ADOBE® AFTER EFFECTS® CS3 PROFESSIONAL

SCRIPTING GUIDE

Adobe®

Adobe® Creative Suite 3 After Effects® Scripting Guide

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Overview

The *After Effects Scripting Guide* demonstrates how to take procedural control of your After Effects projects via scripting. This feature set is available in Adobe® After Effects® CS3 Professional Edition.

With the use of system-level scripting, you can streamline your render pipeline and avoid a lot of repetitive pointing and clicking. If you have used expressions or other JavaScript-like techniques for animating, or worked with system scripting in AppleScript or Visual Basic, you will recognize the power of application scripting in After Effects. With some practice, and with sufficient experience using the JavaScript language, you can take control of your graphics pipeline.

If you are new to scripting

After Effects is a visual tool with a graphical user interface; you are used to interacting with it via interface elements such as menus, panels, and icons. For the most part, this is the most accessible way to work. Scripting is designed for situations in which this methodology involves tedious repetition or painstaking searching and sorting that could be automated. Scripting can be a shortcut around tedious tasks that would otherwise involve repetitious pointing and clicking. It is also useful for leveraging the power of networked rendering in situations where Watch Folder is less powerful (and less convenient to set up). See "Examples" on page 173 for examples of what scripts can do.

If you are new to scripting, see *Adobe Introduction to Scripting*, which introduces basic scripting concepts and describes different scripting languages that are available, including JavaScript. JavaScript and other scripting languages are object-oriented, and this book also describes the basic concepts of object-oriented programming and document object models.

Even if you have no inclination to learn the JavaScript language, you can still harness the power of scripting via third-party solutions such as Rush Network Render Queue, a graphical user interface to set up distributed renders from any computer on the network without having to set up on individual machines.

You can also leverage the contributions of scripting users who share scripts with other users. Larger studios may have such users in-house, while other users can visit forums such as those found at www.adobeforums.com.

About this guide

This guide is for users who manage a graphics pipeline (which may include other scriptable applications as well) and who want to write scripts to add custom capabilities to After Effects.

This functionality is also offered via third-party network rendering management solutions. These products feature software designed to help manage this process, so it is possible to take advantage of this functionality without having to perform manual editing of scripts.

The heart of a scriptable application is the object model. When you use Adobe After Effects, you create projects, compositions, and render-queue items along with all of the elements that they contain: footage, images, solids, layers, masks, effects, and properties. Each of these items, in scripting terms, is an object. This guide describes the JavaScript objects that have been defined for After Effects projects.

Much of what scripting can accomplish replicates what can be done via the After Effects user interface, so a thorough knowledge of the application itself is also essential to understanding how to use this functionality.

The After Effects object model is composed of a project, items, compositions, layers, and render-queue items. Each object has its own special attributes, and every object in an After Effects project has its own identity (although not all are accessible to scripting). You should be familiar with the After Effects object model in order to create scripts.

After Effects scripting is based on ECMAScript (or more specifically, the 3rd Edition of the ECMA-262 Standard). Further documentation on this standard can be found at www.ecma-international.org. To take full advantage of what is possible with scripting you will also need an understanding of writing scripts at the system level (for integration with AppleScript or the Terminal command line in Mac OS and command-line scripts on Windows systems) and a background in how to work with JavaScript.

NOTE: JavaScript objects normally referred to as "properties" are consistently called "attributes" in this guide, to avoid confusion with After Effects' own definition of a property (an animatable value of an effect, mask, or transform within an individual layer).

Expressions

Although both After Effects expressions and the After Effects scripting interface use JavaScript and can access individual layer properties, they are entirely distinct entities. Expressions cannot access information from scripts (such as variables and functions), although a script can be written to create or edit an expression.

Because both expressions and scripting use JavaScript, familiarity with either one is helpful in understanding the other.

Motion math

Motion math is no longer included in After Effects; its functionality has been superseded by scripting and expressions. All mathematical and logical operators common to ECMAScript are available in scripting.

For example, with expressions it is possible to simulate the physics of a bouncing ball by applying mathematical rules to a "ball" layer. But using scripting, you can create a whole user interface that allows a bouncing ball and shadow layer to be animated using criteria entered by the user.

Editing scripts

After Effects includes a JavaScript editor. To start it, choose File > Scripts > Open Script Editor. This script editor and debugger, called the ExtendScript Toolkit, provides a convenient interface for creating and testing your own scripts.

You can use any text editor to create, edit, and save scripts, but it is recommended that you choose an application that does not automatically add header information when saving files and that saves with Unicode (UTF-8) encoding.

- Windows applications that are useful for editing scripts include EM Editor or the built-in Notepad (be sure to set Encoding within save options to UTF-8).
- Mac OS applications that are useful for editing scripts include BBEdit or the built-in OS X TextEdit (be sure to set the Save type in Preferences to Unicode [UTF-8]).

The ExtendScript JSX format

After Effects supports ExtendScript, Adobe's extended implementation of JavaScript. ExtendScript is used by all Adobe applications that provide a scripting interface. In addition to implementing the JavaScript language according to the ECMA 262 and E4X ECMA 357 specifications, ExtendScript provides certain additional features and utilities:

ExtendScript Toolkit: For help in developing, debugging, and testing scripts, ExtendScript provides an interactive development and testing environment, the ExtendScript Toolkit. It also defines a global debugging object, the dollar ($) object, and a reporting utility for ExtendScript elements, the ExtendScript Reflection interface.

File and Folder Objects: Because path name syntax is very different in different operating systems, Adobe ExtendScript defines `File` and `Folder` objects to provide platform-independent access to the underlying file system.

ScriptUI User Interface Module: The ExtendScript ScriptUI module provides the ability to create and interact with user interface elements. ScriptUI provides an object model for windows and UI control elements that you can use to create a user interface for your scripts.

Tools and Utilities: In addition, ExtendScript provides tools and features such as a localization utility for providing user-interface string values in different languages and global functions for displaying short messages in dialog boxes (`alert`, `confirm`, and `prompt`).

Interapplication Communication: ExtendScript provides a common scripting environment for all Adobe applications, and allows interapplication communication through scripts.

External Communication: ExtendScript provides a `Socket` object that allows you to communicate with remote systems from your After Effects scripts.

These features and more are described in detail in the *JavaScript Tools Guide*, which is available with After Effects, and from partners.adobe.com.

ExtendScript script files are distinguished by the `.jsx` file extension, a variation on the standard `.js` extension used with standard JavaScript files. After Effects scripts must include the `.jsx` file extension in order to be properly recognized by the application. Any UTF-8 encoded text file with the `.jsx` extension is recognized as an ExtendScript file.

You can use the ExtendScript Toolkit to export a binary version of an ExtendScript file, which has the extension `.jsxbin`. Such a binary file may not be usable with all of the scripting integration features in After Effects.

Activating full scripting features

For security reasons, the scripting features that operate outside the After Effects application (such as adding and deleting files and folders on volumes, or accessing the network) are disabled by default.

To enable these features, choose Preferences > General, and select "Allow Scripts To Write Files And Access Network." This allows you to:

- Write to files
- Create folders and set the current folder
- Create a socket connection (for details of this JavaScript utility, see the *JavaScript Tools Guide*)

Adobe supplies a full-featured JavaScript debugger, called the ExtendScript Toolkit. The Toolkit is disabled by default so that casual users do not encounter it. When editing or writing scripts, the Toolkit can help you diagnose script problems more quickly. To activate the Toolkit on the local computer when a script error is encountered, choose Preferences > General, and select Enable JavaScript Debugger. For detailed information on the ExtendScript Toolkit, see the *JavaScript Tools Guide*.

Note that the Toolkit operates only when executing a script, not with expressions, even though expressions also make use of JavaScript.

Accessing and writing scripts

To create and edit scripts for After Effects, you can use the ExtendScript Toolkit, or an external text-editing application that creates files with Unicode UTF-8 text encoding. Beware of applications such as Microsoft Word that by default add header information to files; these create line 0 errors in scripts, causing them to fail.

A script can reside anywhere, although to appear in the Scripts menu it must be saved in the Scripts folder within the After Effects application folder.

There is no built-in method for recording a series of actions in After Effects into a script, as you can with Adobe Photoshop® actions. Scripts are created outside After Effects and then executed within it, or externally via a command-line, the ExtendScript Toolkit, or third-party render management software.

The Scripts menu and Scripts folder

After Effects scripts reside in the Scripts folder, within the same folder as your After Effects application file. Only scripts contained in this Scripts folder when the application starts are automatically listed in the Scripts menu, although a script file can reside anywhere.

To run a script that does not appear in the Scripts menu, choose File > Scripts > Run Script File, and choose the script in the Open dialog box. Alternatively, you can send After Effects a script from the ExtendScript Toolkit, from a command line (on Windows) or from AppleScript (on Mac OS).

To appear in the Open dialog box, your script must include the proper `.jsx` file extension.

Shutdown and Startup folders

Within the Scripts folder are two folders called Startup and Shutdown. After Effects runs scripts in these folders automatically, in alphabetical order, on starting and quitting, respectively.

In the Startup folder you can place scripts that you wish to execute at startup of the application. They are executed after the application is initialized and all plug-ins are loaded.

Scripting shares a global environment, so any script executed at startup can define variables and functions that are available to all scripts. In all cases, variables and functions, once defined by running a script that contains them, persist in subsequent scripts during a given After Effects session. Once the application is quit, all such globally defined variables and functions are cleared. Be sure to give variables in scripts unique names, so that a script does not inadvertently reassign global variables intended to persist throughout a session.

Attributes can also be added to existing objects such as the Application object (see “Application object” on page 19) to extend the application for other scripts.

The Shutdown folder scripts are executed as the application quits. This occurs after the project is closed but before any other application shutdown occurs.

The Window menu and ScriptUI Panels folder

Within the Scripts folder, you can create another folder named ScriptUI Panels. Use this folder for scripts whose user interface appears in a native panel (as opposed to a floating palette, dialog box, or window). The advantage of a panel is that it can be docked with other panels, such as Project, Composition, and Time Controls, and appear more integrated into the application. Like native panels, ScriptUI Panels scripts are accessed from the Window menu.

Instead of creating a Window object an adding controls to it, a ScriptUI Panels script uses the "this" object that represents the panel. For example, the following code adds a button to a panel:

```
var myPanel = this;
myPanel.add("button", [10, 10, 100, 30], "Tool #1");
myPanel.show();
```

If your script creates its user interface in a function, you cannot use "this" as it will refer to the function itself, not the panel. In this case, you should pass the "this" object as an argument to your function. For example:

```
function createUI(thisObj) {
  var myPanel = thisObj;
  myPanel.add("button", [10, 10, 100, 30], "Tool #1");
  return myPanel;
  }
var myToolsPanel = createUI(this);
myToolsPanel.show();
```

You cannot use the File > Scripts > Run Script File menu command to run a script that refers to "this". To make your script work with either a Window object (accessible from the File > Scripts menu) or a native panel (accessible from the Window menu), check whether "this" is a Panel object. For example:

```
function createUI(thisObj) {
  var myPanel = (thisObj instanceof Panel) ? thisObj : new Window("palette", "My Tools",
    [100, 100, 300, 300]);
  myPanel.add("button", [10, 10, 100, 30], "Tool #1");
  return myPanel;
  }
var myToolsPanel = createUI(this);
myToolsPanel.show();
```

Sending a script to After Effects from the system

If you are familiar with how to run a script from the command line in Windows or via AppleScript, you can send a script directly to the open After Effects application, so that the application automatically runs the script.

How to include After Effects scripting in a command line (Windows)

Following are examples of Windows command-line entries that will send an After Effects script to the application without using the After Effects user interface to execute the script.

In the first example, you copy and paste your After Effects script directly on the command line and then run it. The script text appears in quotation marks following the `afterfx.exe -s` command:

```
afterfx.exe -s "alert("You just sent an alert to After Effects")"
```

Alternatively, you can specify the location of the JSX file to be executed. For example:

```
afterfx.exe -r c:\myDocuments\Scripts\yourAEScriptHere.jsx
afterfx.exe -r "c:\myDocuments\Scripts\Script Name with Spaces.jsx"
```

How to include After Effects scripting in an AppleScript (Mac OS)

Following are three examples of AppleScript scripts that will send an existing JSX file containing an After Effects script to the application without using the After Effects user interface to execute the script.

In the first example, you copy your After Effects script directly into the Script Editor and then run it. The script text appears within quotation marks following the DoScript command, so internal quotes in the script must be escaped using the backslash escape character, as follows:

```
tell application "Adobe After Effects CS3"
  DoScript "alert(\"You just sent an alert to After Effects\")"
end tell
```

Alternatively, you could display a dialog box asking for the location of the JSX file to be executed, as follows:

```
set theFile to choose file
tell application "Adobe After Effects CS3"
  DoScript theFile
end tell
```

Finally, this script is perhaps most useful when you are working directly on editing a JSX script and want to send it to After Effects for testing or to run. To use it effectively you must enter the application that contains the open JSX file (in this example it is TextEdit); if you do not know the proper name of the application, type in your best guess to replace “TextEdit” and AppleScript prompts you to locate it.

Simply highlight the script text that you want to run, and then activate this AppleScript:

```
(*
This script sends the current selection to After Effects as a script.
*)

tell application "TextEdit"
  set the_script to selection as text
end tell

tell application "Adobe After Effects CS3"
  activate
  DoScript the_script
end tell
```

For more information on using AppleScript, check out Matt Neuberg’s *AppleScript: the Definitive Guide* (O’Reilly & Associates) or Sal Soghoian’s *AppleScript 1-2-3* (Peachpit Press).

Testing and troubleshooting

Any After Effects script that contains an error preventing it from being completed generates an error message from the application. This error message includes information about the nature of the error and the line of the script on which it occurred.

Additionally, After Effects includes a JavaScript debugger. For more information on activating and using the debugger, see the ExtendScript Toolkit documentation in the *JavaScript Tools Guide*.

More resources to learn scripting

Many resources exist for learning more about scripting that uses the ECMA standard.

The After Effects scripting engine supports the 3rd Edition of the ECMA-262 Standard, including its notational and lexical conventions, types, objects, expressions, and statements.

For a complete listing of the keywords and operators included with ECMAScript, refer to ECMA-262.pdf, available at www.ecma-international.org/publications/standards/Ecma-262.htm.

Books that deal with JavaScript 1.2 are also useful for understanding how scripting works in After Effects. One book that is something of a standard for JavaScript users is *JavaScript: The Definitive Guide* (O'Reilly) by David Flanagan. Another very readable source is *JavaScript: A Beginner's Guide* (Osborne) by John Pollock. Both of these texts contain information that pertains only to extensions of JavaScript for Internet browsers; however, they also contain thorough descriptions of scripting fundamentals.

There are also books for using AppleScript and creating Windows command line scripts, each of which can be used to send scripts to After Effects.

JavaScript variables

Scripting shares a global environment, so any script executed at startup can define variables and functions that are available to all scripts. In all cases, variables and functions, once defined by running a script that contains them, persist in subsequent scripts during a given After Effects session. Once the application is quit, all such globally defined variables and functions are cleared. Scripters should be careful about giving variables in scripts unique names, so that a script does not inadvertently reassign global variables intended to persist throughout a session.

JavaScript keywords and statement syntax

Although it is not possible to provide an exhaustive resource describing usage of JavaScript, the following tables provide an overview of keywords, statements, operators, precedence, and associativity.

The following table lists and describes all keywords and statements recognized by the After Effects scripting engine.

Table 1 Keywords and Statement Syntax

Keyword/Statement	Description
`break`	Standard JavaScript; exit the currently executing loop.
`continue`	Standard JavaScript; cease execution of the current loop iteration.
`case`	Label used in a `switch` statement.
`default`	Label used in a `switch` statement when a `case` label is not found.
`do...while`	Standard JavaScript construct. Similar to the `while` loop, except loop condition evaluation occurs at the end of the loop.
`false`	Literal representing the boolean false value.
`for`	Standard JavaScript loop construct.
`for...in`	Standard JavaScript construct. Provides a way to easily loop through the properties of an object.

Keyword/Statement	Description
function	Used to define a function.
if/if...else	Standard JavaScript conditional constructs.
new	Standard JavaScript constructor statement.
null	Assigned to a variable, array element, or object property to indicate that it does not contain a legal value.
return	Standard JavaScript way of returning a value from a function or exiting a function.
switch	Standard JavaScript way of evaluating a JavaScript expression and attempting to match the expression's value to a case label.
this	Standard JavaScript method of indicating the current object.
true	Literal representing the boolean true value.
undefined	Indicates that the variable, array element, or object property has not yet been assigned a value.
var	Standard JavaScript syntax used to declare a local variable.
while	Standard JavaScript construct. Similar to the do...while loop, except loop condition evaluation occurs at the beginning of the loop.
with	Standard JavaScript construct used to specify an object to use in subsequent statements.

JavaScript operators

The following tables list and describe all operators recognized by the After Effects scripting engine and show the precedence and associativity for all operators.

Table 2 Description of Operators

Operators	Description
new	Allocate object.
delete	Deallocate object.
typeof	Returns data type.
void	Returns undefined value.
.	Structure member.
[]	Array element.
()	Function call.
++	Pre- or post-increment.
––	Pre- or post-decrement.
–	Unary negation or subtraction.
~	Bitwise NOT.
!	Logical NOT.
*	Multiply.
/	Divide.
%	Modulo division.

Operators	Description
+	Add.
<<	Bitwise left shift.
>>	Bitwise right shift.
>>>	Unsigned bitwise right shift.
<	Less than.
<=	Less than or equal.
>	Greater than.
>=	Greater than or equal.
==	Equal.
!=	Not equal.
&	Bitwise AND.
^	Bitwise XOR.
|	Bitwise OR.
&&	Logical AND.
||	Logical OR.
?:	Conditional (ternary).
=	Assignment.
+=	Assignment with add operation.
−=	Assignment with subtract operation.
*=	Assignment with multiply operation.
/=	Assignment with divide operation.
%=	Assignment with modulo division operation.
<<=	Assignment with bitwise left shift operation.
>>=	Assignment with bitwise right shift operation.
>>>=	Assignment with unsigned bitwise right shift operation.
&=	Assignment with bitwise AND operation.
^=	Assignment with bitwise XOR operation.
|=	Assignment with bitwise OR operation.
,	Multiple evaluation.

Table 3 Operator Precedence

Operators (highest precedence to lowest)	Associativity
[], (), .	left to right
new, delete, – (unary negation), !, typeof, void, ++, ––	right to left

Operators (highest precedence to lowest)	Associativity
*, /, %	left to right
+, – (subtraction)	left to right
<<, >>, >>>	left to right
<, <=, >, >=	left to right
==, !=	left to right
&	left to right
^	left to right
|	left to right
&&	left to right
||	left to right
?:	right to left
=, /=, %=, <<=, >>=, >>>=, &=, ^=, |=, +=, –=, *=	right to left
,	left to right

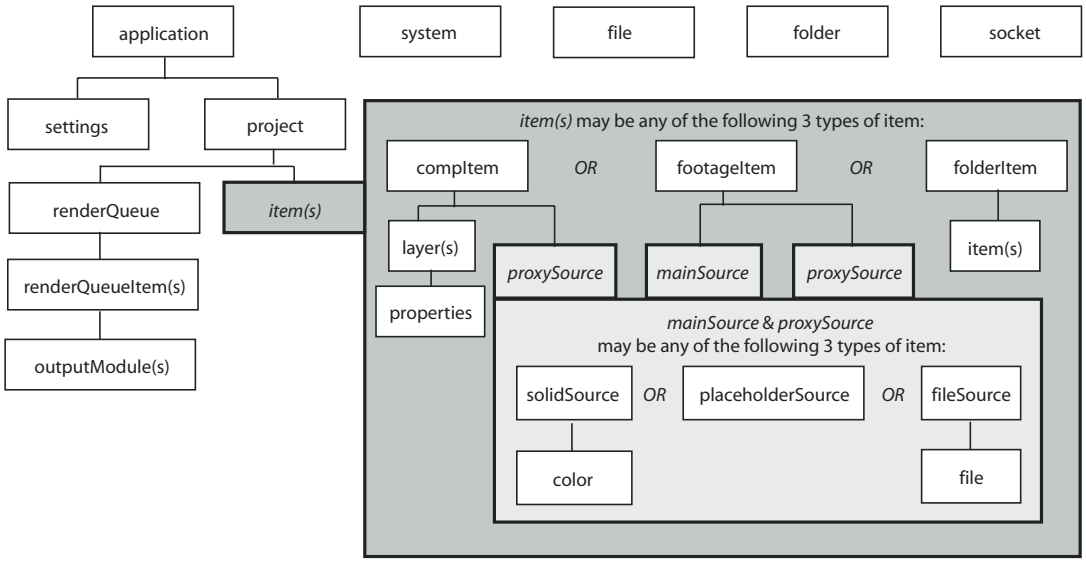
JavaScript Reference

This chapter lists and describes JavaScript classes, objects, methods, attributes, and global functions defined by After Effects.

