a camera rate of 23.976 fps. This rate is used for film (film-based television) or 24p HD video (television or feature film). These sources can be downconverted to standard NTSC without further audio slowdown. Audio recorded at 48 kHz can remain at 48 kHz throughout the project.

The 23.976 fps frame rate is sometimes referred to as 23.97 fps or 23.98 fps.

The 23.976 fps frame rate is in direct proportion to the NTSC broadcast frame rate of 29.97 fps, which is used for film-to-tape transfer to the Avid editing system. For more information, see "Transferring 24-fps Film to NTSC Video" in the Help.

Working in a 23.976p NTSC Project

The following sections describe how working in a 23.976p project affects tools and settings.

Creating a 23.976p Project

To create a 23.976p project:

1. Click New Project in the Select User and Project dialog box.

2. Type the name of your new project in the text box.

3. Click the Format pop-up menu, and select 23.976p NTSC.

4. Click the Film Type pop-up menu, and select a film-gauge tracking format.

   If the source tapes were shot as video (such as 1080p/24 HD recorded at 23.976 fps), ignore the Film Type pop-up menu.

5. Click OK.

Film Settings

The Edit Play Rate and Audio Source Tape TC Rate options do not appear in the Film Settings dialog box. Edit Play Rate is automatically set at 23.976 fps. The Audio Source Tape TC Rate does not apply to 23.976p projects because you cannot capture 30 fps audio in a 23.976p project.

Digitizing

Audio from digital videotapes can now be directly input and output through the AES/EBU connections on the Gryphon I/O box.

The pulldown indicator on the Gryphon I/O box never lights when working in a 23.976p project.

The pulldown switch in the Capture tool is not used and does not appear.

Bins

The FPS column displays 23.976 rounded up to 23.98.

Import

Audio you import must be in sync with picture at 23.976 fps.

Digital Cut Tool

All output play rates are available, but only 23.976 NTSC maintains the original audio quality. For 23.976 NTSC, the audio rate is not slowed down for output and remains at 48 kHz. For 29.97 NTSC, the audio rate is sped up 25 percent and is not usable. Use this output rate for animations and other special applications. 24 fps NTSC, 24 fps PAL, and 25 fps PAL all require a sample-rate conversion, so high-quality audio is not guaranteed. For more information about output audio rates, see "Selecting Output Formats for 23.976p Projects" in the Help.

23.976-fps Film Transfer or HD Video Source, SDTV Downconversion, Multiformat Output

This workflow is based on film transferred at 23.976 or video footage shot at 23.976 fps and planned for HDTV (high-definition television). This workflow presents one possible path.

Figure 7 shows the offline stage of the workflow, using a Media Composer or Film Composer system with Universal Offline Editing. Figure 8 shows the online stage, using a Symphony system with Universal Mastering and multiple output formats.

With this workflow, the sound recording is synchronized as part of the telecine transfer. For a workflow in which video and audio are captured separately, see Figure 9.

For details on the telecine transfer process, see Chapter 5.

1. Source videotape comes either from a telecine transfer or video shot at 23.976. The telecine process syncs audio and transfers film footage at 1:1 (no pulldown). It also creates a shot log.

2. For telecine transfer projects, convert the shot log file with ALE and import it into Media Composer or Film Composer to create a bin or bins.

3. Batch capture the footage in an offline resolution. Use a 24p deck to downconvert HDTV to ITU-R 601 video. The deck adds 2:3 pulldown for video but maintains audio at 48 kHz. The Avid system removes the extra video pulldown fields, maintains audio at 48 kHz, and creates 23.976p media.