The After Effects scripting engine supports ExtendScript, Adobe's extended version of JavaScript, which implements the 3rd Edition of the ECMA-262 Standard, including its notational and lexical conventions, types, objects, expressions and statements. For a complete listing of the keywords and operators included with ECMAScript, refer to ECMA-262.pdf, available at www.ecma-international.org/publications/standards/Ecma-262.htm. For an overview of the most common keywords and statements available from ECMA-262, see "JavaScript keywords and statement syntax" on page 9.

The After Effects Object Model

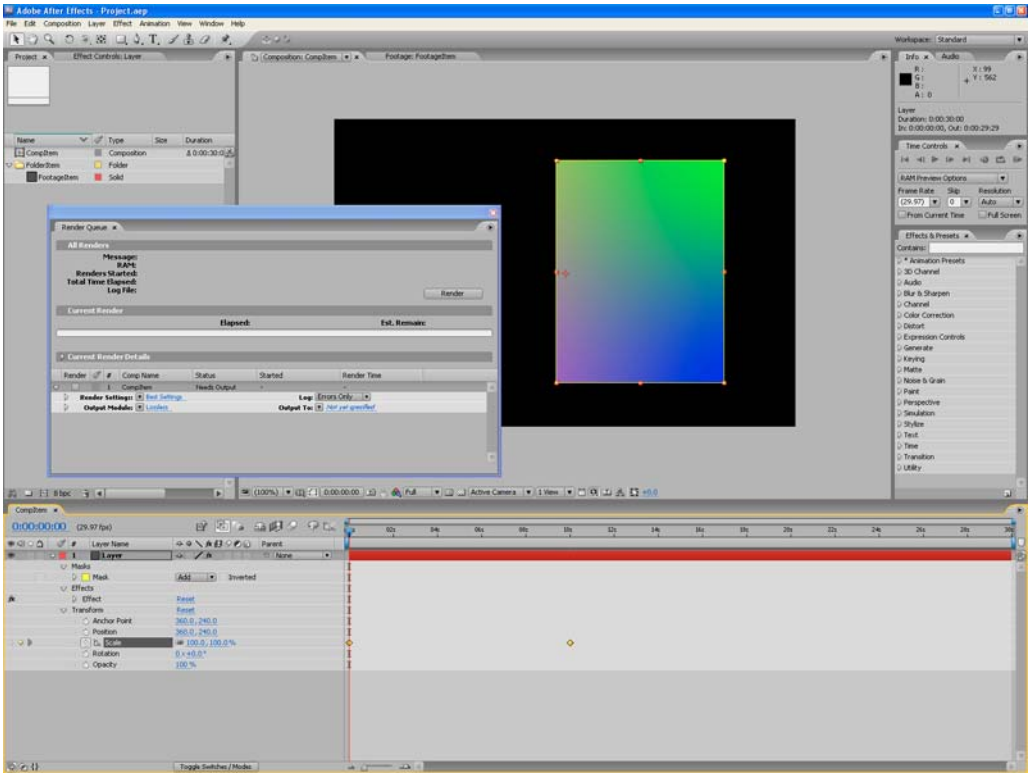
As you look through this reference section, which is organized alphabetically by object, you can refer to the following diagrams for an overview of where the various objects fall within the hierarchy, and their correspondence to the user interface.



Hierarchy diagram of the main After Effects scripting objects

Note that the File, Folder, and Socket objects are defined by ExtendScript, and are documented in the *JavaScript Tools Guide*. ExtendScript also defines the ScriptUI module, a set of window and user-interface control objects, which are available to After Effects scripts. These are also documented in the *JavaScript Tools Guide*.

The hierarchy of objects in scripting corresponds to the hierarchy in the user interface.



The application contains a Project panel, which displays a *project*. The project contains *compositions*, which contain *layers*. The source for a layer can be a *footage file*, *placeholder*, or *solid*, also listed in the Project panel. Each layer contains settings known as *properties*, and these can contain *markers* and *keyframes*. The *render queue* contains *render-queue items* as well as render settings and *output modules*. All of these entities are represented by objects in scripting.

NOTE: To avoid ambiguity, this manual uses the term "attribute" to refer to JavaScript object properties, and the term "property" or "AE property" to refer to After-Effects layer properties.

Object summary

The following table lists all objects alphabetically, with links to the documentation page for each.

Object	Description
"Global functions" on page 16	Globally available functions that allow you to display text for script debugging purposes, and help convert time values between seconds and frames.
"Application object" on page 19	A single global object, available by its name (`app`), that provides access to objects and application settings within the After Effects application.
"AVItem object" on page 32	Represents audio/visual files imported into After Effects.
"AVLayer object" on page 39	Represents those layers that contain AVItem objects (Comp layers, footage layers, solid layers, text layers, and sound layers).
"CameraLayer object" on page 50	Represents a camera layer within a composition.
"Collection object" on page 51	Associates a set of objects or values as a logical group and provides access to them by index.
"CompItem object" on page 52	Represents a composition, and allows you to manipulate it and get information about it.

Object	Description
"FileSource object" on page 60	Describes footage that comes from a file.
"FolderItem object" on page 62	Represents a folder in the Project panel.
"FootageItem object" on page 64	Represents a footage item imported into a project, which appears in the Project panel.
"FootageSource object" on page 67	Describes the file source of some footage.
"ImportOptions object" on page 73	Encapsulates options for importing files into After Effects.
"Item object" on page 76	Represents an item in a project that appears in the Project panel.
"ItemCollection object" on page 79	Collects items in a project.
"KeyframeEase object" on page 81	Encapsulates keyframe ease values in an After Effects property.
"Layer object" on page 83	A base class for layer classes.
"LayerCollection object" on page 92	Collects layers in a project.
"LightLayer object" on page 97	Represents a light layer within a composition.
"MarkerValue object" on page 98	Encapsulates marker values in an AE property.
"MaskPropertyGroup object" on page 102	Encapsulates mask attributes in a layer.
"OMCollection object" on page 104	Collects output modules in a render queue.
"OutputModule object" on page 105	Represents an output module for a render queue.
"PlaceholderSource object" on page 108	Describes a placeholder for footage.
"Project object" on page 109	Represents an After Effects project.
"Property object" on page 118	Represents an After Effects property.
"PropertyBase object" on page 140	A base class for After Effects property and property group classes.
"PropertyGroup object" on page 147	Represents an After Effects property group.
"RenderQueue object" on page 152	Represents the After Effects render queue.
"RenderQueueItem object" on page 155	Represents a renderable item in a render queue.
"RenderQueueItem object" on page 155	Collects render-queue items in a render queue.
"RQItemCollection object" on page 161	Provides access to application settings and preferences.
"Shape object" on page 164	Encapsulates the outline shape information for a mask.
"ShapeLayer object" on page 167	Represents a shape layer within a composition.
"SolidSource object" on page 168	Describes a solid color that is the source of some footage.
"System object" on page 169	Provides access to the operating system from the application.
"TextDocument object" on page 171	Encapsulates the text in a text layer.
"TextLayer object" on page 172	Represents a text layer within a composition.

Global functions

These globally available functions that are specific to After Effects. Any JavaScript object or function can call these functions, which allow you to display text in a small (3-line) area of the Info panel, and to convert numeric time values to and from string values.

Global function	Description
clearOutput()	Clears text from the Info panel.
currentFormatToTime()	Converts string time value to a numeric time value.
timeToCurrentFormat()	Converts a numeric time value to a string time value.
write()	Writes text to the Info panel, with no line break added.
writeLn()	Writes text to the Info panel, adding a line break at the end.

Additional global functions for standard user I/O (alert, confirm, and prompt) and static functions for file I/O, are defined by ExtendScript; for detailed reference information, see the *Adobe Bridge® JavaScript Reference*.

NOTE: The After Effects global functions for standard dialogs and file I/O are still supported in this release, but are deprecated and will not be supported in future releases. For details, see the After Effects 6.5 documentation.

clearOutput() global function

clearOutput()

Description

Clears the output in the Info panel.

Parameters

None.

Returns

Nothing.

currentFormatToTime() global function

currentFormatToTime(*formattedTime, fps, isDuration*)

Description

Converts a formatted string for a frame time value to a number of seconds, given a specified frame rate. For example, if the formatted frame time value is 0:00:12 (the exact string format is determined by a project setting), and the frame rate is 24 fps, the time would be 0.5 seconds (12/24). If the frame rate is 30 fps, the time would be 0.4 seconds (12/30).

If the time is a duration, the frames are counted from 0. Otherwise, the frames are counted from the project's starting frame (see "Project displayStartFrame attribute" on page 111).

Parameters

formattedTime	The frame time value, a string specifying a number of frames in the project's current time display format.

fps	The frames-per-second, a floating-point value.
isDuration	Optional. When true, the time is a duration (measured from frame 0). When false (the default), the time is measured from the project's starting frame.

Returns

Floating-point value, the number of seconds.

timeToCurrentFormat() global function

timeToCurrentFormat(*time, fps, isDuration*)

Description

Converts a numeric time value (a number of seconds) to a frame time value; that is, a formatted string that shows which frame corresponds to that time, at the specified rate. For example, if the time is 0.5 seconds, and the frame rate is 24 fps, the frame would be 0:00:12 (when the project is set to Display Timecode). If the frame rate is 30 fps, the frame would be 0:00:15. The format of the timecode string is determined by a project setting.

If the time is a duration, the frames are counted from 0. Otherwise, the frames are counted from the project's starting frame (see "Project displayStartFrame attribute" on page 111).

Parameters

time	The number of seconds, a floating-point value.
fps	The frames-per-second, a floating-point value.
isDuration	Optional. When true, the time is a duration (measured from frame 0). When false (the default), the time is measured from the project's starting frame.

Returns

String in the project's current time display format.

write() global function

write(*text*)

Description

Writes output to the Info panel, with no line break added.

Parameters

text	The string to display. Truncated if too long for the Info panel.

Returns

Nothing.

Example

```
write("This text appears in Info panel ");
write("with more on same line.");
```

writeLn() global function

writeLn(*text*)

Description

Writes output to the Info panel and adds a line break at the end.

Parameters

text	The string to display.

Returns

Nothing.

Example

```
writeln("This text appears on first line");
writeln("This text appears on second line");
```

Application object

app

Description

Provides access to objects and application settings within the After Effects application. The single global object is always available by its name, app.

Attributes of the Application object provide access to specific objects within After Effects. Methods of the Application object can create a project, open an existing project, control Watch Folder mode, purge memory, and quit the After Effects application. When the After Effects application quits, it closes the open project, prompting the user to save or discard changes as necessary, and creates a project file as necessary.

Attributes

Attribute	Reference	Description
project	"Application project attribute" on page 28 and "Project object" on page 109	The current After Effects project.
language	"Application language attribute" on page 24	The language in which the application is running.
version	"Application version attribute" on page 30	The version number of the After Effects application.
buildName	"Application buildName attribute" on page 21	The name of this build of the application.
buildNumber	"Application buildNumber attribute" on page 22	The number of this build of the application.
isWatchFolder	"Application isWatchFolder attribute" on page 24	When true, the local application is running in Watch Folder mode.
isRenderEngine	"Application isRenderEngine attribute" on page 24	When true, the local After Effects application is running as a render engine.
settings	"Application settings attribute" on page 30 and "RQItemCollection object" on page 161	Application settings that can be set via scripting.
onError	"Application onError attribute" on page 26	A callback function that is called when an error occurs in the application.
exitCode	"Application exitCode attribute" on page 24	A numeric status code used when executing a script externally (that is, from a command line or AppleScript). 0 if no error occurred. A positive number indicates an error that occurred while running the script.
exitAfterLaunchAndEval	"Application exitAfterLaunchAndEval attribute" on page 23	When true, the application remains open after running a script from the command line on Windows.
saveProjectOnCrash	"Application saveProjectOnCrash attribute" on page 28	When true, the project is saved if the application closes unexpectedly.
memoryInUse	"Application memoryInUse attribute" on page 25	Memory in use by this application.

Methods

Method	Reference	Description
newProject()	"Application newProject() method" on page 25	Creates a new project in After Effects.
open()	"Application open() method" on page 26	Opens a project or an Open Project dialog box.
quit()	"Application quit() method" on page 28	Quits the application.
watchFolder()	"Application watchFolder() method" on page 30	Starts Watch Folder mode; does not return until Watch Folder mode is turned off.
pauseWatchFolder()	"Application pauseWatchFolder() method" on page 27	Pauses a current watch-folder process.
endWatchFolder()	"Application endWatchFolder() method" on page 23	Ends a current watch-folder process.
purge()	"Application purge() method" on page 28	Purges a targeted type of cached information (replicates Purge options in the Edit menu).
beginUndoGroup()	"Application beginUndoGroup() method" on page 21	Groups the actions that follow it into a single undoable step.
endUndoGroup()	"Application endUndoGroup() method" on page 22	Ends an undo group; needed only when a script contains more than one undo group.
beginSuppressDialogs()	"Application beginSuppressDialogs() method" on page 21	Begins suppression of dialogs in the user interface.
endSuppressDialogs()	"Application endSuppressDialogs() method" on page 22	Ends suppression of dialogs in the user interface.
setMemoryUsageLimits()	"Application setMemoryUsageLimits() method" on page 29	Sets memory usage limits as in the Memory & Cache preferences area.
setSavePreferencesOnQuit()	"Application setSavePreferencesOnQuit() method" on page 29	Sets whether preferences are saved when the application is quit.
activate()	"Application activate() method" on page 20	Brings the After Effects main window to the front of the screen.
scheduleTask()	"Application scheduleTask() method" on page 29	Schedules a JavaScript script for delayed execution.
cancelTask()	"Application cancelTask() method" on page 22	Cancels a scheduled task.
parseSwatchFile()	"Application parseSwatchFile() method" on page 27	Loads a color swatch from an Adobe Swatch Exchange (ASE) file.

Application activate() method

app.activate()

Description

Opens the application main window if it is minimized or iconified, and brings it to the front of the desktop.

Parameters

None.

Returns

Nothing.

Application beginSuppressDialogs() method

app.beginSuppressDialogs()

Description

Begins suppression of script error dialog boxes in the user interface. Use endSuppressDialogs() to resume the display of error dialogs. See "Application endSuppressDialogs() method" on page 22.

Parameters

None.

Returns

Nothing.

Application beginUndoGroup() method

app.beginUndoGroup(*undoString*)

Description

Marks the beginning of an undo group, which allows a script to logically group all of its actions as a single undoable action (for use with the Edit > Undo/Redo menu items). Use the endUndoGroup() method to mark the end of the group. (See "Application endUndoGroup() method" on page 22.)

beginUndoGroup() and endUndoGroup() pairs can be nested. Groups within groups become part of the larger group, and will undo correctly. In this case, the names of inner groups are ignored.

Parameters

undoString	The text that will appear for the Undo command in the Edit menu (that is, "Undo <undoString>")

Returns

Nothing.

Application buildName attribute

app.buildName

Description

The name of the build of After Effects being run, used internally by Adobe for testing and troubleshooting.

Type

String; read-only.

Application buildNumber attribute

app.buildNumber

Description

The number of the build of After Effects being run, used internally by Adobe for testing and troubleshooting.

Type

Integer; read-only.

Application cancelTask() method

app.cancelTask(*taskID*)

Description

Removes the specified task from the queue of tasks scheduled for delayed execution.

Parameters

taskID	An integer that identifies the task, as returned by app.scheduleTask().

Returns

Nothing.

Application endSuppressDialogs() method

app.endSuppressDialogs(*alert*)

Description

Ends the suppression of script error dialog boxes in the user interface. Error dialogs are displayed by default; call this method only if beginSuppressDialogs() has previously been called. See "Application beginSuppress-Dialogs() method" on page 21.

Parameters

alert	Boolean; when true, errors that have occurred following the call to beginSuppressDialogs() are displayed in a dialog box.

Returns

Nothing.

Application endUndoGroup() method

app.endUndoGroup()

Description

Marks the end of an undo group begun with the app.beginUndoGroup() method. You can use this method to place an end to an undo group in the middle of a script, should you wish to use more than one undo group for a single script.

If you are using only a single undo group for a given script, you do not need to use this method; in its absence at the end of a script, the system will close the undo group automatically.

Calling this method without having set a `beginUndoGroup()` method yields an error.

Parameters

None.

Returns

Nothing.

Application endWatchFolder() method

`app.endWatchFolder()`

Description

Ends Watch Folder mode.

Parameters

None

Returns

Nothing.

See also

"Application watchFolder() method" on page 30
"Application parseSwatchFile() method" on page 27
"Application isWatchFolder attribute" on page 24

Application exitAfterLaunchAndEval attribute

`app.exitAfterLaunchAndEval`

Description

This attribute is used only when executing a script from a command line on Windows. When the application is launched from the command line, the `–r` or `–s` command line flag causes the application to run a script (from a file or from a string, respectively).

If this attribute is set to true, After Effects will exit after the script is run; if it is false, the application will remain open.

This attribute only has an effect when After Effects is run from the Windows command line. It has no effect in Mac OS.

Type

Boolean; read/write.

Application exitCode attribute

app.exitCode

Description

A numeric status code used when executing a script externally (that is, from a command line or AppleScript).

- In Windows, the value is returned on the command line when After Effects was launched on the commands line (using the afterfx or afterfx –m command), and a script was specified with the –r or –s option.
- in Mac OS, the value is returned as the AppleScript DoScript result for each script.

In both Mac OS and Windows, the value is set to 0 (EXIT_SUCCESS) at the beginning of each script evaluation. In the event of an error while the script is running, the script can set this to a positive integer that indicates what error occurred.

Type

Integer; read/write.

Example

```
app.exitCode = 2; //on quit, if value is 2, an error has occurred
```

Application isRenderEngine attribute

app.isRenderEngine

Description

True if After Effects is running as a render engine.

Type

Boolean; read-only.

Application isWatchFolder attribute

app.isWatchFolder

Description

True if the Watch Folder dialog box is currently displayed and the application is currently watching a folder for rendering.

Type

Boolean; read-only.

Application language attribute

app.language

Description

The language After Effects is running.

Type

A Language enumerated value; read-only. One of:

```
Language.ENGLISH
Language.FRENCH
Language.GERMAN
Language.ITALIAN
Language.JAPANESE
Language.SPANISH
```

Example

```
var lang = app.language;
if (lang == Language.ENGLISH)
  alert("After Effects is running in English.");
else if (lang == Language.FRENCH)
  alert("After Effects is running in French.");
else
  alert("After Effects is not running in English or French.");
```

Application memoryInUse attribute

```
app.memoryInUse
```

Description

The number of bytes of memory currently used by this application.

Type

Number; read-only.

Application newProject() method

```
app.newProject()
```

Description

Creates a new project in After Effects, replicating the File > New > New Project menu command.

If the current project has been edited, the user is prompted to save it. If the user cancels out of the Save dialog box, the new project is not created and the method returns null. Use `app.project.close(CloseOptions.DO_NOT_SAVE_CHANGES)` to close the current project before opening a new one. See "Project close() method" on page 111.

Parameters

None.

Returns

A new Project object, or null if no new project is created.

Example

```
app.project.close(CloseOptions.DO_NOT_SAVE_CHANGES);
app.newProject();
```

Application onError attribute

```
app.onError
```

Description

The name of a callback function that is called when an error occurs. By creating a function and assigning it to this attribute, you can respond to errors systematically; for example, you can close and restart the application, noting the error in a log file if it occurred during rendering. See "RenderQueue render() method" on page 153.

The callback function is passed the error string and a severity string. It should not return any value.

Type

A function name string, or null if no function is assigned; read/write.

Example

```
function err(errString) {
  alert(errString);
  }
app.onError = err;
```

Application open() method

```
app.open()
app.open(file)
```

Description

Opens a project.

Parameters

file	Optional. An ExtendScript File object for the project file to open. If not supplied, the method prompts the user to select a project file.

Returns

A new Project object for the specified project, or null if the user cancels the Open dialog box.

Example

```
var my_file = new File("../my_folder/my_test.aep");
if (my_file.exists){
  new_project = app.open(my_file);
  if (new_project){
     alert(new_project.file.name);
    }
  }
```

Application parseSwatchFile() method

app.parseSwatchFile(*file*)

Description

Loads color swatch data from an Adobe Swatch Exchange (ASE) file.

Parameters

file	The file specification, an ExtendScript File object.

Returns

The swatch data, in this format:

data.majorVersion data.minorVersion	The ASE version number.
data.values	An array of SwatchValue.
SwatchValue.type	One of "RGB", "CMYK", "LAB", "Gray"
SwatchValue.r SwatchValue.g SwatchValue.b	When type = "RGB", the color values in the range [0.0..1.0]. 0, 0, 0 is Black.
SwatchValue.c SwatchValue.m SwatchValue.y SwatchValue.k	When type = "CMYK", the color values in the range [0.0..1.0]. 0, 0, 0, 0 is White.
SwatchValue.L SwatchValue.a SwatchValue.b	When type = "LAB", the color values. L is in the range [0.0..1.0]. a and b are in the range [-128.0..+128.0] 0, 0, 0 is Black.
SwatchValue.value	When type = "Gray", the value range is [0.0..1.0]. 0.0 is Black.

Application pauseWatchFolder() method

app.pauseWatchFolder(*pause*)

Description

Pauses or resumes the search of the target watch folder for items to render.

Parameters

pause	True to pause, false to resume.

Returns

Nothing.

See also

"Application isWatchFolder attribute" on page 24
"Application watchFolder() method" on page 30
"Application endWatchFolder() method" on page 23

Application project attribute

app.project

Description

The project that is currently loaded. See "Project object" on page 109.

Type

Project object; read-only.

Application purge() method

app.purge(*target*)

Description

Purges unused data of the specified types from memory. Replicates the Purge options in the Edit menu.

Parameters

target	The type of elements to purge from memory; a PurgeTarget enumerated value, one of: • PurgeTarget.ALL_CACHES: Purges all data that After Effects has cached to physical memory. • PurgeTarget.UNDO_CACHES: Purges all data saved in the undo cache. • PurgeTarget.SNAPSHOT_CACHES: Purges all data cached as comp/layer snapshots. • PurgeTarget.IMAGE_CACHES: Purges all saved image data.

Returns

Nothing.

Application quit() method

app.quit()

Description

Quits the After Effects application.

Parameters

None.

Returns

Nothing.

Application saveProjectOnCrash attribute

app.saveProjectOnCrash

Description

When true (the default), After Effects attempts to display a dialog box that allows you to save the current project if an error causes the application to quit unexpectedly. Set to false to suppress this dialog box and quit without saving.

Type

Boolean; read/write.

Application scheduleTask() method

app.scheduleTask(*stringToExecute, delay, repeat*)

Description

Schedules the specified JavaScript for delayed execution.

Parameters

stringToExecute	A string containing JavaScript to be executed.
delay	A number of milliseconds to wait before executing the JavaScript. A floating-point value.
repeat	When true, execute the script repeatedly, with the specified delay between each execution. When false the script is executed only once.

Returns

Integer, a unique identifier for this task, which can be used to cancel it with app.cancelTask().

Application setMemoryUsageLimits() method

app.setMemoryUsageLimits(*imageCachePercentage, maximumMemoryPercentage*)

Description

Sets memory usage limits as in the Memory & Cache preferences area. For both values, if installed RAM is less than a given amount (*n* gigabytes), the value is a percentage of the installed RAM, and is otherwise a percentage of *n*. The value of *n* is: 2 Gb for Win32, 4 Gb for Win64, 3.5 Gb for Mac OS.

Parameters

imageCachePercentage	Floating-point value, the percentage of memory assigned to image cache.
maximumMemoryPercentage	Floating-point value, the maximum usable percentage of memory.

Returns

Nothing.

Application setSavePreferencesOnQuit() method

app.setSavePreferencesOnQuit(*doSave*)

Description

Set or clears the flag that determines whether preferences are saved when the application is closed.

Parameters

doSave	When true, preferences saved on quit, when false they are not.

Returns

Nothing.

Application settings attribute

app.settings

Description

The currently loaded settings. See “Settings object” on page 162.

Type

Settings object; read-only.

Application version attribute

app.version

Description

An alphanumeric string indicating which version of After Effects is running.

Type

String; read-only.

Example

```
var ver = app.version;
alert("This machine is running version " + ver + " of After Effects.");
```

Application watchFolder() method

app.watchFolder(*folder_object_to_watch*)

Description

Starts a Watch Folder (network rendering) process pointed at a specified folder.

Parameters

folder_object_to_watch	The ExtendScript Folder object for the folder to watch.

Returns

Nothing.

Example

```
var theFolder = new Folder(“c:/tool”);
app.watchFolder(theFolder);
```

See also

"Application endWatchFolder() method" on page 23
"Application parseSwatchFile() method" on page 27
"Application isWatchFolder attribute" on page 24

AVItem object

app.project.item(*index*)

Description

The AVitem object provides access to attributes and methods of audio/visual files imported into After Effects.

- AVItem is a subclass of Item. All methods and attributes of Item, in addition to those listed below, are available when working with AVItem. See "Item object" on page 76.
- AVItem is the base class for both CompItem and FootageItem, so AVItem attributes and methods are also available when working with CompItem and FootageItem objects. See "CompItem object" on page 52 and "FootageItem object" on page 64.

Attributes

Attribute	Reference	Description
name	"AVItem name attribute" on page 35	The name of the object as shown in the Project panel.
width	"AVItem width attribute" on page 38	The width of the item.
height	"AVItem height attribute" on page 34	The height of the item.
pixelAspect	"AVItem pixelAspect attribute" on page 35	The pixel aspect ratio of the item.
frameRate	"AVItem frameRate attribute" on page 34	The frame rate of the item.
frameDuration	"AVItem frameDuration attribute" on page 33	The frame duration for the item.
duration	"AVItem duration attribute" on page 33	The total duration of the item.
useProxy	"AVItem useProxy attribute" on page 38	When true, a proxy source is used for this item.
proxySource	"AVItem proxySource attribute" on page 35	The FootageItem object used as proxy for the item.
time	"AVItem time attribute" on page 38	Current time of the item.
usedIn	"AVItem usedIn attribute" on page 38	The CompItem objects that use this item.
hasVideo	"AVItem hasVideo attribute" on page 34	When true, the item has a video component.
hasAudio	"AVItem hasAudio attribute" on page 34	When true, the item has an audio component.
footageMissing	"AVItem footageMissing attribute" on page 33	When true, the item cannot be found or is a placeholder.

Methods

Method	Reference	Description
setProxy()	"AVItem setProxy() method" on page 36	Sets a proxy for the item.
setProxyWithSequence()	"AVItem setProxyWithSequence() method" on page 37	Sets a sequence as a proxy for the item.
setProxyWithSolid()	"AVItem setProxyWithSolid() method" on page 37	Sets a solid as a proxy for the item.
setProxyWithPlaceholder()	"AVItem setProxyWithPlaceholder() method" on page 36	Sets a placeholder as a proxy for the item.
setProxyToNone()	"AVItem setProxyToNone() method" on page 36	Removes the proxy for the item.

AVItem duration attribute

app.project.item*(index)*.duration

Description

Returns the duration, in seconds, of the item. Still footage items have a duration of 0.

- In a CompItem, the value is linked to the duration of the composition, and is read/write.
- In a FootageItem, the value is linked to the duration of the mainSource object, and is read-only.

Type

Floating-point value in the range [0.0..10800.0]; read/write for a CompItem; otherwise, read-only.

AVItem footageMissing attribute

app.project.item*(index)*.footageMissing

Description

When true, the AVItem is a placeholder, or represents footage with a source file that cannot be found. In this case, the path of the missing source file is in the missingFootagePath attribute of the footage item's source-file object. See "FootageItem mainSource attribute" on page 65 and "FileSource missingFootagePath attribute" on page 60.

Type

Boolean; read-only.

AVItem frameDuration attribute

app.project.item*(index)*.frameDuration

Description

Returns the length of a frame for this AVItem, in seconds. This is the reciprocal of frameRate. When set, the reciprocal is automatically set as a new frameRate value.

This attribute returns the reciprocal of the frameRate, which may not be identical to a value you set, if that value is not evenly divisible into 1.0 (for example, 0.3). Due to numerical limitations, (1 / (1 / 0.3)) is close to, but not exactly, 0.3.

If the AVItem is a FootageItem, this value is linked to the mainSource, and is read-only. To change it, set the conformFrameRate of the mainSource object. This sets both the frameRate and frameDuration of the FootageItem.

Type

Floating-point value in the range [1/99.. 1.0]; read-only for a FootageItem, otherwise read/write.

AVItem frameRate attribute

app.project.item*(index)*.frameRate

Description

The frame rate of the AVItem, in frames-per-second. This is the reciprocal of the frameDuration. When set, the reciprocal is automatically set as a new frameDuration value.

- In a CompItem, the value is linked to the frameRate of the composition, and is read/write.
- In a FootageItem, the value is linked to the frameRate of the mainSource object, and is read-only. To change it, set the conformFrameRate of the mainSource object. This sets both the frameRate and frameDuration of the FootageItem.

Type

Floating-point value in the range [1.0..99.0]; read-only for a FootageItem, otherwise read/write.

AVItem hasAudio attribute

app.project.item*(index)*.hasAudio

Description

When true, the AVItem has an audio component.

- In a CompItem, the value is linked to the composition.
- In a FootageItem, the value is linked to the mainSource object.

Type

Boolean; read-only.

AVItem hasVideo attribute

app.project.item*(index)*.hasVideo

Description

When true, the AVItem has an video component.

- In a CompItem, the value is linked to the composition.
- In a FootageItem, the value is linked to the mainSource object.

Type

Boolean; read-only.

AVItem height attribute

app.project.item*(index)*.height

Description

The height of the item in pixels.

- In a CompItem, the value is linked to the composition, and is read/write.

- In a FootageItem, the value is linked to the mainSource object, and is read/write only if the mainSource object is a SolidSource. Otherwise, it is read-only.

Type

Integer in the range [1...30000]; read/write, except as noted.

AVItem name attribute

app.project.item*(index)*.name

Description

The name of the item, as shown in the Project panel.

- In a FootageItem, the value is linked to the mainSource object. If the mainSource object is a FileSource, this value controls the display name in the Project panel, but does not affect the file name.

Type

String; read/write.

AVItem pixelAspect attribute

app.project.item*(index)*.pixelAspect

Description

The pixel aspect ratio of the item.

- In a CompItem, the value is linked to the composition.
- In a FootageItem, the value is linked to the mainSource object.

Certain pixelAspect values are specially known to After Effects, and are stored and retrieved with perfect accuracy. These are the set {1, 0.9, 1.2, 1.07, 1.42, 2, 0.95, 1.9}. Other values may show slight rounding errors when you set or get them; that is, the value you retrieve after setting may be slightly different from the value you supplied.

Type

Floating-point value, in the range [0.01..100.0]; read/write.

AVItem proxySource attribute

app.project.item*(index)*.proxySource

Description

The FootageSource being used as a proxy. The attribute is read-only; to change it, call any of the AVItem methods that change the proxy source: setProxy(), setProxyWithSequence(), setProxyWithSolid(), or setProxyWithPlaceholder().

Type

FootageSource object; read-only.

AVItem setProxy() method

app.project.item*(index)*.setProxy(*file*)

Description

Sets a file as the proxy of this AVItem. Loads the specified file into a new FileSource object, sets this as the value of the proxySource attribute, and sets useProxy to true. It does not preserve the interpretation parameters, instead using the user preferences. If the file has an unlabeled alpha channel, and the user preference says to ask the user what to do, the method estimates the alpha interpretation, rather than asking the user.

This differs from setting a FootageItem's main source, but both actions are performed as in the user interface.

Parameters

file	An ExtendScript File object for the file to be used as a proxy.

Returns

None.

AVItem setProxyToNone() method

app.project.item*(index)*.setProxyToNone()

Description

Removes the proxy from this AVItem, sets the value of proxySource to null, and sets the value of useProxy to false.

Parameters

None.

Returns

Nothing.

AVItem setProxyWithPlaceholder() method

app.project.item*(index)*.setProxyWithPlaceholder(*name, width, height, frameRate, duration*)

Description

Creates a PlaceholderSource object with specified values, sets this as the value of the proxySource attribute, and sets useProxy to true. It does not preserve the interpretation parameters, instead using the user preferences.

NOTE: There is no direct way to set a placeholder as a proxy in the user interface; this behavior occurs when a proxy has been set and then moved or deleted.

Parameters

name	A string containing the name of the new object.
width, height	The pixel dimensions of the placeholder, an integer in the range [4..30000].
frameRate	The frames-per-second, an integer in the range [1..99].

duration	The total length in seconds, up to 3 hours. An integer in the range [0.0..10800.0].

Returns

Nothing.

AVItem setProxyWithSequence() method

app.project.item*(index)*.setProxyWithSequence(*file, forceAlphabetical*)

Description

Sets a sequence of files as the proxy of this AVItem, with the option of forcing alphabetical order. Loads the specified file sequence into a new FileSource object, sets this as the value of the proxySource attribute, and sets useProxy to true. It does not preserve the interpretation parameters, instead using the user preferences. If any file has an unlabeled alpha channel, and the user preference says to ask the user what to do, the method estimates the alpha interpretation, rather than asking the user.

Parameters

file	An ExtendScript File object for the first file in the sequence.
forceAlphabetical	When true, use the "Force alphabetical order" option.

Returns

Nothing.

AVItem setProxyWithSolid() method

app.project.item*(index)*.setProxyWithSolid(*color, name, width, height, pixelAspect*)

Description

Creates a SolidSource object with specified values, sets this as the value of the proxySource attribute, and sets useProxy to true. It does not preserve the interpretation parameters, instead using the user preferences.

NOTE: There is no way, using the user interface, to set a solid as a proxy; this feature is available only through scripting.

Parameters

color	The color of the solid, an array of 3 floating-point values, [R, G, B], in the range [0.0..1.0].
name	A string containing the name of the new object.
width, height	The pixel dimensions of the placeholder, an integer in the range [1...30000].
pixelAspect	The pixel aspect of the solid, a floating-point value in the range [0.01... 100.0].

Returns

Nothing.

AVItem time attribute

app.project.item*(index)*.time

Description

The current time of the item when it is being previewed directly from the Project panel. This value is a number of seconds. Use the global method timeToCurrentFormat to convert it to a string value that expresses the time in terms of frames; see "timeToCurrentFormat() global function" on page 17.

It is an error to set this value for a FootageItem whose mainSource is still (*item*.mainSource.isStill is true).

Type

Floating-point value; read/write.

AVItem usedIn attribute

app.project.item*(index)*.usedIn

Description

All the compositions that use this AVItem.

Note: *Upon retrieval, the array value is copied, so it is not automatically updated. If you get this value, then add this item into another composition, you must retrieve the value again to get an array that includes the new item.*

Type

Array of CompItem objects; read-only.

AVItem useProxy attribute

app.project.item*(index)*.useProxy

Description

When true, a proxy is used for the item. It is set to true by all the SetProxy methods, and to false by the SetProxyToNone() method.

Type

Boolean; read/write.

AVItem width attribute

app.project.item*(index)*.width

Description

The width of the item, in pixels.

- In a CompItem, the value is linked to the composition, and is read/write.
- In a FootageItem, the value is linked to the mainSource object, and is read/write only if the mainSource object is a SolidSource. Otherwise, it is read-only.

Type

Integer in the range [1...30000]; read/write, except as noted.

AVLayer object

app.project.item*(index)*.layer(*index*)

Description

The AVLayer object provides an interface to those layers that contain AVItem objects (Comp layers, footage layers, solid layers, text layers, and sound layers).

- AVLayer is a subclass of Layer. All methods and attributes of Layer, in addition to those listed below, are available when working with AVLayer. See "Layer object" on page 83.
- AVLayer is a base class for TextLayer, so AVLayer attributes and methods are available when working with TextLayer objects. See "TextLayer object" on page 172.

AE Properties

Different types of layers have different AE properties. AVLayer has the following properties and property groups:

Marker
Time Remap
Motion Trackers
Masks
Effects
Transform
    Anchor Point
    Position
    Scale
    Orientation
    X Rotation
    Y Rotation
    Rotation
    Opacity
Layer Styles
Material Options
    Casts Shadows
    Light Transmission
    Accepts Shadows
    Accepts Lights
    Ambient
    Diffuse
    Specular
    Shininess
    Metal
Audio
    Audio Levels

Example

If the first item in the project is a CompItem, and the first layer of that CompItem is an AVLayer, the following sets the layer `quality`, `startTime`, and `inPoint`.

```
var firstLayer = app.project.item(1).layer(1);
firstLayer.quality = LayerQuality.BEST;
firstLayer.startTime = 1;
```

```
firstLayer.inPoint = 2;
```

Attributes

Attribute	Reference	Description
source	"AVLayer replaceSource() method" on page 47	The source item for this layer.
isNameFromSource	"AVLayer isNameFromSource attribute" on page 46	When true, the layer has no expressly set name, but contains a named source.
height	"AVLayer height attribute" on page 46	The height of the layer.
width	"AVLayer width attribute" on page 49	The width of the layer.
audioEnabled	"AVLayer audioEnabled attribute" on page 42	When true, the layer's audio is enabled.
motionBlur	"AVLayer motionBlur attribute" on page 46	When true, the layer's motion blur is enabled.
effectsActive	"AVLayer effectsActive attribute" on page 44	When true, the layer's effects are active.
adjustmentLayer	"AVLayer adjustmentLayer attribute" on page 41	When true, this is an adjustment layer.
guideLayer	"AVLayer frameBlendingType attribute" on page 45	When true, this is a guide layer.
threeDLayer	"AVLayer threeDLayer attribute" on page 48	When true, this is a 3D layer.
threeDPerChar	"AVLayer threeDPerChar attribute" on page 48	When true, 3D is set on a per-character basis in this text layer.
canSetCollapseTransformation	"AVLayer calculateTransformFrom-Points() method" on page 43	When true, it is legal to change the value of collapseTransformation.
collapseTransformation	"AVLayer collapseTransformation attribute" on page 44	When true, collapse transformation is on.
frameBlending	"AVLayer frameBlending attribute" on page 45	When true, frame blending is enabled.
frameBlendingType	"AVLayer frameBlendingType attribute" on page 45	The type of frame blending for the layer.
canSetTimeRemapEnabled	"AVLayer canSetTimeRemapEnabled attribute" on page 44	When true, it is legal to change the value of timeRemapEnabled.
timeRemapEnabled	"AVLayer timeRemapEnabled attribute" on page 48	When true, time remapping is enabled on this layer.
hasAudio	"AVLayer hasAudio attribute" on page 45	When true, the layer contains an audio component.
audioActive	"AVLayer audioActive attribute" on page 41	When true, the layer's audio is active at the current time.
blendingMode	"AVLayer blendingMode attribute" on page 42	The blending mode of the layer.
preserveTransparency	"AVLayer preserveTransparency attribute" on page 47	When true, preserve transparency is enabled.
trackMatteType	"AVLayer trackMatteType attribute" on page 49	if layer has a track matte, specifies the way it is applied.