4. Edit at 23.976 fps, apply Pan and Scan or other effects, and create a final sequence.

5. For film, create a pull list for another telecine process, to retransfer footage used in the final edit. Create a floppy disk with project information for transfer to the Symphony online system.
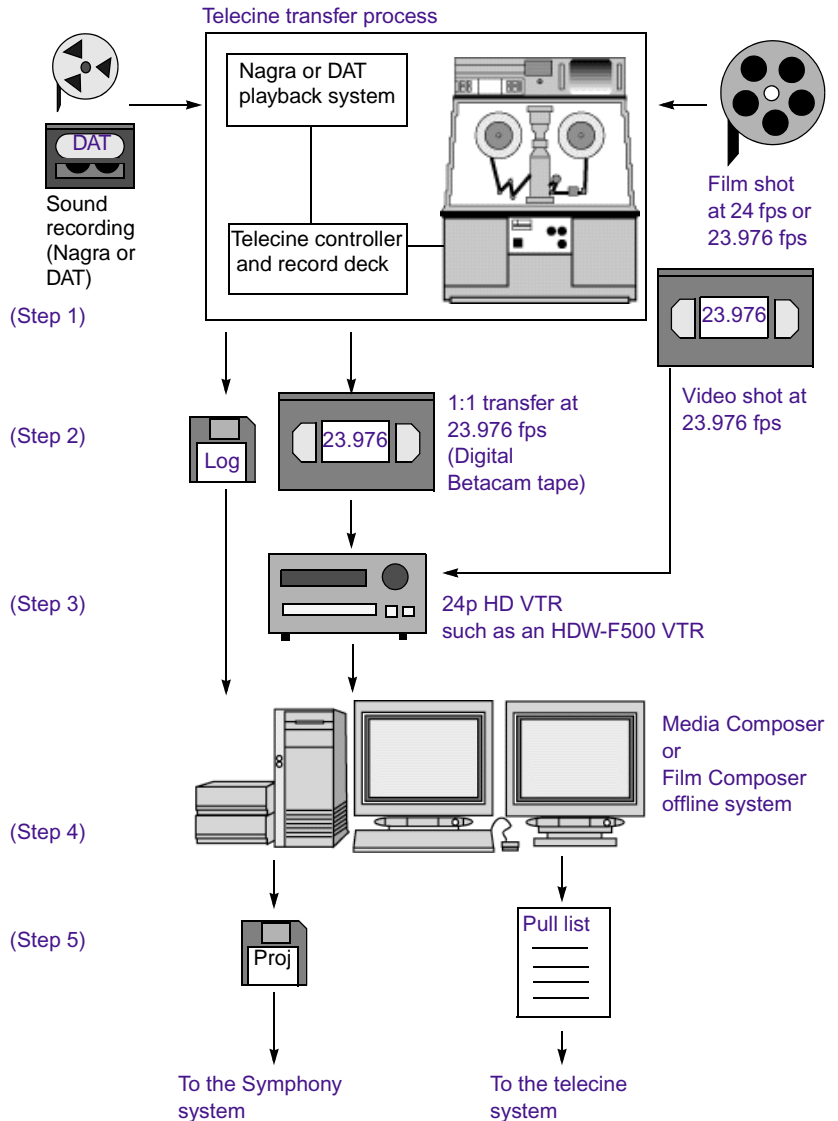
Figure 7   Offline Workflow: 23.976-fps Film Transfer or HDTV Source, SDTV Downconversion

6. For film-originated projects, the telecine process uses the pull list and full color-corrected transfer to create videotape with selects from the original negative (picture only). The process also creates a new shot log file.

7. Copy the project information to the Symphony online system.

8. For telecine transfer projects, convert the new shot log file with ALE and import it into the Symphony system.

9. Batch capture in an online resolution, based on the new shot log file. Downconvert either the telecine transfer tape or HDTV source tape.