Attribute	Reference	Description
isTrackMatte	"AVLayer isTrackMatte attribute" on page 46	When true, this layer is being used as a track matte for the layer below it.
hasTrackMatte	"AVLayer hasTrackMatte attribute" on page 45	When true, the layer above is being used as a track matte on this layer.
quality	"AVLayer quality attribute" on page 47	The layer quality setting.
autoOrient	"AVLayer autoOrient attribute" on page 42	The type of automatic orientation for the layer.

Methods

Method	Reference	Description
audioActiveAtTime()	"AVLayer audioActiveAtTime() method" on page 42	Reports whether this layer's audio is active at a given time.
calculateTransformFromPoints()	"AVLayer calculateTransformFrom-Points() method" on page 43	Calculates a transformation from a set of points in this layer.
replaceSource()	"AVLayer replaceSource() method" on page 47	Changes the source item for this layer.
sourceRectAtTime()	"AVLayer sourceRectAtTime() method" on page 48	Retrieves the source rectangle of a layer.

AVLayer adjustmentLayer attribute

app.project.item*(index)*.layer(*index*).adjustmentLayer

Description

True if the layer is an adjustment layer.

Type

Boolean; read/write.

AVLayer audioActive attribute

app.project.item*(index)*.layer(*index*).audioActive

Description

True if the layer's audio is active at the current time.

For this value to be true, audioEnabled must be true, no other layer with audio may be soloing unless this layer is soloed too, and the time must be between the inPoint and outPoint of this layer.

Type

Boolean; read-only.

AVLayer audioActiveAtTime() method

app.project.item*(index)*.layer(*index*).audioActiveAtTime(*time*)

Description

Returns true if this layer's audio will be active at the specified time.

For this method to return true, audioEnabled must be true, no other layer with audio may be soloing unless this layer is soloed too, and the time must be between the inPoint and outPoint of this layer.

Parameters

time	The time, in seconds. A floating-point value.

Returns

Boolean.

AVLayer audioEnabled attribute

app.project.item*(index)*.layer(*index*).audioEnabled

Description

When true, the layer's audio is enabled. This value corresponds to the audio toggle switch in the Timeline panel.

Type

Boolean; read/write.

AVLayer autoOrient attribute

app.project.item*(index)*.layer(*index*).autoOrient

Description

The type of automatic orientation to perform for the layer.

Type

An AutoOrientType enumerated value; read/write. One of:

AutoOrientType.ALONG_PATH
AutoOrientType.CAMERA_OR_POINT_OF_INTEREST
AutoOrientType.NO_AUTO_ORIENT

AVLayer blendingMode attribute

app.project.item*(index)*.layer(*index*).blendingMode

Description

The blending mode of the layer.

Type

A BlendingMode enumerated value; read/write. One of:

BlendingMode.ADD
BlendingMode.ALPHA_ADD
BlendingMode.CLASSIC_COLOR_BURN
BlendingMode.CLASSIC_COLOR_DODGE
BlendingMode.CLASSIC_DIFFERENCE
BlendingMode.COLOR
BlendingMode.COLOR_BURN
BlendingMode.COLOR_DODGE
BlendingMode.DANCING_DISSOLVE
BlendingMode.DARKEN
BlendingMode.DARKER_COLOR
BlendingMode.DIFFERENCE
BlendingMode.DISSOLVE
BlendingMode.EXCLUSION
BlendingMode.HARD_LIGHT
BlendingMode.HARD_MIX
BlendingMode.HUE
BlendingMode.LIGHTEN
BlendingMode.LIGHTER_COLOR
BlendingMode.LINEAR_BURN
BlendingMode.LINEAR_DODGE
BlendingMode.LINEAR_LIGHT
BlendingMode.LUMINESCENT_PREMUL
BlendingMode.LUMINOSITY
BlendingMode.MULTIPLY
BlendingMode.NORMAL
BlendingMode.OVERLAY
BlendingMode.PIN_LIGHT
BlendingMode.SATURATION
BlendingMode.SCREEN
BlendingMode.SILHOUETE_ALPHA
BlendingMode.SILHOUETTE_LUMA
BlendingMode.SOFT_LIGHT
BlendingMode.STENCIL_ALPHA
BlendingMode.STENCIL_LUMA
BlendingMode.VIVID_LIGHT

AVLayer calculateTransformFromPoints() method

app.project.item*(index)*.layer(*index*).calculateTransformFromPoints(*pointTopLeft*,*pointTopRight*,*pointBottomRight*)

Description

Calculates a transformation from a set of points in this layer.

Parameters

pointTopLeft	The top left point coordinates in the form of an array, [x, y, z].
pointTopRight	The top right point coordinates in the form of an array, [x, y, z].
pointBottomRight	The bottom right point coordinates in the form of an array, [x, y, z].

Returns

An Object with the transformation properties set.

Example

```
var newLayer = comp.layers.add(newFootage);
newLayer.threeDLayer = true;

newLayer.blendingMode = BlendingMode.ALPHA_ADD;
var transform = newLayer.calculateTransformFromPoints(tl, tr, bl);
for(var sel in transform) {
  newLayer.transform[sel].setValue(transform[sel]);
  }
```

AVLayer canSetCollapseTransformation attribute

app.project.item*(index)*.layer(*index*).canSetCollapseTransformation

Description

True if it is legal to change the value of the collapseTransformation attribute on this layer.

Type

Boolean; read-only.

AVLayer canSetTimeRemapEnabled attribute

app.project.item*(index)*.layer(*index*).canSetTimeRemapEnabled

Description

True if it is legal to change the value of the timeRemapEnabled attribute on this layer.

Type

Boolean; read-only.

AVLayer collapseTransformation attribute

app.project.item*(index)*.layer(*index*).collapseTransformation

Description

True if collapse transformation is on for this layer.

Type

Boolean; read/write.

AVLayer effectsActive attribute

app.project.item*(index)*.layer(*index*).effectsActive

Description

True if the layer's effects are active, as indicated by the <f> icon next to it in the user interface.

Type

Boolean; read/write.

AVLayer frameBlending attribute

app.project.item*(index)*.layer(*index*).frameBlending

Description

True if frame blending is enabled for the layer.

Type

Boolean; read-only.

AVLayer frameBlendingType attribute

app.project.item*(index)*.layer(*index*).frameBlendingType

Description

The type of frame blending to perform when frame blending is enabled for the layer.

Type

A FrameBlendingType enumerated value; read/write. One of:

FrameBlendingType.FRAME_MIX
FrameBlendingType.NO_FRAME_BLEND
FrameBlendingType.PIXEL_MOTION

AVLayer guideLayer attribute

app.project.item*(index)*.layer(*index*).guideLayer

Description

True if the layer is a guide layer.

Type

Boolean; read/write.

AVLayer hasAudio attribute

app.project.item*(index)*.layer(*index*).hasAudio

Description

True if the layer contains an audio component, regardless of whether it is audio-enabled or soloed.

Type

Boolean; read-only.

AVLayer hasTrackMatte attribute

app.project.item*(index)*.layer(*index*).hasTrackMatte

Description

True if the layer in front of this layer is being used as a track matte on this layer. When true, this layer's `trackMatteType` value controls how the matte is applied.

Type

Boolean; read-only.

AVLayer height attribute

app.project.item*(index)*.layer(*index*).height

Description

The height of the layer in pixels.

Type

Floating-point; read-only.

AVLayer isNameFromSource attribute

app.project.item*(index)*.layer(*index*).isNameFromSource

Description

True if the layer has no expressly set name, but contains a named source. In this case, *layer*.name has the same value as *layer*.source.name.

False if the layer has an expressly set name, or if the layer does not have a source.

Type

Boolean; read-only.

AVLayer isTrackMatte attribute

app.project.item*(index)*layer(*index*).isTrackMatte

Description

True if this layer is being used as a track matte for the layer behind it.

Type

Boolean; read-only.

AVLayer motionBlur attribute

app.project.item*(index)*.layer(*index*).motionBlur

Description

True if motion blur is enabled for the layer.

Type

Boolean; read/write.

AVLayer preserveTransparency attribute

app.project.item*(index)*.layer(*index*).preserveTransparency

Description

True if preserve transparency is enabled for the layer.

Type

Boolean; read/write.

AVLayer quality attribute

app.project.item*(index)*.layer(*index*).quality

Description

The quality with which this layer is displayed.

Type

A LayerQuality enumerated value; read/write. One of:

LayerQuality.BEST
LayerQuality.DRAFT
LayerQuality.WIREFRAME

AVLayer replaceSource() method

app.project.item*(index)*.layer(*index*).replaceSource (*newSource*, *fixExpressions*)

Description

Replaces the source for this layer.

Parameters

newSource	The new source AVItem object.
fixExpressions	True to adjust expressions for the new source, false otherwise. Note that this feature can be resource-intensive; if replacing a large amount of footage, do this only at the end of the operation. See also "Project autoFixExpressions() method" on page 110.

Returns

Nothing.

AVLayer source attribute

app.project.item*(index)*.layer(*index*).source

Description

The source AVItem for this layer. The value is null in a Text layer. Use AVLayer.replaceSource() to change the value.

Type

AVItem object; read-only.

AVLayer sourceRectAtTime() method

app.project.item*(index)*.layer(*index*).sourceRectAtTime(*timeT, extents*)

Description

Retrieves the rectangle bounds of the layer at the specified time index, corrected for text or shape layer content. Use, for example, to write text that is properly aligned to the baseline.

Parameters

timeT	The time index, in seconds. A floating-point value.
extents	True to include the extents, false otherwise. Extents apply to shape layers, increasing the size of the layer bounds as necessary.

Returns

A JavaScript object with four attributes, [top, left, width, height].

AVLayer threeDLayer attribute

app.project.item*(index)*.layer(*index*).threeDLayer

Description

True if this is a 3D layer.

Type

Boolean; read/write.

AVLayer threeDPerChar attribute

app.project.item*(index)*.layer(*index*).threeDPerChar

Description

True if this layer has the Enable Per-character 3D switch set, allowing its characters to be animated off the plane of the text layer. Applies only to text layers.

Type

Boolean; read/write.

AVLayer timeRemapEnabled attribute

app.project.item*(index)*.layer(*index*).timeRemapEnabled

Description

True if time remapping is enabled for this layer.

Type

Boolean; read/write.

AVLayer trackMatteType attribute

app.project.item*(index)*.layer(*index*).trackMatteType

Description

If this layer has a track matte, specifies the way the track matte is applied.

Type

A TrackMatteType enumerated value; read/write. One of:

TrackMatteType.ALPHA
TrackMatteType.ALPHA_INVERTED
TrackMatteType.LUMA
TrackMatteType.LUMA_INVERTED
TrackMatteType.NO_TRACK_MATTE

AVLayer width attribute

app.project.item*(index)*.layer(*index*).width

Description

The width of the layer in pixels.

Type

Floating-point; read-only.

CameraLayer object

app.project.item*(index)*.layer*(index)*

Description

The CameraLayer object represents a camera layer within a composition. Create it using the LayerCollection object's addCamera method; see "LayerCollection addCamera() method" on page 93. It can be accessed in an item's layer collection either by index number or by a name string.

- CameraLayer is a subclass of Layer. All methods and attributes of Layer are available when working with CameraLayer. See "Layer object" on page 83.

AE Properties

CameraLayer defines no additional attributes, but has different AE properties than other layer types. It has the following properties and property groups:

Marker
Transform
    Point of Interest
    Position
    Scale
    Orientation
    X Rotation
    Y Rotation
    Rotation
    Opacity
Camera Options
    Zoom
    Depth of Field
    Focus Distance
    Blur Level

Collection object

Like an array, a collection associates a set of objects or values as a logical group and provides access to them by index. However, most collection objects are read-only. You do not assign objects to them yourself—their contents update automatically as objects are created or deleted.

The index numbering of a collection starts with 1, not 0.

Objects

Object	Reference	Description
ItemCollection	"ItemCollection object" on page 79	All of the items (imported files, folders, solids, and so on) found in the Project panel.
LayerCollection	"LayerCollection object" on page 92	All of the layers in a composition.
OMCollection	"OMCollection object" on page 104	All of the Output Module items in the project.
RQItemCollection	"RenderQueueItem object" on page 155	All of the render-queue items in the project.

Attributes

length	The number of objects in the collection.

Methods

[]	Retrieves an object in the collection by its index number. The first object is at index 1.

CompItem object

app.project.item(*index*)
app.project.items[*index*]

Description

The CompItem object represents a composition, and allows you to manipulate and get information about it. Access the objects by position index number in a project's item collection.

- CompItem is a subclass of AVItem, which is a subclass of Item. All methods and attributes of AVItem and Item, in addition to those listed below, are available when working with CompItem. See "AVItem object" on page 32 and "Item object" on page 76.

Example

Given that the first item in the project is a CompItem, the following code displays two alerts. The first shows the number of layers in the CompItem, and the second shows the name of the last layer in the CompItem.

```
var firstComp = app.project.item(1);
alert("number of layers is " + firstComp.numLayers);
alert("name of last layer is " + firstComp.layer(firstComp.numLayers).name);
```

Attributes

Attribute	Reference	Description
frameDuration	"CompItem frameDuration attribute" on page 55	The duration of a single frame.
workAreaStart	"CompItem workAreaStart attribute" on page 59	The work area start time.
workAreaDuration	"CompItem workAreaDuration attribute" on page 58	The work area duration.
numLayers	"CompItem numLayers attribute" on page 56	The number of layers in the composition.
hideShyLayers	"CompItem hideShyLayers attribute" on page 55	When true, shy layers are visible in the Timeline panel.
motionBlur	"CompItem motionBlur attribute" on page 56	When true, motion blur is enabled for this composition.
draft3d	"CompItem draft3d attribute" on page 54	When true, Draft 3D mode is enabled for the Composition panel.
frameBlending	"CompItem frameBlending attribute" on page 54	When true, time filtering is enabled for this composition.
preserveNestedFrameRate	"CompItem preserveNestedFrameRate attribute" on page 56	When true, the frame rate of nested compositions is preserved.
preserveNestedResolution	"CompItem preserveNestedResolution attribute" on page 57	When true, the resolution of nested compositions is preserved.
bgColor	"CompItem bgColor attribute" on page 53	The background color of the composition.
activeCamera	"CompItem activeCamera attribute" on page 53	The current active camera layer.
displayStartTime	"CompItem displayStartTime attribute" on page 54	Changes the display of the start time in the Timeline panel.

Attribute	Reference	Description
resolutionFactor	"CompItem resolutionFactor attribute" on page 57	The factor by which the *x* and *y* resolution of the Composition panel is downsampled.
shutterAngle	"CompItem shutterAngle attribute" on page 58	The camera shutter angle.
shutterPhase	"CompItem shutterPhase attribute" on page 58	The camera shutter phase.
layers	"CompItem layers attribute" on page 56 "LayerCollection object" on page 92	The layers of the composition.
selectedLayers	"CompItem selectedLayers attribute" on page 58	The selected layers of the composition.
selectedProperties	"CompItem selectedProperties attribute" on page 58	The selected properties of the composition.
renderer	"CompItem renderer attribute" on page 57	The rendering plugin module to be used to render this composition.
renderers	"CompItem renderers attribute" on page 57	The set of available rendering plugin modules.

Methods

Method	Reference	Description
duplicate()	"CompItem duplicate() method" on page 54	Creates and returns a duplicate of this composition.
layer()	"CompItem layer() method" on page 55	Gets a layer from this composition.

CompItem activeCamera attribute

app.project.item*(index)*.activeCamera

Description

The active camera, which is the front-most camera layer that is enabled. The value is null if the composition contains no enabled camera layers.

Type

CameraLayer object; read-only.

CompItem bgColor attribute

app.project.item*(index)*.bgColor

Description

The background color of the composition. The three array values specify the red, green, and blue components of the color.

Type

An array containing three floating-point values, [R, G, B], in the range [0.0..1.0]; read/write.

CompItem displayStartTime attribute

app.project.item*(index)*.displayStartTime

Description

The time set as the beginning of the composition, in seconds. This is the equivalent of the Start Timecode or Start Frame setting in the Composition Settings dialog box.

Type

Floating-point value in the range [0.0...86339.0] (1 second less than 25 hours); read/write.

CompItem draft3d attribute

app.project.item*(index)*.draft3d

Description

When true, Draft 3D mode is enabled for the Composition panel. This corresponds to the value of the Draft 3D button in the Composition panel.

Type

Boolean; read/write.

CompItem duplicate() method

app.project.item*(index)*.duplicate()

Description

Creates and returns a duplicate of this composition, which contains the same layers as the original.

Parameters

None.

Returns

CompItem object.

CompItem frameBlending attribute

app.project.item*(index)*.frameBlending

Description

When true, frame blending is enabled for this Composition. Corresponds to the value of the Frame Blending button in the Composition panel.

Type

Boolean; if true, frame blending is enabled; read/write.

CompItem frameDuration attribute

app.project.item*(index)*.frameDuration

Description

The duration of a frame, in seconds. This is the inverse of the frameRate value (frames-per-second).

Type

Floating-point; read/write.

CompItem hideShyLayers attribute

app.project.item*(index)*.hideShyLayers

Description

When true, only layers with shy set to false are shown in the Timeline panel. When false, all layers are visible, including those whose shy value is true. Corresponds to the value of the Hide All Shy Layers button in the Composition panel.

Type

Boolean; read/write.

CompItem layer() method

app.project.item*(index)*.layer(*index*)
app.project.item*(index)*.layer(*otherLayer, relIndex*)
app.project.item*(index)*.layer(*name*)

Description

Returns a Layer object, which can be specified by name, an index position in this layer, or an index position relative to another layer.

Parameters

index	The index number of the desired layer in this composition. An integer in the range [1...*numLayers*], where *numLayers* is the number of layers in the composition.

—or—

otherLayer	A Layer object in this composition. The relIndex value is added to the index value of this layer to find the position of the desired layer.
relIndex	The position of the desired layer, relative to otherLayer. An integer in the range [1–otherLayer.index...*numLayers*–otherLayer.index], where *numLayers* is the number of layers in the composition. This value is added to the otherLayer value to derive the absolute index of the layer to return.

—or—

name	The string containing the name of the desired layer.

Returns

Layer object.

CompItem layers attribute

app.project.item*(index)*.layers

Description

A LayerCollection object that contains all the Layer objects for layers in this composition. See "LayerCollection object" on page 92.

Type

LayerCollection object; read-only.

CompItem motionBlur attribute

app.project.item*(index)*.motionBlur

Description

When true, motion blur is enabled for the composition. Corresponds to the value of the Motion Blur button in the Composition panel.

Type

Boolean; read/write.

CompItem numLayers attribute

app.project.item*(index)*.numLayers

Description

The number of layers in the composition.

Type

Integer; read-only.

CompItem preserveNestedFrameRate attribute

app.project.item*(index)*.preserveNestedFrameRate

Description

When true, the frame rate of nested compositions is preserved in the current composition. Corresponds to the value of the "Preserve frame rate when nested or in render queue" option in the Advanced tab of the Composition Settings dialog box.

Type

Boolean; read/write.

CompItem preserveNestedResolution attribute

app.project.item*(index)*.preserveNestedResolution

Description

When true, the resolution of nested compositions is preserved in the current composition. Corresponds to the value of the "Preserve Resolution When Nested" option in the Advanced tab of the Composition Settings dialog box.

Type

Boolean; read/write.