10. For film, relink the sequence and clips by key numbers and complete any other finishing.

11. Generate multiple formats for output. For NTSC video, the Symphony system reinserts pulldown. For conforming film, it creates a 24p cut list. For HDTV, it creates a 24p EDL for use in an online suite.
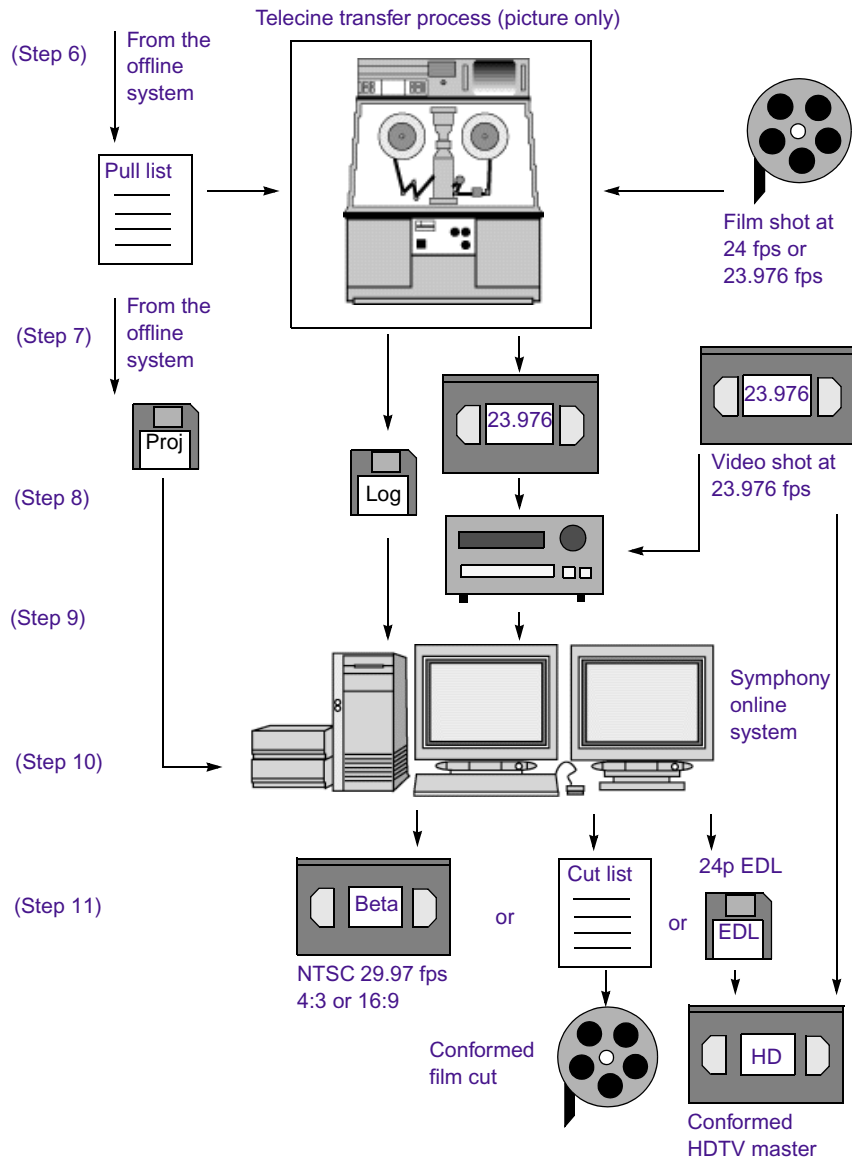
Figure 8   Online Workflow: 23.976-fps Film Transfer or HDTV Source, SDTV Downconversion, Multiformat Output

Figure 9 illustrates a workflow in which you capture audio and video separately, and then synchronize them in the Avid system.

1. The telecine process transfers film footage at 1:1 (no pulldown). For film shot at 24 fps, the process slows the film speed to 23.976 fps (labeled 24 fps).

2. Capture the audio into the Avid system (no pulldown). Field audio should be recorded at 48 kHz. If shot at 48.048 kHz, it must be referenced to 48 kHz outside of the Avid system.

3. Capture the picture footage in the Avid system. Use a 24p deck to downconvert to ITU-R 601 video. The deck adds 2:3 pulldown for video. The Avid system removes the extra video pulldown fields and creates 23.976p media.