CompItem renderer attribute

app.project.item*(index)*.renderer

Description

The current rendering plugin module to be used to render this composition, as set in the Advanced tab of the Composition Settings dialog box. Allowed values are the members of *compItem*.renderers.

Type

String; read/write.

CompItem renderers attribute

app.project.item*(index)*.renderers

Description

The available rendering plugin modules. Member strings reflect installed modules, as seen in the Advanced tab of the Composition Settings dialog box.

Type

Array of strings; read-only.

CompItem resolutionFactor attribute

app.project.item*(index)*.resolutionFactor

Description

The *x* and *y* downsample resolution factors for rendering the composition.

The two values in the array specify how many pixels to skip when sampling; the first number controls horizontal sampling, the second controls vertical sampling. Full resolution is [1,1], half resolution is [2,2], and quarter resolution is [4,4]. The default is [1,1].

Type

Array of two integers in the range [1..99]; read/write.

CompItem selectedLayers attribute

app.project.item*(index)*.selectedLayers

Description

All of the selected layers in this composition. This is a 0-based array (the first object is at index 0).

Type

Array of Layer objects; read-only.

CompItem selectedProperties attribute

app.project.item*(index)*.selectedProperties

Description

All of the selected properties (Property and PropertyGroup objects) in this composition. The first property is at index position 0.

Type

Array of Property and PropertyGroup objects; read-only.

CompItem shutterAngle attribute

app.project.item*(index)*.shutterAngle

Description

The shutter angle setting for the composition. This corresponds to the Shutter Angle setting in the Advanced tab of the Composition Settings dialog box.

Type

Integer in the range [0...720]; read/write.

CompItem shutterPhase attribute

app.project.item*(index)*.shutterPhase

Description

The shutter phase setting for the composition. This corresponds to the Shutter Phase setting in the Advanced tab of the Composition Settings dialog box.

Type

Integer in the range [–360...360]; read/write.

CompItem workAreaDuration attribute

app.project.item*(index)*.workAreaDuration

Description

The duration of the work area in seconds. This is the difference of the start-point and end-point times of the Composition work area.

Type

Floating-point; read/write.

CompItem workAreaStart attribute

app.project.item*(index)*.workAreaStart

Description

The time when the Composition work area begins, in seconds.

Type

Floating-point; read/write.

FileSource object

app.project.item*(index)*.mainSource
app.project.item*(index)*.proxySource

Description

The FileSource object describes footage that comes from a file.

- FileSource is a subclass of FootageSource. All methods and attributes of FootageSource, in addition to those listed below, are available when working with FileSource. See "FootageSource object" on page 67.

Attributes

Attribute	Reference	Description
file	"FileSource file attribute" on page 60	The file that defines this asset.
missingFootagePath	"FileSource missingFootagePath attribute" on page 60	The file that contains footage missing from this asset.

Methods

Method	Reference	Description
reload()	"FileSource reload() method" on page 61	Reloads the asset from the file, if it is a mainSource of a FootageItem.

FileSource file attribute

app.project.item(*index*).mainSource.file
app.project.item(*index*).proxySource.file

Description

The ExtendScript File object for the file that defines this asset. To change the value:

- If this FileSource is a proxySource of an AVItem, call setProxy() or setProxyWithSequence().
- If this FileSource is a mainSource of a FootageItem, call replace() or replaceWithSequence().

Type

File object; read-only.

FileSource missingFootagePath attribute

app.project.item(*index*).mainSource.file.missingFootagePath
app.project.item(*index*).proxySource.file.missingFootagePath

Description

The path and filename of footage that is missing from this asset. See also "AVItem footageMissing attribute" on page 33.

Type

String; read-only.

FileSource reload() method

app.project.item(*index*).mainSource.file.mainSource.reload()

Description

Reloads the asset from the file. This method can be called only on a mainSource, not a proxySource.

Parameters

None.

Returns

Nothing.

FolderItem object

app.project.FolderItem

Description

The FolderItem object corresponds to a folder in your Project panel. It can contain various types of items (footage, compositions, solids) as well as other folders.

Example

Given that the second item in the project is a FolderItem, the following code puts up an alert for each top-level item in the folder, showing that item's name.

```
var secondItem = app.project.item(2);
if ( !(secondItem instanceof FolderItem) ) {
  alert("problem: second item is not a folder");
} else {
  for (i = 1; i <= secondItem.numItems; i++) {
    alert("item number " + i + " within the folder is named "
      + secondItem.item(i).name);
  }
}
```

Attributes

Attribute	Reference	Description
items	"FolderItem items attribute" on page 63	The contents of this folder.
numItems	"FolderItem numItems attribute" on page 63	The number of items contained in the folder.

Methods

Method	Reference	Description
item()	"FolderItem item() method" on page 62	Gets an item from the folder.

FolderItem item() method

app.project.item(*index*).item

Description

Returns the top-level item in this folder at the specified index position. Note that "top-level" here means top-level within the folder, not necessarily within the project.

Parameters

index	An integer, the position index of the item to retrieve. The first item is at index 1.

Returns

Item object.

FolderItem items attribute

app.project.item(*index*).items

Description

An ItemCollection object containing Item object that represent the top-level contents of this folder.

Unlike the ItemCollection in the Project object, this collection contains only the top-level items in the folder. Top-level within the folder is not the same as top-level within the project. Only those items that are top-level in the root folder are also top-level in the Project.

Type

ItemCollection object; read only.

FolderItem numItems attribute

app.project.item(*index*).numItems

Description

The number of items contained in the items collection (*folderItem*.items.length).

If the folder contains another folder, only the FolderItem for that folder is counted, not any subitems contained in it.

Type

Integer; read only.

FootageItem object

app.project.item(*index*)
app.project.items[*index*]

Description

The FootageItem object represents a footage item imported into a project, which appears in the Project panel. These are accessed by position index number in a project's item collection.

- FootageItem is a subclass of AVItem, which is a subclass of Item. All methods and attributes of AVItem and Item, in addition to those listed below, are available when working with FootageItem. See "AVItem object" on page 32 and "Item object" on page 76.

Attributes

Attribute	Reference	Description
file	"FootageItem file attribute" on page 64	The footage source file.
mainSource	"FootageItem mainSource attribute" on page 65	All settings related to the footage item.

Methods

Method	Reference	Description
replace()	"FootageItem replace() method" on page 65	Replaces a footage file with another footage file.
replaceWithPlaceholder()	"FootageItem replaceWithPlaceholder() method" on page 65	Replaces a footage file with a placeholder object.
replaceWithSequence()	"FootageItem replaceWithSequence() method" on page 66	Replaces a footage file with an image sequence.
replaceWithSolid()	"FootageItem replaceWithSolid() method" on page 66	Replaces a footage file with a solid.

FootageItem file attribute

app.project.item(*index*).file

Description

The ExtendScript File object for the footage's source file.

If the FootageItem's mainSource is a FileSource, this is the same as *FootageItem*.mainSource.file. Otherwise it is null.

Type

File object; read only.

FootageItem mainSource attribute

app.project.item*(index)*.mainSource

Description

The footage source, an object that contains all of the settings related to that footage item, including those that are normally accessed through the Interpret Footage dialog box. The attribute is read-only. To change its value, call one of the FootageItem "replace" methods.

See the "FootageSource object" on page 67, and its three types:

- "SolidSource object" on page 168
- "FileSource object" on page 60
- "PlaceholderSource object" on page 108

If this is a FileSource object, and the footageMissing value is true, the path to the missing footage file is in the FileSource.missingFootagePath attribute. See "AVItem footageMissing attribute" on page 33 and "FileSource missingFootagePath attribute" on page 60.

Type

FootageSource object; read-only.

FootageItem replace() method

app.project.item*(index)*.replace(*file*)

Description

Changes the source of this FootageItem to the specified file. In addition to loading the file, the method creates a new FileSource object for the file and sets mainSource to that object. In the new source object, it sets the name, width, height, frameDuration, and duration attributes (see "AVItem object" on page 32) based on the contents of the file.

The method preserves interpretation parameters from the previous mainSource object. If the specified file has an unlabeled alpha channel, the method estimates the alpha interpretation.

Parameters

file	An ExtendScript File object for the file to be used as the footage main source.

FootageItem replaceWithPlaceholder() method

app.project.item*(index)*.replaceWithPlaceholder(*name, width, height, frameRate, duration*)

Description

Changes the source of this FootageItem to the specified placeholder. Creates a new PlaceholderSource object, sets its values from the parameters, and sets mainSource to that object.

Parameters

name	A string containing the name of the placeholder.
width	The width of the placeholder in pixels, an integer in the range [4..30000].
height	The height of the placeholder in pixels, an integer in the range [4..30000].

frameRate	The frame rate of the placeholder, a floating-point value in the range [1.0..99.0]
duration	The duration of the placeholder in seconds, a floating-point value in the range [0.0..10800.0].

FootageItem replaceWithSequence() method

app.project.item*(index)*.replaceWithSequence(*file, forceAlphabetical*)

Description

Changes the source of this FootageItem to the specified image sequence. In addition to loading the file, the method creates a new FileSource object for the file and sets mainSource to that object. In the new source object, it sets the name, width, height, frameDuration, and duration attributes (see "AVItem object" on page 32) based on the contents of the file.

The method preserves interpretation parameters from the previous mainSource object. If the specified file has an unlabeled alpha channel, the method estimates the alpha interpretation.

Parameters

file	An ExtendScript File object for the first file in the sequence to be used as the footage main source.
forceAlphabetical	When true, use the "Force alphabetical order" option.

FootageItem replaceWithSolid() method

app.project.item*(index)*.replaceWithSolid(*color, name, width, height, pixelAspect*)

Description

Changes the source of this FootageItem to the specified solid. Creates a new SolidSource object, sets its values from the parameters, and sets mainSource to that object.

Parameters

color	The color of the solid, an array of three floating-point values, [R, G, B], in the range [0.0..1.0].
name	A string containing the name of the solid.
width	The width of the solid in pixels, an integer in the range [4..30000].
height	The height of the solid in pixels, an integer in the range [4..30000].
pixelAspect	The pixel aspect ratio of the solid, a floating-point value in the range [0.01..100.0].

FootageSource object

app.project.item*(index)*.mainSource
app.project.item*(index)*.proxySource

Description

The FootageSource object holds information describing the source of some footage. It is used as the mainSource of a FootageItem, or the proxySource of a CompItem or FootageItem. See "FootageItem object" on page 64 and "CompItem object" on page 52.

- FootageSource is the base class for SolidSource, so FootageSource attributes and methods are available when working with SolidSource objects. See "SolidSource object" on page 168.

Attributes

Attribute	Reference	Description
hasAlpha	"FootageSource hasAlpha attribute" on page 70	When true, a footage clip or proxy includes an alpha channel.
alphaMode	"FootageSource alphaMode attribute" on page 68	The mode of an alpha channel.
premulColor	"FootageSource premulColor attribute" on page 71	The color to be premultiplied.
invertAlpha	"FootageSource invertAlpha attribute" on page 70	When true, an alpha channel in a footage clip or proxy should be inverted.
isStill	"FootageSource isStill attribute" on page 70	When true, footage is a still image.
fieldSeparationType	"FootageSource fieldSeparationType attribute" on page 69	The field separation type.
highQualityFieldSeparation	"FootageSource highQualityFieldSeparation attribute" on page 70	How the fields are to be separated in non-still footage.
removePulldown	"FootageSource removePulldown attribute" on page 71	The pulldown type for the footage.
loop	"FootageSource loop attribute" on page 71	How many times an image sequence is set to loop.
nativeFrameRate	"FootageSource nativeFrameRate attribute" on page 71	The native frame rate of the footage.
displayFrameRate	"FootageSource displayFrameRate attribute" on page 68	The effective frame rate as displayed and rendered in compositions by After Effects.
conformFrameRate	"FootageSource conformFrameRate attribute" on page 68	The rate to which footage should conform.

Methods

Method	Reference	Description
guessAlphaMode()	"FootageSource guessAlphaMode() method" on page 69	Estimates the alphaMode setting.
guessPulldown()	"FootageSource guessPulldown() method" on page 69	Estimates the pulldownType setting.

FootageSource alphaMode attribute

app.project.item*(index)*.mainSource.alphaMode
app.project.item*(index)*.proxySource.alphaMode

Description

The alphaMode attribute of footageSource defines how the alpha information in the footage is to be interpreted. If hasAlpha is false, this attribute has no relevant meaning.

Type

An AlphaMode enumerated value; (read/write). One of:

AlphaMode.IGNORE
AlphaMode.STRAIGHT
AlphaMode.PREMULTIPLIED

FootageSource conformFrameRate attribute

app.project.item*(index)*.mainSource.conformFrameRate
app.project.item*(index)*.proxySource.conformFrameRate

Description

A frame rate to use instead of the nativeFrameRate value. If set to 0, the nativeFrameRate is used instead.

It is an error to set this value if FootageSource.isStill is true. It is an error to set this value to 0 if removePulldown is not set to PulldownPhase.OFF. If this is 0 when you set removePulldown to a value other than PulldownPhase.OFF, then this is automatically set to the value of nativeFrameRate.

Type

Floating-point value in the range [0.0.. 99.0]; read/write.

FootageSource displayFrameRate attribute

app.project.item*(index)*.mainSource.displayFrameRate
app.project.item*(index)*.proxySource.displayFrameRate

Description

The effective frame rate as displayed and rendered in compositions by After Effects.

If removePulldown is PulldownPhase.OFF, then this is the same as the conformFrameRate (if non-zero) or the nativeFrameRate (if conformFrameRate is 0). If removePulldown is not PulldownPhase.OFF, this is conformFrameRate * 0.8, the effective frame rate after removing 1 of every 5 frames.

Type

Floating-point value in the range [0.0.. 99.0]; read-only.

FootageSource fieldSeparationType attribute

app.project.item*(index)*.mainSource.fieldSeparationType
app.project.item*(index)*.proxySource.fieldSeparationType

Description

How the fields are to be separated in non-still footage.

It is an error to set this attribute if isStill is true. It is an error to set this value to FieldSeparationType.OFF if removePulldown is not PulldownPhase.OFF.

Type

A FieldSeparationType enumerated value; read/write. One of:

FieldSeparationType.OFF
FieldSeparationType.UPPER_FIELD_FIRST
FieldSeparationType.LOWER_FIELD_FIRST

FootageSource guessAlphaMode() method

app.project.item*(index)*.mainSource.guessAlphaMode()
app.project.item*(index)*.proxySource.guessAlphaMode()

Description

Sets alphaMode, premulColor, and invertAlpha to the best estimates for this footage source. If hasAlpha is false, no change is made.

Parameters

None.

Returns

Nothing.

FootageSource guessPulldown() method

app.project.item*(index)*.mainSource.guessPulldown(*method*)
app.project.item*(index)*.proxySource.guessPulldown(*method*)

Description

Sets fieldSeparationType and removePulldown to the best estimates for this footage source. If isStill is true, no change is made.

Parameters

method	The method to use for estimation. A PulldownMethod enumerated value, one of: PulldownMethod.PULLDOWN_3_2 PulldownMethod.ADVANCE_24P

Returns

Nothing.

FootageSource hasAlpha attribute

app.project.item*(index)*.mainSource.hasAlpha
app.project.item*(index)*.proxySource.hasAlpha

Description

When true, the footage has an alpha component. In this case, the attributes alphaMode, invertAlpha, and premulColor have valid values. When false, those attributes have no relevant meaning for the footage.

Type

Boolean; read-only.

FootageSource highQualityFieldSeparation attribute

app.project.item*(index)*.mainSource.highQualityFieldSeparation
app.project.item*(index)*.proxySource.highQualityFieldSeparation

Description

When true, After Effects uses special algorithms to determine how to perform high-quality field separation.

It is an error to set this attribute if isStill is true, or if fieldSeparationType is FieldSeparationType.OFF.

Type

Boolean; read/write.

FootageSource invertAlpha attribute

app.project.item*(index)*.mainSource.invertAlpha
app.project.item*(index)*.proxySource.invertAlpha

Description

When true, an alpha channel in a footage clip or proxy should be inverted.

This attribute is valid only if an alpha is present. If hasAlpha is false, or if alphaMode is AlphaMode.IGNORE, this attribute is ignored.

Type

Boolean; read/write.

FootageSource isStill attribute

app.project.item*(index)*.mainSource.isStill
app.project.item*(index)*.proxySource.isStill

Description

When true the footage is still; when false, it has a time-based component.

Examples of still footage are JPEG files, solids, and placeholders with duration of 0. Examples of non-still footage are movie files, sound files, sequences, and placeholders of non-zero duration.

Type

Boolean; read-only.

FootageSource loop attribute

app.project.item*(index)*.mainSource.loop
app.project.item*(index)*.proxySource.loop

Description

The number of times that the footage is to be played consecutively when used in a composition.

It is an error to set this attribute if isStill is true.

Type

Integer in the range [1.. 9999]; default is 1; read/write.

FootageSource nativeFrameRate attribute

app.project.item*(index)*.mainSource.nativeFrameRate
app.project.item*(index)*.proxySource.nativeFrameRate

Description

The native frame rate of the footage.

Type

Floating-point; read/write.

FootageSource premulColor attribute

app.project.item*(index)*.mainSource.premulColor
app.project.item*(index)*.proxySource.premulColor

Description

The color to be premultiplied. This attribute is valid only if the alphaMode is alphaMode.PREMULTIPLIED.

Type

Array of three floating-point values [R, G, B], in the range [0.0..1.0]; read/write.

FootageSource removePulldown attribute

app.project.item*(index)*.mainSource.removePulldown
app.project.item*(index)*.proxySource.removePulldown

Description

How the pulldowns are to be removed when field separation is used.

It is an error to set this attribute if isStill is true. It is an error to attempt to set this to a value other than PulldownPhase.OFF in the case where fieldSeparationType is FieldSeparationType.OFF.

Type

A PulldownPhase enumerated value; read/write. One of:

PulldownPhase.RemovePulldown.OFF
PulldownPhase.RemovePulldown.WSSWW
PulldownPhase.RemovePulldown.SSWWW

PulldownPhase.RemovePulldown.SWWWS
PulldownPhase.RemovePulldown.WWWSS
PulldownPhase.RemovePulldown.WWSSW
PulldownPhase.RemovePulldown.WSSWW_24P_ADVANCE
PulldownPhase.RemovePulldown.SSWWW_24P_ADVANCE
PulldownPhase.RemovePulldown.SWWWS_24P_ADVANCE
PulldownPhase.RemovePulldown.WWWSS_24P_ADVANCE
PulldownPhase.RemovePulldown.WWSSW_24P_ADVANCE

ImportOptions object

```
new ImportOptions();
new ImportOptions(file);
```

Description

The ImportOptions object encapsulates the options used to import a file with the Project.importFile methods. See "Project importFile() method" on page 112.

The constructor takes an optional parameter, an ExtendScript File object for the file. If it is not supplied, you must explicitly set the value of the file attribute before using the object with the importFile method. For example:

```
new ImportOptions().file = new File("myfile.psd");
```

Attributes

Attributes	Reference	Description
importAs	"ImportOptions importAs attribute" on page 74	The type of file to be imported.
sequence	"ImportOptions sequence attribute" on page 75	When true, import a sequence of files, rather than an individual file.
forceAlphabetical	"ImportOptions forceAlphabetical attribute" on page 74	When true, the "Force alphabetical order" option is set.
file	"ImportOptions file attribute" on page 74	The file to import, or the first file of the sequence to import.

Methods

Method	Reference	Description
canImportAs()	"ImportOptions canImportAs() method" on page 73	Restricts input to a particular file type.

ImportOptions canImportAs() method

importOptions.canImportAs(*type*)

Description

Reports whether the file can be imported as the source of a particular object type. If this method returns true, you can set the given type as the value of the importAs attribute. See "ImportOptions importAs attribute" on page 74.

Parameters

type	The type of file that can be imported. An ImportAsType enumerated value; one of: ImportAsType.COMP ImportAsType.FOOTAGE ImportAsType.COMP_CROPPED_LAYERS ImportAsType.PROJECT

Returns

Boolean.