4. Use the AutoSync feature to sync picture and sound. Edit and finish at 23.976p.

5. Select one or more outputs, depending on your project needs.
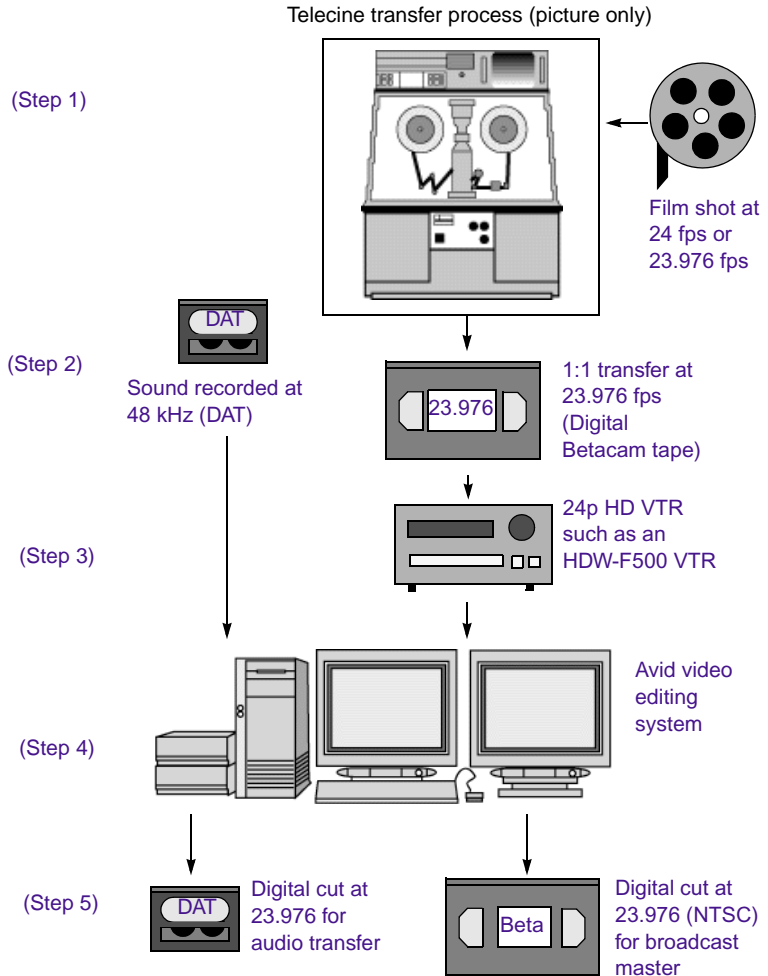
Figure 9   NTSC Audio and Video Captured Separately (23.976p Project)

Limitations for 23.976p Projects

Be aware of the following limitations:

- For film projects shot at 24 fps, audio must be "pulled down" or "slowed down" before it can be captured into a 23.976p project. The user does not have the choice of capturing non-pulled-down audio. Unlike 24p NTSC projects, where the audio pulldown switch can be set to 1.0 or 0.99 to support either 24 fps or 23.976 fps, 23.976p projects do not use the audio pulldown switch. These 23.976p projects can only support 48 kHz audio that is in sync with 23.976-fps picture on a 29.97-fps transfer tape.

- Media created in 24p projects and media created in 23.976p projects are not compatible. If you start working in one type of project and then decide to switch to the other, you need to recapture all video and audio media. You cannot relink video media or audio media across the two project types.

- OMF and AAF files that are output from a 23.976p project look slightly different from those from a 24p project. The edit rates will show up as 23.976 fps in these files.

⚠ **Because of the way project information is stored, previous versions of Avid editing systems do not recognize 23.976p projects as being different from 24p projects. You can open 23.976p projects in previous versions, however, none of the media can play because of the different internal edit rates. Projects are not corrupted by opening them in older versions of the software (unless you try to modify clips or edit sequences). If necessary, you can recapture the media in the 24p project.**

Film Project Considerations

This section presents information that could be useful when planning film projects that you will edit on an Avid system.

Film Shoot Specifications

Use the guidelines in Table 72 to help you plan for film shoots.