Example

```
var io = new ImportOptions(File("c:\\myFile.psd"));
if io.canImportAs(ImportAsType.COMP);
  io.importAs = ImportAsType.COMP;
```

ImportOptions file attribute

importOptions.file

Description

The file to be imported. If a file is set in the constructor, you can access it through this attribute.

Type

ExtendScript File object; read/write.

ImportOptions forceAlphabetical attribute

importOptions.forceAlphabetical

Description

When true, has the same effect as setting the "Force alphabetical order" option in the File > Import > File dialog box.

Type

Boolean; read/write.

ImportOptions importAs attribute

importOptions.importAs

Description

The type of object for which the imported file is to be the source. Before setting, use `canImportAs` to check that a given file can be imported as the source of the given object type. See "ImportOptions canImportAs() method" on page 73.

Type

An `ImportAsType` enumerated value; read/write. One of:

```
ImportAsType.COMP_CROPPED_LAYERS
ImportAsType.FOOTAGE
ImportAsType.COMP
ImportAsType.PROJECT
```

ImportOptions sequence attribute

importOptions.sequence

Description

When true, a sequence is imported; otherwise, an individual file is imported.

Type

Boolean; read/write.

Item object

```
app.project.item(index)
app.project.items[index]
```

Description

The Item object represents an item that can appear in the Project panel.

The first item is at index 1.

- Item is the base class for AVItem and for FolderItem, which are in turn the base classes for various other item types, so Item attributes and methods are available when working with all of these item types. See "AVItem object" on page 32 and "FolderItem object" on page 62.

Attributes

Attributes	Reference	Description
name	"Item name attribute" on page 77	The name of the object as shown in the Project panel.
comment	"Item comment attribute" on page 77	A descriptive string.
id	"Item id attribute" on page 77	A unique identifier for this item.
parentFolder	"Item parentFolder attribute" on page 77	The parent folder of this item.
selected	"Item selected attribute" on page 78	When true, this item is currently selected.
typeName	"Item typeName attribute" on page 78	The type of item.

Methods

Method	Reference	Description
remove()	"Item remove() method" on page 78	Deletes the item from the project.

Example

This example gets the second item from the project and checks that it is a folder. It then removes from the folder any top-level item that is not currently selected. It also checks to make sure that, for each item in the folder, the parent is properly set to the correct folder.

```
var myFolder = app.project.item(2);
if (myFolder.typeName != "Folder") {
  alert("error: second item is not a folder");
}
else {
  var numInFolder = myFolder.numItems;
  // Always run loops backwards when deleting things:
  for(i = numInFolder; i >= 1; i--) {
    var curItem = myFolder.item(i);
    if ( curItem.parentFolder != myFolder) {
      alert("errorwithin AE: the parentFolder is not set correctly");
    }
    else {
      if ( !curItem.selected && curItem.typeName == "Footage") {
        // Aha! an unselected solid.
        curItem.remove();
```

```
      }
    }
  }
}
```

Item comment attribute

app.project.item*(index)*.comment

Description

A string that holds a comment, up to 15,999 bytes in length after any encoding conversion. The comment is for the user's purpose only; it has no effect on the item's appearance or behavior.

Type

String; read/write.

Item id attribute

app.project.item*(index)*.id

Description

A unique and persistent identification number used internally to identify an item between sessions. The value of the ID remains the same when the project is saved to a file and later reloaded. However, when you import this project into another project, new IDs are assigned to all items in the imported project. The ID is not displayed anywhere in the user interface.

Type

Integer; read-only.

Item name attribute

app.project.item(index).name

Description

The name of the item as displayed in the Project panel.

Type

String; read/write.

Item parentFolder attribute

app.project.item*(index)*.parentFolder

Description

The FolderItem object for the folder that contains this item. If this item is at the top level of the project, this is the project's root folder (app.project.rootFolder). You can use the ItemCollection's addFolder method to add a new folder, and set this value to put items in the new folder. See "ItemCollection addFolder() method" on page 79.

Type

FolderItem object; read/write.

Example

This script creates a new FolderItem in the Project panel and moves compositions into it.

```
// create a new FolderItem in project, with name "comps"
var compFolder = app.project.items.addFolder("comps");
// move all compositions into new folder by setting
// compItem's parentFolder to "comps" folder
for(var i = 1; i <= app.project.numItems; i++) {
  if(app.project.item(i) instanceof CompItem)
  app.project.item(i).parentFolder = compFolder;
}
```

Item remove() method

app.project.item*(index)*.remove()

Description

Deletes this item from the project and from the Project panel. If the item is a FolderItem, all the items contained in the folder are also removed from the project. No files or folders are removed from disk.

Parameters

None.

Returns

Nothing.

Item selected attribute

app.project.item*(index)*.selected

Description

When true, this item is selected. Multiple items can be selected at the same time. Set to true to select the item programmatically, or to false to deselect it.

Type

Boolean; read/write.

Item typeName attribute

app.project.item*(index)*.typeName

Description

A user-readable name for the item type; for example, "Folder", "Footage", or "Composition".

Type

String; read-only.

ItemCollection object

app.project.items

Description

The ItemCollection object represents a collection of items. The ItemCollection belonging to a Project object contains all the Item objects for items in the project. The ItemCollection belonging to a FolderItem object contains all the Item objects for items in that folder.

- ItemCollection is a subclass of Collection. All methods and attributes of Collection, in addition to those listed below, are available when working with ItemCollection. See "Collection object" on page 51.

Methods

Method	Reference	Description
addComp()	"ItemCollection addComp() method" on page 79	Creates a new CompItem object and adds it to the collection.
addFolder()	"ItemCollection addFolder() method" on page 79	Creates a new FolderItemobject and adds it to the collection.

ItemCollection addComp() method

app.project.itemCollection.addComp(*name, width, height, pixelAspect, duration, frameRate*)

Description

Creates a new composition. Creates and returns a new CompItem object and adds it to this collection.

If the ItemCollection belongs to the project or the root folder, then the new item's parentFolder is the root folder. If the ItemCollection belongs to any other folder, the new item's parentFolder is that FolderItem.

Parameters

name	A string containing the name of the composition.
width	The width of the composition in pixels, an integer in the range [4..30000].
height	The height of the composition in pixels, an integer in the range [4..30000].
pixelAspect	The pixel aspect ratio of the composition, a floating-point value in the range [0.01..100.0].
duration	The duration of the composition in seconds, a floating-point value in the range [0.0..10800.0].
frameRate	The frame rate of the composition, a floating-point value in the range [1.0..99.0]

Returns

CompItem object.

ItemCollection addFolder() method

app.project.itemCollection.addFolder(*name*)

Description

Creates a new folder. Creates and returns a new FolderItem object and adds it to this collection.

If the ItemCollection belongs to the project or the root folder, then the new folder's `parentFolder` is the root folder. If the ItemCollection belongs to any other folder, the new folder's `parentFolder` is that `FolderItem`.

To put items in the folder, set the item object's `parentFolder` attribute; see "Item parentFolder attribute" on page 77.

Parameters

`name`	A string containing the name of the folder.

Returns

FolderItem object.

Example

This script creates a new FolderItem in the Project panel and moves compositions into it.

```
// create a new FolderItem in project, with name "comps"
var compFolder = app.project.items.addFolder("comps");
// move all compositions into new folder by setting
// compItem's parentFolder to "comps" folder
for(var i = 1; i <= app.project.numItems; i++) {
  if(app.project.item(i) instanceof CompItem)
  app.project.item(i).parentFolder = compFolder;
}
```

KeyframeEase object

myKey = new KeyframeEase(*speed, influence*);

Description

The KeyframeEase object encapsulates the keyframe ease settings of a layer's AE property. There are two types of ease, temporal and spatial, which are determined by the speed and influence settings. Both types are set using the property's setTemporalEaseAtKey method. See "Property setTemporalEaseAtKey() method" on page 136.

The constructor creates a KeyframeEase object. Both parameters are required.

- speed: A floating-point value. Sets the speed attribute.
- influence: A floating-point value in the range [0.1..100.0]. Sets the influence attribute.

Example

This example assumes that the Position, a spatial property, has more than two keyframes.

```
var easeIn = new KeyframeEase(0.5, 50);
var easeOut = new KeyframeEase(0.75, 85);
var myPositionProperty = app.project.item(1).layer(1).property("Position")
myPositionProperty.setTemporalEaseAtKey(2, [easeIn], [easeOut]);
```

This example sets the Scale, a temporal property with two dimensions. For 2D and 3D properties you must set an easeIn and easeOut value for each dimension:

```
var easeIn = new KeyframeEase(0.5, 50);
var easeOut = new KeyframeEase(0.75, 85);
var myScaleProperty = app.project.item(1).layer(1).property("Scale")
myScaleProperty.setTemporalEaseAtKey(2, [easeIn, easeIn, easeIn], [easeOut,easeOut, easeOut]);
```

Attributes

Attribute	Reference	Description
speed	"KeyframeEase speed attribute" on page 82	The speed setting for a keyframe.
influence	"KeyframeEase influence attribute" on page 81	The influence setting for a keyframe.

KeyframeEase influence attribute

myKey.influence

Description

The influence value of the keyframe, as shown in the Keyframe Velocity dialog box.

Type

Floating-point value in the range [0.1..100.0]; read/write.

KeyframeEase speed attribute

myKey.speed

Description

The speed value of the keyframe. The units depend on the type of keyframe, and are displayed in the Keyframe Velocity dialog box.

Type

Floating-point value; read/write.

Layer object

app.project.item*(index)*.layer*(index)*

Description

The Layer object provides access to layers within compositions. It can be accessed from an item's layer collection either by index number or by a name string.

- Layer is the base class for CameraLayer, TextLayer, LightLayer, and AVLayer, so Layer attributes and methods are available when working with all layer types. See "AVLayer object" on page 39, "CameraLayer object" on page 50, "LightLayer object" on page 97, and "TextLayer object" on page 172.

Layers contain AE properties, in addition to their JavaScript attributes and methods. For examples of how to access properties in layers, see "PropertyBase object" on page 140.

Example

If the first item in the project is a CompItem, this example disables the first layer in that composition and renames it. This might, for example, turn an icon off in the composition.

```
var firstLayer = app.project.item(1).layer(1);
firstLayer.enabled = false;
firstLayer.name = "Disabled Layer";
```

Attributes

Attribute	Reference	Description
index	"Layer index attribute" on page 87	The index position of the layer.
name	"Layer name attribute" on page 89	The name of the layer.
parent	"Layer parent attribute" on page 89	The parent of this layer.
time	"Layer time attribute" on page 91	The current time of the layer.
startTime	"Layer startTime attribute" on page 91	The start time of the layer.
stretch	"Layer stretch attribute" on page 91	The time stretch percentage of the layer.
inPoint	"Layer inPoint attribute" on page 87	The "in" point of the layer.
outPoint	"Layer outPoint attribute" on page 89	The "out" point of the layer.
enabled	"Layer enabled attribute" on page 86	When true, the layer is enabled.
solo	"Layer solo attribute" on page 91	When true, the layer is soloed.
shy	"Layer shy attribute" on page 90	When true, the layer is shy.
locked	"Layer locked attribute" on page 87	When true, the layer is locked.
hasVideo	"Layer hasVideo attribute" on page 86	When true, the layer contains a video component.
active	"Layer active attribute" on page 84	When true, the layer is active at the current time.
nullLayer	"Layer nullLayer attribute" on page 89	When true, this is a null layer.
selectedProperties	"Layer selectedProperties attribute" on page 90	All selected AE properties in the layer.
comment	"Layer comment attribute" on page 85	A descriptive comment for the layer.
containingComp	"Layer containingComp attribute" on page 85	The composition that contains this layer.

Attribute	Reference	Description
isNameSet	"Layer isNameSet attribute" on page 87	When true, the layer's name has been explicitly set.

Methods

Method	Reference	Description
remove()	"Layer remove() method" on page 90	Deletes the layer from the composition.
moveToBeginning()	"Layer moveToBeginning() method" on page 88	Moves the layer to the top of the composition (makes it the first layer).
moveToEnd()	"Layer moveToEnd() method" on page 88	Moves the layer to the bottom of the composition (makes it the last layer).
moveAfter()	"Layer moveAfter() method" on page 87	Moves the layer below another layer.
moveBefore()	"Layer moveBefore() method" on page 88	Moves the layer above another layer.
duplicate()	"Layer duplicate() method" on page 86	Duplicates the layer.
copyToComp()	"Layer copyToComp() method" on page 86	Copies the layer to the top (beginning) of another composition.
activeAtTime()	"Layer activeAtTime() method" on page 84	Reports whether this layer will be active at a specified time.
setParentWithJump()	"Layer setParentWithJump() method" on page 90	Sets a new parent for this layer.
applyPresets()	"Layer applyPreset() method" on page 85	Applies a named collection of animation settings to the layer.

Layer active attribute

app.project.item*(index)*.layer*(index)*.active

Description

When true, the layer's video is active at the current time.

For this to be true, the layer must be enabled, no other layer may be soloing unless this layer is soloed too, and the time must be between the inPoint and outPoint values of this layer.

This value is never true in an audio layer; there is a separate audioActive attribute in the AVLayer object.

Type

Boolean; read-only.

Layer activeAtTime() method

app.project.item*(index)*.layer*(index)*.activeAtTime(*time*)

Description

Returns true if this layer will be active at the specified time. To return true, the layer must be enabled, no other layer may be soloing unless this layer is soloed too, and the time must be between the inPoint and outPoint values of this layer.

Parameters

time	The time in seconds, a floating-point value.

Returns

Boolean.

Layer applyPreset() method

appapp.project.item*(index)*.layer*(index)*.applyPreset(*presetName*);

Description

Applies the specified collection of animation settings (an animation preset) to the layer. Predefined animation preset files are installed in the Presets folder, and users can create new animation presets through the user interface.

Parameters

presetName	An ExtendScript File object for the file containing the animation preset.

Returns

Nothing.

Layer comment attribute

app.project.item*(index)*.layer*(index)*.comment

Description

A descriptive comment for the layer.

Type

String; read/write.

Layer containingComp attribute

app.project.item*(index)*.layer*(index)*.containingComp

Description

The composition that contains this layer.

Type

CompItem object; read-only.

Layer copyToComp() method

app.project.item*(index)*.layer*(index)*.copyToComp(*intoComp*)

Description

Copies the layer into the specified composition. The original layer remains unchanged. Creates a new Layer object with the same values as this one, and prepends the new object to the layers collection in the target CompItem. Retrieve the copy using *intoComp*.layer(1).

Copying in a layer changes the index positions of previously existing layers in the target composition. This is the same as copying and pasting a layer through the user interface.

Parameters

intoComp	The target composition, and CompItem object.

Returns

Nothing.

Layer duplicate() method

app.project.item*(index)*.layer*(index)*.duplicate()

Description

Duplicates the layer. Creates a new Layer object in which all values are the same as in this one. This has the same effect as selecting a layer in the user interface and choosing Edit > Duplicate, except the selection in the user interface does not change when you call this method.

Parameters

None.

Returns

Layer object.

Layer enabled attribute

app.project.item*(index)*.layer*(index)*.enabled

Description

When true, the layer is enabled; otherwise false. This corresponds to the video switch state of the layer in the Timeline panel.

Type

Boolean; read/write.

Layer hasVideo attribute

app.project.item*(index)*.layer*(index)*.hasVideo

Description

When true, the layer has a video switch (the eyeball icon) in the Timeline panel; otherwise false.

Type

Boolean; read-only.

Layer index attribute

app.project.item*(index)*.layer*(index)*.index

Description

The index position of the layer.

Type

Integer in the range [1..numLayers]; read-only.

Layer inPoint attribute

app.project.item*(index)*.layer*(index)*.inPoint

Description

The "in" point of the layer, expressed in composition time (seconds).

Type

Floating-point value in the range [-10800.0..10800.0] (minus or plus three hours); read/write.

Layer isNameSet attribute

app.project.item*(index)*.layer*(index)*.isNameSet

Description

True if the value of the name attribute has been set explicitly, rather than automatically from the source.

Type

Boolean; read-only.

Layer locked attribute

app.project.item(*index*).layer(*index*).locked

Description

When true, the layer is locked; otherwise false. This croplands to the lock toggle in the Layer panel.

Type

Boolean; read/write.

Layer moveAfter() method

app.project.item(*index*).layer(*index*).moveAfter(*layer*)

Description

Moves this layer to a position immediately after (below) the specified layer.

Parameters

layer	The target layer, a layer object in the same composition.

Returns

Nothing.

Layer moveBefore() method

app.project.item(*index*).layer(*index*).moveBefore(*layer*)

Description

Moves this layer to a position immediately before (above) the specified layer.

Parameters

layer	The target layer, a layer object in the same composition.

Returns

Nothing.

Layer moveToBeginning() method

app.project.item(*index*).layer(*index*).moveToBeginning()

Description

Moves this layer to the topmost position of the layer stack (the first layer).

Parameters

None.

Returns

Nothing.

Layer moveToEnd() method

app.project.item(*index*).layer(*index*).moveToEnd()

Description

Moves this layer to the bottom position of the layer stack (the last layer).

Parameters

None.

Returns

Nothing.

Layer name attribute

app.project.item(*index*).layer(*index*).name

Description

The name of the layer. By default, this is the same as the Source name (which cannot be changed in the Layer panel), but you can set it to be different.

Type

String; read/write.

Layer nullLayer attribute

app.project.item(*index*).layer(*index*).nullLayer

Description

When true, the layer was created as a null object; otherwise false.

Type

Boolean; read-only.

Layer outPoint attribute

app.project.item(*index*).layer(*index*).outPoint

Description

The "out" point of the layer, expressed in composition time (seconds).

Type

Floating-point value in the range [-10800.0..10800.0] (minus or plus three hours); read/write.

Layer parent attribute

app.project.item(*index*).layer(*index*).parent

Description

The parent of this layer; can be null.

Offset values are calculated to counterbalance any transforms above this layer in the hierarchy, so that when you set the parent there is no apparent jump in the layer's transform. For example, if the new parent has a rotation of 30 degrees, the child layer is assigned a rotation of -30 degrees.

To set the parent without changing the child layer's transform values, use the setParentWithJump method.

Type

Layer object or null; read/write.

Layer remove() method

app.project.item(*index*).layer(*index*).remove()

Description

Deletes the specified layer from the composition.

Parameters

None.

Returns

Nothing.

Layer selectedProperties attribute

app.project.item(*index*).layer(*index*).selectedProperties

Description

An array containing all of the currently selected Property and PropertyGroup objects in the layer.

Type

Array of PropertyBase objects; read-only.

Layer setParentWithJump() method

app.project.item(*index*).layer(*index*).setParentWithJump(*newParent*)

Description

Sets the parent of this layer to the specified layer, without changing the transform values of the child layer. There may be an apparent jump in the rotation, translation, or scale of the child layer, as this layer's transform values are combined with those of its ancestors.

If you do not want the child layer to jump, set the parent attribute directly. In this case, an offset is calculated and set in the child layer's transform fields, to prevent the jump from occurring.

Parameters

newParent	A layer object in the same composition.

Returns

Nothing.

Layer shy attribute

app.project.item(*index*).layer(*index*).shy

Description

When true, the layer is "shy," meaning that it is hidden in the Layer panel if the composition's "Hide all shy layers" option is toggled on.

Type

Boolean; read/write.

Layer solo attribute

app.project.item(*index*).layer(*index*).solo

Description

When true, the layer is soloed, otherwise false.

Type

Boolean; read/write.

Layer startTime attribute

app.project.item(*index*).layer(*index*).startTime

Description

The start time of the layer, expressed in composition time (seconds).

Type

Floating-point value in the range [-10800.0..10800.0] (minus or plus three hours); read/write.