Table 72   Film Shoot Specifications

Element	Supported Formats	Notes
Film type	16mm	Use Standard 16mm or Super 16mm. Super 16's aspect ratio closely matches 16:9.
	35mm: 2, 3, 4, and 8 perf 65mm: 5, 8, 10, and 15 perf	16mm, 35mm 4 perf, and 35mm 3 perf are supported as projects in the Avid system. The remaining formats are supported through ink numbers and auxiliary ink numbers, which you select in the Film Settings dialog box. For more information, see the editing guide or Help for your Avid system.
Film wind	B-wind	Always use camera rolls with key numbers in ascending order.
Audio media	1/4-inch audiotape (Nagra)	Use to record analog audio.
	DAT or DA88 (digital audiotape)	Use to record digital audio.
Audio timecodes	30-fps drop-frame or non-drop-frame	Use for NTSC transfer projects, and for generating audio EDLs.
	25-fps timecode	Use for PAL transfer projects, and for generating audio EDLs in the PAL format.
	Audio sync to in-camera timecode (Arri® 24-fps timecode)	Use for automatic syncing of sound with picture in the Avid system.
Sync methods	Clapsticks	Use for manual syncing of sound with picture.
	Electronic slate (smart slate)	Use for semiautomatic syncing.
	In-camera timecode, with audio sync	Use for automatic, "slateless" syncing in the telecine.

Table 72   Film Shoot Specifications (Continued)

Element	Supported Formats	Notes
Slate information	Camera roll, scene and take, shoot date, sound-roll ID	Mark sound-roll ID as a backup.
Sound-roll cues	Sound-roll ID, date, start and end time-of-day timecode	Include verbal time-of-day cues as a backup.

Viewing Dailies

Viewing dailies is a critical part of the film production process. With an Avid system, there are two different ways to produce dailies.

- The *film dailies method* relies on work print for screening, transferring, and creating conformed cuts during editing.

- The *video dailies method* relies on videotape transfers from negative for screening, transferring, and creating conformed cuts during editing.

Film Dailies Method

The film dailies method involves the procedures shown in Figure 10. Specifics, such as tape formats, vary depending on facilities and needs.

1. Prepare work print for the circled (selected) takes.

2. Sync work print with audio mag track, and assemble each take on a roll with ink numbers.

3. Screen the film dailies before telecine transfer.

4. Mount and transfer the rolls to tape in telecine.

5. (Option) Enter ink numbers manually into the Avid system after you capture, to match the ink number on the work print.

6. Generate ink-number lists for preparing cuts from the work print, and key-number lists for conforming the negative.
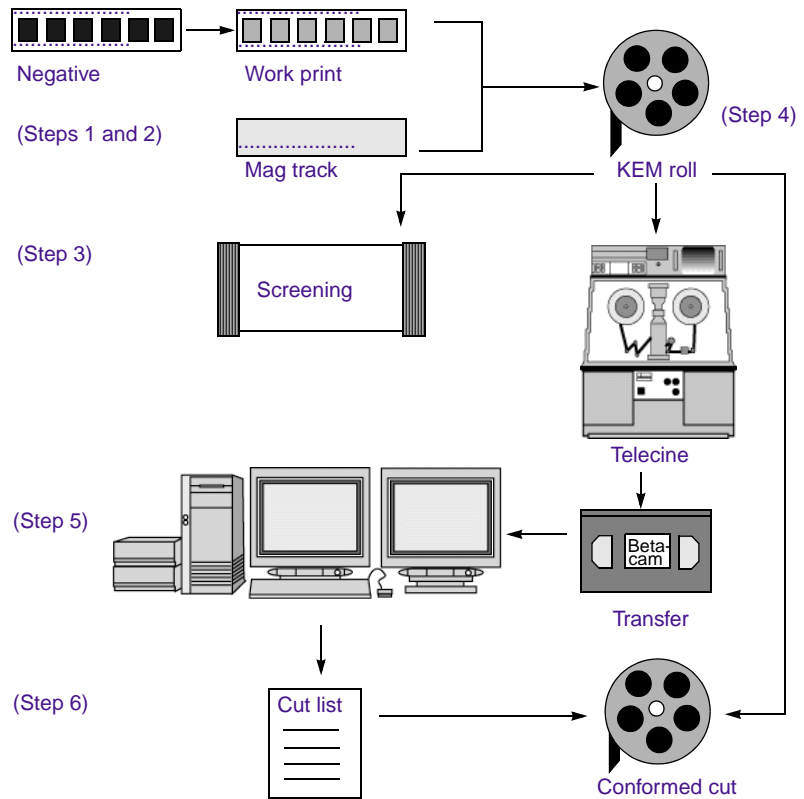
Figure 10   Film Dailies Method

When you work with film dailies and work print, the advantages are:

•   You can screen the dailies immediately after the lab work.

•   You can use work print previews to view the full film aspect ratios, resolutions, and contrast ranges. For this reason, film dailies are often preferred for feature film projects.

The disadvantage is that the magnetic track and work print require additional facilities, procedures, and costs.

Video Dailies Method

The video dailies method involves the procedures shown in Figure 11. Specifics, such as tape formats, vary depending on facilities and needs.

1. Prepare film negative for the circled (selected) takes.

2. Transfer reels of negative synced to audio in telecine. Generate a simultaneous online transfer, or create the online transfer from selects after editing the sequence.

3. Screen the videotape dailies after the transfer.

4. Import existing key numbers and timecode information into the Avid system, then capture.

5. Edit using the Avid system.

6. Record a digital cut to preview the sequence with effects, or generate EDLs for editing the videotape transfers.

Alternatively, generate a matchback list of selects for printing selects and conforming negative.
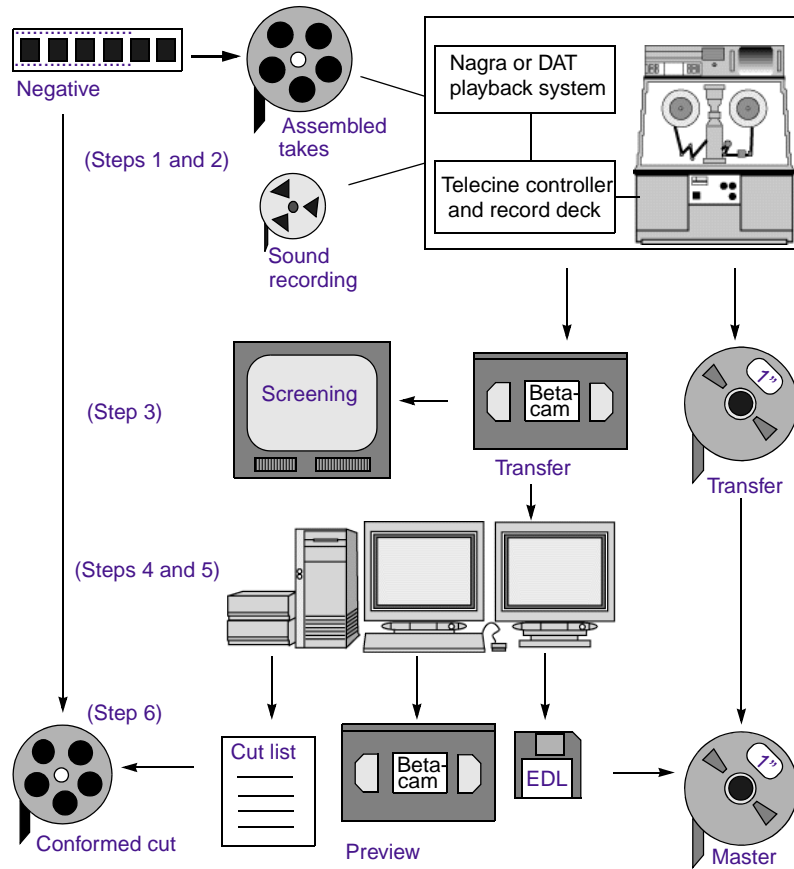
Figure 11   Video Dailies Method

The advantage of working with video dailies and film negative is that you can avoid the cost of work print until the finishing stages, or altogether. The disadvantage is you are limited to the aspect ratio, resolution, and contrast range of video previews. For this reason, video dailies are preferred for television projects, but you can also use this method to economize on a feature film production.

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