Layer stretch attribute

app.project.item(*index*).layer(*index*).stretch

Description

The layer's time stretch, expressed as a percentage. A value of 100 means no stretch. Values between 0 and 1 are set to 1, and values between -1 and 0 (not including 0) are set to -1.

Type

Floating-point value in the range [-9900.0..9900.0]; read/write.

Layer time attribute

app.project.item(*index*).layer(*index*).time

Description

The current time of the layer, expressed in composition time (seconds).

Type

Floating-point value; read-only.

LayerCollection object

app.project.item(*index*).layers

Description

The LayerCollection object represents a set of layers. The LayerCollection belonging to a CompItem object contains all the layer objects for layers in the composition. The methods of the collection object allow you to manipulate the layer list.

- LayerCollection is a subclass of Collection. All methods and attributes of Collection, in addition to those listed below, are available when working with LayerCollection. See "Collection object" on page 51.

Example

Given that the first item in the project is a CompItem and the second item is an AVItem, this example shows the number of layers in the CompItem's layer collection, adds a new layer based on an AVItem in the project, then displays the new number of layers.

```
var firstComp = app.project.item(1);
var layerCollection = firstComp.layers;
alert("number of layers before is " + layerCollection.length);
var anAVItem = app.project.item(2);
layerCollection.add(anAVItem);
alert("number of layers after is " + layerCollection.length);
```

Methods

Method	Reference	Description
add()	"LayerCollection add() method" on page 93	Creates a new AVLayer and adds it to this collection.
addNull()	"LayerCollection addNull() method" on page 94	Creates a new, null layer and adds it to this collection.
addSolid()	"LayerCollection addSolid() method" on page 94	Creates a new layer, a FootageItem with a SolidSource, and adds it to this collection.
addText()	"LayerCollection addText() method" on page 95	Creates a new text layer and adds it to this collection.
addCamera()	"LayerCollection addCamera() method" on page 93	Creates a new camera layer and adds it to this collection.
addLight()	"LayerCollection addLight() method" on page 93	Creates a new light layer and adds it to this collection.
addShape()	"LayerCollection addShape() method" on page 94	Creates a new shape layer and adds it to this collection.
byName()	"LayerCollection byName() method" on page 95	Retrieves the layer object with a specified name.
precompose()	"LayerCollection precompose() method" on page 96	Collects specified layers into a new composition.

LayerCollection add() method

app.project.item(*index*).layers.add(*item, duration*)

Description

Creates a new AVLayer object containing the specified item, and adds it to this collection.

This method generates an exception if the item cannot be added as a layer to this CompItem.

Parameters

item	The AVItem object for the item to be added.
duration	Optional, the length of a still layer in seconds, a floating-point value. Used only if the item contains a piece of still footage. Has no effect on movies, sequences or audio. If supplied, sets the duration value of the new layer. Otherwise, the duration value is set according to user preferences. By default, this is the same as the duration of the containing CompItem. To set another preferred value, choose Edit > Preferences > Import (Windows) or After Effects > Preferences > Import (Mac OS), and specify options under Still Footage.

Returns

AVLayer object.

LayerCollection addCamera() method

app.project.item(*index*).layers.addCamera(*name, centerPoint*)

Description

Creates a new camera layer and adds the CameraLayer object to this collection.

Parameters

name	A string containing the name of the new layer.
centerPoint	The center of the new camera, a floating-point array [x, y]. This is used to set the initial x and y values of the new camera's Point of Interest property. The z value is set to 0.

Returns

CameraLayer object.

LayerCollection addLight() method

app.project.item(*index*).layers.addLight(*name, centerPoint*)

Description

Creates a new light layer and adds the LightLayer object to this collection.

Parameters

name	A string containing the name of the new layer.
centerPoint	The center of the new light, a floating-point array [x, y].

Returns

LightLayer object.

LayerCollection addNull() method

app.project.item(*index*).layers.addNull(*duration*)

Description

Creates a new null layer and adds the AVLayer object to this collection. This is the same as choosing Layer > New > Null Object.

Parameters

duration	Optional, the length of a still layer in seconds, a floating-point value. If supplied, sets the duration value of the new layer. Otherwise, the duration value is set according to user preferences. By default, this is the same as the duration of the containing CompItem. To set another preferred value, choose Edit > Preferences > Import (Windows) or After Effects > Preferences > Import (Mac OS), and specify options under Still Footage.

Returns

AVLayer object.

LayerCollection addShape() method

app.project.item(*index*).layers.addShape()

Description

Creates a new ShapeLayer object for a new, empty Shape layer. Use the ShapeLayer object to add properties, such as shape, fill, stroke, and path filters.

This is the same as using a shape tool in "Tool Creates Shape" mode. Tools automatically add a vector group that includes Fill and Stroke as specified in the tool options.

Parameters

None

Returns

ShapeLayer object.

LayerCollection addSolid() method

app.project.item(*index*).layers.addSolid(*color, name, width, height, pixelAspect, duration*)

Description

Creates a new SolidSource object, with values set as specified; sets the new SolidSource as the mainSource value of a new FootageItem object, and adds the FootageItem to the project. Creates a new AVLayer object, sets the new FootageItem as its source, and adds the layer to this collection.

Parameters

color	The color of the solid, an array of four floating-point values, [R, G, B, A], in the range [0.0..1.0].

name	A string containing the name of the solid.
width	The width of the solid in pixels, an integer in the range [4..30000].
height	The height of the solid in pixels, an integer in the range [4..30000].
pixelAspect	The pixel aspect ratio of the solid, a floating-point value in the range [0.01..100.0].
duration	Optional, the length of a still layer in seconds, a floating-point value. If supplied, sets the duration value of the new layer. Otherwise, the duration value is set according to user preferences. By default, this is the same as the duration of the containing CompItem. To set another preferred value, choose Edit > Preferences > Import (Windows) or After Effects > Preferences > Import (Mac OS), and specify options under Still Footage.

Returns

AVLayer object.

LayerCollection addText() method

app.project.item(*index*).layers.addText(*sourceText*)

Description

Creates a new text layer and adds the new TextLayer object to this collection.

Parameters

sourceText	Optional; a string containing the source text of the new layer, or a TextDocument object containing the source text of the new layer. See "TextDocument object" on page 171.

Returns

TextLayer object.

LayerCollection byName() method

app.project.item(*index*).layers.byName(*name*)

Description

Returns the first (topmost) layer found in this collection with the specified name, or null if no layer with the given name is found.

Parameters

name	A string containing the name.

Returns

Layer object or null.

LayerCollection precompose() method

app.project.item(*index*).layers.precompose(*layerIndicies, name, moveAllAttributes*)

Description

Creates a new CompItem object and moves the specified layers into its layer collection. It removes the individual layers from this collection, and adds the new CompItem to this collection.

Parameters

layerIndices	The position indexes of the layers to be collected. An array of integers.
name	The name of the new CompItem object.
moveAllAttributes	Optional. When true (the default), retains all attributes in the new composition. This is the same as selecting the "Move all attributes into the new composition" option in the Pre-compose dialog box. You can only set this to false if there is just one index in the layerIndices array. This is the same as selecting the "Leave all attributes in" option in the Pre-compose dialog box.

Returns

CompItem object.

LightLayer object

app.project.item*(index)*.layer*(index)*

Description

The LightLayer object represents a light layer within a composition. Create it using the LayerCollection object's addLight method; see "LayerCollection addLight() method" on page 93. It can be accessed in an item's layer collection either by index number or by a name string.

- LightLayer is a subclass of Layer. All methods and attributes of Layer are available when working with LightLayer. See "Layer object" on page 83.

AE Properties

LightLayer defines no additional attributes, but has different AE properties than other layer types. It has the following properties and property groups:

Marker
Transform
    Point of Interest
    Position
    Scale
    Orientation
    X Rotation
    Y Rotation
    Rotation
    Opacity
Light Options
    Intensity
    Color
    Cone Angle
    Cone Feather
    Casts Shadows
    Shadow Darkness
    Shadow Diffusion

MarkerValue object

new MarkerValue(*comment, chapter, url, frameTarget, cuePointName, params*)

Description

The MarkerValue object represents a layer marker, which associates a comment, and optionally a chapter reference point, Web-page link, or Flash Video cue point with a particular point in a layer. Create it with the constructor; all arguments except `comment` are optional. All arguments are strings that set in the corresponding attributes of the returned MarkerValue object, except `params`. This is an array containing key-value pairs., which can then be accessed with the `getParameter()` and `setParameter()` methods. A script can set any number of parameter pairs; the order does not reflect the order displayed in the application.

To associate a marker with a layer, set the MarkerValue object in the `Marker` AE property of the layer:

layerObject.property("Marker").setValueAtTime(*time*, *markerValueObject*);

For information on the usage of markers see "Using markers" in After Effects Help.

Attributes

Attribute	Reference	Description
comment	"MarkerValue comment attribute" on page 99	A comment on the associated layer.
chapter	"MarkerValue chapter attribute" on page 99	A chapter link reference point for the associated layer.
cuePointName	"MarkerValue cuePointName attribute" on page 99	The Flash Video cue point name.
eventCuePoint	"MarkerValue eventCuePoint attribute" on page 99	Whether the Flash Video cue point is for an event or navigation.
url	"MarkerValue getParameters() method" on page 100	A URL for Web page to be associated with the layer.
frameTarget	"MarkerValue eventCuePoint attribute" on page 99	A specific frame target within the Web page specified by `url`.

Methods

Method	Reference	Description
getParameters()	"MarkerValue getParameters() method" on page 100	Retrieves the key-value pairs associated with the marker value.
setParameters()	"MarkerValue setParameters() method" on page 100	Sets the key-value pairs associated with the marker value.

Examples

- To set a marker that says "Fade Up" at the 2 second mark:

```
var myMarker = new MarkerValue("Fade Up");
myLayer.property("Marker").setValueAtTime(2, myMarker);
```

- To get comment values from a particular marker:

```
var commentOfFirstMarker = app.project.item(1).layer(1).property("Marker").keyValue(1).comment;
var commentOfMarkerAtTime4 =
    app.project.item(1).layer(1).property("Marker").valueAtTime(4.0,true).comment
```

```
var markerProperty = app.project.item(1).layer(1).property("Marker");
var markerValueAtTimeClosestToTime4 =
    markerProperty.keyValue(markerProperty.nearestKeyIndex(4.0));
var commentOfMarkerClosestToTime4 = markerValueAtTimeClosestToTime4.comment;
```

MarkerValue chapter attribute

app.project.item(*index*).layer(*index*).property("Marker").keyValue(*index*).chapter

Description

A text chapter link for this marker. Chapter links initiate a jump to a chapter in a QuickTime movie or in other formats that support chapter marks.

Type

String; read/write.

MarkerValue comment attribute

app.project.item(*index*).layer(*index*).property("Marker").keyValue(*index*).comment

Description

A text comment for this marker. This comment appears in the Timeline panel next to the layer marker.

Type

String; read/write.

MarkerValue cuePointName attribute

app.project.item(*index*).layer(*index*).property("Marker").keyValue(*index*).cuePointName

Description

The Flash Video cue point name, as shown in the Marker dialog.

Type

String; read/write.

MarkerValue eventCuePoint attribute

app.project.item(*index*).layer(*index*).property("Marker").keyValue(*index*).eventCuePoint

Description

When `true`, the FlashVideo cue point is for an event; otherwise, it is for navigation.

Type

Boolean; read/write.

MarkerValue frameTarget attribute

app.project.item(*index*).layer(*index*).property("Marker").keyValue(*index*).frameTarget

Description

A text frame target for this marker. Together with the URL value, this targets a specific frame within a Web page.

Type

String; read/write.

MarkerValue getParameters() method

app.project.item(*index*).layer(*index*).property("Marker").keyValue(*index*).getParameters()

Description

Returns the key-value pairs for Flash Video cue-point parameters, for a cue point associated with this marker value.

Parameters

None.

Returns

An object with an attribute matching each parameter name, containing that parameter's value.

MarkerValue setParameters() method

app.project.item(*index*).layer(*index*).property("Marker").keyValue(*index*).setParameters(*keyValuePairs*)

Description

Associates a set of key-value pairs for Flash Video cue-point parameters, for a cue point associated with this marker value. A cue point can have any number of parameters, but you can add only three through the user interface; use this method to add more than three parameters.

Parameters

keyValuePairs	An object containing the key-value pairs as attributes and values. The object's toString() method is called to assign the string value of each attribute to the named key.

Returns

Nothing.

Example

```
var mv = new MarkerValue("My Marker");

var parms = new Object;
parms.timeToBlink = 1;
parms.assignMe = "A string"

mv.setParameters(parms);
```

```
myLayer.property("Marker").setValueAtTime(2, mv);
```

MarkerValue url attribute

```
app.project.item(index).layer(index).property("Marker").keyValue(index).url
```

Description

A URL for this marker. This URL is an automatic link to a Web page.

Type

String; read/write.

MaskPropertyGroup object

app.project.item(*index*).layer(*index*).mask

Description

The MaskPropertyGroup object encapsulates mask attributes in a layer.

- MaskPropertyGroup is a subclass of PropertyGroup. All methods and attributes of PropertyBase and PropertyGroup, in addition to those listed below, are available when working with MaskPropertyGroup. See "PropertyBase object" on page 140 and "PropertyGroup object" on page 147.

Attributes

Attribute	Reference	Description
maskMode	"MaskPropertyGroup maskMode attribute" on page 103	The mask mode.
inverted	"MaskPropertyGroup inverted attribute" on page 102	When true, the mask is inverted.
rotoBezier	"MaskPropertyGroup rotoBezier attribute" on page 103	When true, the shape of the mask is RotoBezier.
maskMotionBlur	"MaskPropertyGroup maskMotionBlur attribute" on page 103	How motion blur is applied to this mask.
locked	"MaskPropertyGroup locked attribute" on page 103	When true, the mask is locked.
color	"MaskPropertyGroup color attribute" on page 102	The color used to draw the mask outline in the user interface.

MaskPropertyGroup color attribute

app.project.item*(index)*.layer*(index)*.mask(*index)*.color

Description

The color used to draw the mask outline as it appears in the user interface (Composition panel, Layer panel, and Timeline panel).

Type

Array of three floating-point values, [R, G, B], in the range [0.0..1.0]; read/write.

MaskPropertyGroup inverted attribute

app.project.item*(index)*.layer*(index)*.mask(*index)*.inverted

Description

When true, the mask is inverted; otherwise false.

Type

Boolean; read/write.

MaskPropertyGroup locked attribute

app.project.item*(index)*.layer*(index)*.mask(*index*).locked

Description

When true, the mask is locked and cannot be edited in the user interface; otherwise, false.

Type

Boolean; read/write.

MaskPropertyGroup maskMode attribute

app.project.item*(index)*.layer*(index)*.mask(*index*).maskMode

Description

The masking mode for this mask.

Type

A MaskMode enumerated value; read/write. One of:

MaskMode.NONE
MaskMode.ADD
MaskMode.SUBTRACT
MaskMode.INTERSECT
MaskMode.LIGHTEN
MaskMode.DARKEN
MaskMode.DIFFERENCE

MaskPropertyGroup maskMotionBlur attribute

app.project.item*(index)*.layer*(index)*.mask(*index*).maskMotionBlur

Description

How motion blur is applied to this mask.

Type

A MakMotionBlur enumerated value; read/write. One of:

MaskMotionBlur.SAME_AS_LAYER
MaskMotionBlur.ON
MaskMotionBlur.OFF

MaskPropertyGroup rotoBezier attribute

app.project.item*(index)*.layer*(index).mask(index)*.rotoBezier

Description

When true, the mask is a RotoBezier shape; otherwise, false.

Type

Boolean; read/write.

OMCollection object

app.project.renderQueue.items.outputModules

Description

The OMCollection contains all of the output modules in a render queue. The collection provides access to the OutputModule objects, but does not provide any additional functionality. The first OutputModule object in the collection is at index position 1. See "OutputModule object" on page 105

- OMCollection is a subclass of Collection. All methods and attributes of Collection are available when working with OMCollection. See "Collection object" on page 51.

OutputModule object

app.project.renderQueue.item*(index)*.outputModules(*index*)

Description

An OutputModule object of a RenderQueueItem generates a single file or sequence via a render operation, and contains attributes and methods relating to the file to be rendered.

Attributes

Attribute	Reference	Description
file	"OutputModule file attribute" on page 105	The path and name of the file to be rendered.
postRenderAction	"OutputModule postRenderAction attribute" on page 106	An action to be taken after rendering.
name	"OutputModule name attribute" on page 106	The user-interface name of the output module.
templates	"OutputModule templates attribute" on page 107	All templates for the output module.

Methods

Method	Reference	Description
remove()	"OutputModule remove() method" on page 106	Removes this output module from the render-queue item's list.
saveAsTemplate()	"OutputModule saveAsTemplate() method" on page 106	Saves a new output-module template.
applyTemplate()	"OutputModule applyTemplate() method" on page 105	Applies an output-module template.

OutputModule applyTemplate() method

app.project.renderQueue.item*(index)*.outputModules[*index*].applyTemplate(*templateName*)

Description

Applies the specified existing output-module template.

Parameters

templateName	A string containing the name of the template to be applied.

Returns

Nothing.

OutputModule file attribute

app.project.renderQueue.item*(index)*.outputModules[*index*].file

Description

The ExtendScript File object for the file this output module is set to render.

Type

ExtendScript File object; read/write.

OutputModule name attribute

app.project.renderQueue.item*(index)*.outputModules[*index*].name

Description

The name of the output module, as shown in the user interface.

Type

String; read-only.

OutputModule postRenderAction attribute

app.project.renderQueue.item*(index)*.outputModules[*index*].postRenderAction

Description

An action to be performed when the render operation is completed.

Type

A PostRenderAction enumerated value (read/write); one of:

postRenderAction.NONE
postRenderAction.IMPORT
postRenderAction.IMPORT_AND_REPLACE_USAGE
postRenderAction.SET_PROXY

OutputModule remove() method

app.project.renderQueue.item*(index)*.outputModules[*index*].remove()

Description

Removes this OutputModule object from the collection.

Parameters

None.

Returns

Nothing.

OutputModule saveAsTemplate() method

app.project.renderQueue.item*(index)*.outputModules[*index*].saveAsTemplate(*name*)

Description

Saves this output module as a template and adds it to the templates array.

Parameters

name	A string containing the name of the new template.

Returns

Nothing.

OutputModule templates attribute

app.project.renderQueue.item*(index)*.outputModules[*index*].templates

Description

The names of all output-module templates availalbe in the local installation of After Effects.

Type

Array of strings; read-only.

PlaceholderSource object

app.project.item(*index*).mainSource
app.project.item(*index*).proxySource

Description

The PlaceholderSource object describes the footage source of a placeholder.

PlaceholderSource is a subclass of FootageSource. All methods and attributes of FootageSource are available when working with PlaceholderSource. See “FootageSource object” on page 67. PlaceholderSource does not define any additional methods or attributes.

Project object

app.project

Description

The project object represents an After Effects project. Attributes provide access to specific objects within the project, such as imported files or footage and compositions, and also to project settings such as the timecode base. Methods can import footage, create solids, compositions and folders, and save changes.

Attributes

Attribute	Reference	Description
file	"Project file attribute" on page 112	The file for the currently open project.
rootFolder	"Project rootFolder attribute" on page 115	The folder containing all the contents of the project; the equivalent of the Project panel
items	"Project items attribute" on page 113	All items in the project.
activeItem	"Project activeItem attribute" on page 110	The currently active item.
bitsPerChannel	"Project bitsPerChannel attribute" on page 111	The color depth of the current project.
transparencyGridThumbnails	"Project transparencyGridThumbnails attribute" on page 117	When true, thumbnail views use the transparency checkerboard pattern.
timecodeDisplayType	"Project timecodeDisplayType attribute" on page 116	The way the timecode is displayed.
timecodeBaseType	"Project timecodeBaseType attribute" on page 116	The timecode base project setting.
timecodeNTSCDropFrame	"Project timecodeNTSCDropFrame attribute" on page 117	The drop-frame project setting.
timecodeFilmType	"Project timecodeFilmType attribute" on page 117	The film type for the "Feet + Frames" project setting.
numItems	"Project numItems attribute" on page 114	The total number of items contained in the project.
selection	"Project selection attribute" on page 116	All items selected in the Project panel.
renderQueue	"Project renderQueue attribute" on page 115	The project's render queue.
displayStartFrame	"Project displayStartFrame attribute" on page 111	The frame at which to start numbering when displaying the project.
linearBlending	"Project linearBlending attribute" on page 113	When true, linear blending is used for the project.

Methods

Method	Reference	Description
item()	"Project item() method" on page 113	Retrieves an item from the project.
consolidateFootage()	"Project consolidateFootage() method" on page 111	Consolidates all footage in the project.

Method	Reference	Description
removeUnusedFootage()	"Project removeUnusedFootage() method" on page 114	Removes unused footage from the project.
reduceProject()	"Project reduceProject() method" on page 114	Reduces the project to a specified set of items.
close()	"Project close() method" on page 111	Closes the project with normal save options.
save()	"Project save() method" on page 115	Saves the project.
saveWithDialog()	"Project saveWithDialog() method" on page 115	Displays a Save dialog box.
importPlaceholder()	"Project importFileWithDialog() method" on page 112	Imports a placeholder into the project.
importFile()	"Project importFile() method" on page 112	Imports a file into the project.
importFileWithDialog()	"Project importFileWithDialog() method" on page 112	Displays an Import File dialog box.
showWindow()	"Project showWindow() method" on page 116	Shows or hides the Project panel.
autoFixExpressions()	"Project autoFixExpressions() method" on page 110	Automatically replaces text in all expressions.

Project activeItem attribute

app.project.activeItem

Description

The item that is currently active and is to be acted upon, or a null if no item is currently selected or if multiple items are selected.

Type

Item object or null; read-only.

Project autoFixExpressions() method

app.project.autoFixExpressions(*oldText, newText*)

Description

Automatically replaces text found in broken expressions in the project, if the new text causes the expression to evaluate without errors.

Parameters

oldText	The text to replace.
newText	The new text.

Returns

Nothing.

Project bitsPerChannel attribute

app.project.bitsPerChannel

Description

The color depth of the current project, either 8, 16, or 32 bits.

Type

Integer (8, 16, or 32 only); read/write.

Project close() method

app.project.close(*closeOptions*)

Description

Closes the project with the option of saving changes automatically, prompting the user to save changes or closing without saving changes.

Parameters

closeOptions	Action to be performed on close. A CloseOptions enumerated value, one of: CloseOptions.DO_NOT_SAVE_CHANGES: Close without saving. CloseOptions.PROMPT_TO_SAVE_CHANGES: Prompt for whether to save changes before close. CloseOptions.SAVE_CHANGES: Save automatically on close.

Returns

Boolean. True on success. False if the file has not been previously saved, the user is prompted, and the user cancels the save.

Project consolidateFootage() method

app.project.consolidateFootage()

Description

Consolidates all footage in the project. Same as the File > Consolidate All Footage command.

Parameters

None.

Returns

Integer; the total number of footage items removed.

Project displayStartFrame attribute

app.project.displayStartFrame

Description

The frame at which to start numbering when displaying the project with a `timecodeDisplayType` value of `TimecodeDisplayType.FRAMES`. (See "Project timecodeDisplayType attribute" on page 116.) This is the same as setting "Start numbering frames at:" in the Project Settings > Display Style tab.

Type

Integer; read/write.

Project file attribute

`app.project.file`

Description

The ExtendScript File object for the file containing the project that is currently open.

Type

File object or null if project has not been saved; read-only.

Project importFile() method

`app.project.importFile(`*`importOptions`*`)`

Description

Imports the file specified in the specified ImportOptions object, using the specified options. Same as the File > Import File command. Creates and returns a new FootageItem object from the file, and adds it to the project's `items` array.

Parameters

`importOptions`	An ImportOptions object specifying the file to import and the options for the operation. See "ImportOptions object" on page 73.

Returns

FootageItem object.

Example

```
app.project.importFile(new ImportOptions(File("sample.psd")))
```

Project importFileWithDialog() method

`app.project.importFileWithDialog()`

Description

Shows an Import File dialog box. Same as the File > Import > File command.

Returns

Array of Item objects created during import; or null if the user cancels the dialog.

Project importPlaceholder() method

app.project.importPlaceholder(*name, width, height, frameRate, duration*)

Description

Creates and returns a new PlaceholderItem object and adds it to the project's items array. Same as the File > Import > Placeholder command.

Parameters

name	A string containing the name of the placeholder.
width	The width of the placeholder in pixels, an integer in the range [4..30000].
height	The height of the placeholder in pixels, an integer in the range [4..30000].
frameRate	The frame rate of the placeholder, a floating-point value in the range [1.0..99.0]
duration	The duration of the placeholder in seconds, a floating-point value in the range [0.0..10800.0].

Returns

PlaceholderItem object.

Project item() method

app.project.item(*index*)

Description

Retrieves an item at a specified index position.

Parameters

index	The index position of the item, an integer. The first item is at index 1.

Returns

Item object.

Project items attribute

app.project.items

Description

All of the items in the project.

Type

ItemCollection object; read-only.

Project linearBlending attribute

app.project.linearBlending

Description

True if linear blending should be used for this project; othewise false.

Type

Boolean; read/write.

Project numItems attribute

```
app.project.numItems
```

Description

The total number of items contained in the project, including folders and all types of footage.

Type

Integer; read-only.

Example

```
n = app.project.numItems;
alert("There are " + n + " items in this project.")
```

Project reduceProject() method

```
app.project.reduceProject(array_of_items)
```

Description

Removes all items from the project except those specified. Same as the File > Reduce Project command.

Parameters

array_of_items	An array containing the Item objects that are to be kept.

Returns

Integer; the total number of items removed.

Example

```
var theItems = new Array();
theItems[theItems.length] = app.project.item(1);
theItems[theItems.length] = app.project.item(3);
app.project.reduceProject(theItems);
```

Project removeUnusedFootage() method

```
app.project.removeUnusedFootage()
```

Description

Removes unused footage from the project. Same as the File > Remove Unused Footage command.

Parameters

None.

Returns

Integer; the total number of FootageItem objects removed.

Project renderQueue attribute

app.project.renderQueue

Description

The render queue of the project.

Type

RenderQueue object; read-only.

Project rootFolder attribute

app.project.rootFolder

Description

The root folder containing the contents of the project; this is a virtual folder that contains all items in the Project panel, but not items contained inside other folders in the Project panel.

Type

FolderItem object; read-only.

Project save() method

app.project.save()
app.project.save(*file*)

Description

Saves the project. The same as the File > Save or File > Save As command. If the project has never previously been saved and no file is specified, prompts the user for a location and file name. Pass a File object to save a project to a new file without prompting.

Parameters

file	Optional. An ExtendScript File object for the file to save.

Returns

None.

Project saveWithDialog() method

app.project.saveWithDialog()

Description

Shows the Save dialog box. The user can name a file with a location and save the project, or click Cancel to exit the dialog.

Parameters

None.

Returns

Boolean; true if the project was saved.

Project selection attribute

app.project.selection

Description

All items selected in the Project panel, in the sort order shown in the Project panel.

Type

Array of Item objects; read-only.

Project showWindow() method

app.project.showWindow(*doShow*)

Description

Shows or hides the Project panel.

Parameters

doShow	When true, show the Project panel. When false, hide the Project panel.

Returns

Nothing.

Project timecodeBaseType attribute

app.project.timecodeBaseType

Description

The Timecode Base option, as set in the Project Settings dialog box.

Type

A TimecodeBaseType enumerated value; read/write. One of:

TimecodeBaseType.AUTO
TimecodeBaseType.FPS24
TimecodeBaseType.FPS25
TimecodeBaseType.FPS30
TimecodeBaseType.FPS48
TimecodeBaseType.FPS50
TimecodeBaseType.FPS60
TimecodeBaseType.FPS100

Project timecodeDisplayType attribute

app.project.timecodeDisplayType

Description

The way in which timecode is set to display, as set in the Project Settings dialog box.

Type

A TimecodeDisplayType enumerated value; read/write. One of:

TimecodeDisplayType.TIMECODE
TimecodeDisplayType.FRAMES
TimecodeDisplayType.FEET_AND_FRAMES

Project timecodeFilmType attribute

app.project.timecodeFilmType

Description

The film type, as set in the Feet + Frames option in the Project Settings dialog box.

Type

A TimecodeFilmType enumerated value; read/write. One of:

TimecodeFilmType.MM16
TimecodeFilmType.MM35

Project timecodeNTSCDropFrame attribute

app.project.timecodeNTSCDropFrame

Description

How timecode for 29.97 fps footage is displayed, as set in the Project Settings dialog box under NTSC.

Type

Boolean, true for the Drop Frame option, false for the Non-Drop Frame option; read/write.

Project transparencyGridThumbnails attribute

app.project.transparencyGridThumbnails

Description

When true, thumbnail views use the transparency checkerboard pattern.

Type

Boolean; read/write.

Property object

app.project.item(*index*).layer(*index*).*propertySpec*

Description

The Property object contains value, keyframe, and expression information about a particular AE property of a layer. An AE property is an value, often animatable, of an effect, mask, or transform within an individual layer. For examples of how to access properties, see "PropertyBase object" on page 140 and "PropertyGroup property() method" on page 149.

- PropertyGroup is a subclass of PropertyBase. All methods and attributes of PropertyBase, in addition to those listed below, are available when working with PropertyGroup. See "PropertyBase object" on page 140.

NOTE: JavaScript objects commonly referred to as "properties" are called "attributes" in this guide, to avoid confusion with the After Effects definition of property.

Attributes

Attribute	Reference	Description
propertyValueType	"Property propertyValueType attribute" on page 131	Type of value stored in this property.
value	"Property value attribute" on page 138	Current value of the property.
hasMin	"Property hasMin attribute" on page 123	When true, there is a minimum permitted value.
hasMax	"Property hasMax attribute" on page 123	When true, there is a maximum permitted value.
minValue	"Property minValue attribute" on page 130	The minimum permitted value.
maxValue	"Property maxValue attribute" on page 130	The maximum permitted value.
isSpatial	"Property isSpatial attribute" on page 124	When true, the property defines a spatial value.
canVaryOverTime	"Property canVaryOverTime attribute" on page 122	When true, the property can be keyframed.
isTimeVarying	"Property isTimeVarying attribute" on page 124	When true, the property has keyframes or an expression enabled that can vary its values.
numKeys	"Property numKeys attribute" on page 131	The number of keyframes on this property.
unitsText	"Property unitsText attribute" on page 138	A text description of the units in which the value is expressed.
expression	"Property expression attribute" on page 122	The expression string for this property.
canSetExpression	"Property canSetExpression attribute" on page 122	When true, the expression can be set by a script.
expressionEnabled	"Property expressionEnabled attribute" on page 123	When true, the expression is used to generate values for the property.
expressionError	"Property expressionError attribute" on page 123	The error, if any, that occurred when the last expression was evaluated.

Attribute	Reference	Description
keyframeInterpolationType	"Property keyframeInterpolationType attribute" on page 124	The type of interpolation used at a keyframe.
selectedKeys	"Property selectedKeys attribute" on page 133	All selected keyframes of the property.
propertyIndex	"Property propertyIndex attribute" on page 131	The position index of this property.

Methods

Method	Reference	Description
valueAtTime()	"Property valueAtTime() method" on page 139	Gets the value of the property evaluated at given time.
setValue()	"Property setValue() method" on page 137	Sets the static value of the property.
setValueAtTime()	"Property setValueAtTime() method" on page 137	Creates a keyframe for the property.
setValuesAtTimes()	"Property setValuesAtTimes() method" on page 138	Creates a set of keyframes for the property.
setValueAtKey()	"Property setValueAtKey() method" on page 137	Finds a keyframe and sets the value of the property at that keyframe.
nearestKeyIndex()	"Property nearestKeyIndex() method" on page 131	Gets the keyframe nearest to a specified time.
keyTime()	"Property keyTime() method" on page 129	Gets the time at which a condition occurs.
keyValue()	"Property keyValue() method" on page 130	Gets the value of a keyframe at the time at which a condition occurs.
addKey()	"Property addKey() method" on page 122	Adds a new keyframe to the property at a given time.
removeKey()	"Property removeKey() method" on page 132	Removes a keyframe from the property.
isInterpolationTypeValid()	"Property isInterpolationTypeValid() method" on page 124	When true, this property can be interpolated.
setInterpolationTypeAtKey()	"Property setInterpolationTypeAtKey() method" on page 133	Sets the interpolation type for a key.
keyInInterpolationType()	"Property keyInInterpolationType() method" on page 125	Gets the 'in' interpolation type for a key.
keyOutInterpolationType()	"Property keyOutInterpolationType() method" on page 126	Gets the 'out' interpolation type for a key.
setSpatialTangentsAtKey()	"Property setSpatialTangentsAtKey() method" on page 135	Sets the "in" and "out" tangent vectors for a key.
keyInSpatialTangent()	"Property keyInSpatialTangent() method" on page 125	Gets the "in" spatial tangent for a key.
keyOutSpatialTangent()	"Property keyOutSpatialTangent() method" on page 126	Gets the "out" spatial tangent for a key.
setTemporalEaseAtKey()	"Property setTemporalEaseAtKey() method" on page 136	Sets the "in" and "out" temporal ease for a key.

Method	Reference	Description
keyInTemporalEase()	"Property keyInTemporalEase() method" on page 126	Gets the "in" temporal ease for a key.
keyOutTemporalEase()	"Property keyOutTemporalEase() method" on page 127	Gets the "out" temporal ease for a key.
setTemporalContinuousAtKey()	"Property setTemporalContinuousAtKey() method" on page 136	Sets whether a keyframe has temporal continuity.
keyTemporalContinuous()	"Property keyTemporalContinuous() method" on page 129	Reports whether a keyframe has temporal continuity.
setTemporalAutoBezierAtKey()	"Property setTemporalAutoBezierAtKey() method" on page 135	Sets whether a keyframe has temporal auto-Bezier.
keyTemporalAutoBezier()	"Property keyTemporalAutoBezier() method" on page 129	Reports whether a keyframe has temporal auto-Bezier.
setSpatialContinuousAtKey()	"Property setSpatialContinuousAtKey() method" on page 134	Sets whether a keyframe has spatial continuity.
keySpatialContinuous()	"Property keySpatialContinuous() method" on page 128	Reports whether a keyframe has spatial continuity.
setSpatialAutoBezierAtKey	"Property setSpatialAutoBezierAtKey() method" on page 134	Sets whether a keyframe has spatial auto-Bezier.
keySpatialAutoBezier()	"Property keySpatialAutoBezier() method" on page 128	Reports whether a keyframe has spatial auto-Bezier.
setRovingAtKey()	"Property setRovingAtKey() method" on page 133	Sets whether a keyframe is roving.
keyRoving()	"Property keyRoving() method" on page 127	Reports whether a keyframe is roving.
setSelectedAtKey()	"Property setSelectedAtKey() method" on page 134	Sets whether a keyframe is selected.
keySelected()	"Property keySelected() method" on page 128	Reports whether a keyframe is selected.

Example: Get and set the value of opacity

```
var myProperty = myLayer.opacity;
//opacity has propertyValueType of OneD, and is stored as a float
myProperty.setValue(0.5);
// Variable myOpacity is a float value
var myOpacity = myProperty.value;
```

Example: Get and set the value of a position

```
var myProperty = myLayer.position;
//position has propertyValueType of ThreeD_SPATIAL, and is stored as an array of 3 floats
myProperty.setValue([10.0, 30.0, 0.0]);
// Variable myPosition is an array of 3 floats
var myPosition = myProperty.value;
```

Example: Change the value of a mask shape to be open instead of closed

```
var myMask = mylayer.mask(1);
var myProperty = myMask.maskPath;
myShape = myProperty.value;
```

```
myShape.closed = false;
myProperty.setValue(myShape);
```

Example: Get the value of a color at a particular time

A color is stored as an array of four floats, [r,g,b,opacity]. This sets the value of the red component of a light's color at time 4 to be half of that at time 2:

```
var myProperty = myLight.color;
var colorValue = myProperty.valueAtTime(2,true);
colorValue[0] = 0.5 * colorValue[0];
myProperty.setValueAtTime(4,colorValue);
```

Example: Check that a scale calculated by an expression at time 3.5 is the expected value of [10,50]

```
var myProperty = myLayer.scale;
// false value of preExpression means evaluate the expression
var scaleValue = myProperty.valueAtTime(3.5,false);
if (scaleValue[0] == 10 && scaleValue[1] == 50) {
  alert("hurray");
  }
else {
  alert("oops");
  }
```

Example: Keyframe a rotation from 0 to 90 and back again

The animation is 10 seconds, and the middle keyframe is at the 5 second mark. Rotation properties are stored as a OneD value.

```
myProperty = myLayer.rotation;
myProperty.setValueAtTime(0, 0);
myProperty.setValueAtTime(5, 90);
myProperty.setValueAtTime(10, 0);
```

Example: Change the keyframe values for the first three keyframes of some source text

```
myProperty = myTextLayer.sourceText;
if (myProperty.numKeys < 3) {
  alert("error, I thought there were 3 keyframes");
  }
else {
  myProperty.setValueAtKey(1, new TextDocument("key number 1"));
  myProperty.setValueAtKey(2, new TextDocument("key number 2"));
  myProperty.setValueAtKey(3, new TextDocument("key number 3"));
  }
```

Example: Set values using the convenience syntax for position, scale, color, or source text

```
// These two are equivalent. The second fills in a default of 0.
myLayer.position.setValue([20, 30, 0]);
myLayer.position.setValue([20, 30]);
// These two are equivalent. The second fills in a default of 100.
myLayer.scale.setValue([50, 50, 100]);
myLayer.scale.setValue([50, 50]);
// These two are equivalent. The second fills in a default of 1.0
```

```
myLight.color.setValue([.8, .3, .1, 1.0]);
myLight.color.setValue([.8, .3, .1]);
// These two are equivalent. The second creates a TextDocument
myTextLayer.sourceText.setValue(new TextDocument("foo"));
myTextLayer.sourceText.setValue("foo");
```

Property addKey() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.addKey(*time*)

Description

Adds a new keyframe or marker to the named property at the specified time and returns the index of the new keyframe.

Parameters

time	The time, in seconds, at which to add the keyframe. A floating-point value. The beginning of the composition is 0.

Returns

Integer; the index of the new keyframe or marker.

Property canSetExpression attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.canSetExpression

Description

When true, the named property is of a type whose expression can be set by a script. See also "Property expression attribute" on page 122.

Type

Boolean; read-only.

Property canVaryOverTime attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.canVaryOverTime

Description

When true, the named property can vary over time—that is, keyframe values or expressions can be written to this property.

Type

Boolean; read-only.

Property expression attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.expression

Description

The expression for the named property. Writeable only when canSetExpression for the named property is true. When you specify a value for this attribute, the string is evaluated.

- If the string contains a valid expression, expressionEnabled becomes true.
- If the string does not contain a valid expression, an error is generated, and expressionEnabled becomes false.
- If you set the attribute to the empty string, expressionEnabled becomes false, but no error is generated.

Type

String; read/write if canSetExpression for the named property is true.

Property expressionEnabled attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.expressionEnabled

Description

When true, the named property uses its associated expression to generate a value. When false, the keyframe information or static value of the property is used. This attribute can be set to true only if canSetExpression for the named property is true and expression contains a valid expression string.

Type

Boolean; read/write.

Property expressionError attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.expressionError

Description

Contains the error, if any, generated by evaluation of the string most recently set in expression. If no expression string has been specified, or if the last expression string evaluated without error, contains the empty string ("").

Type

String; read-only.

Property hasMax attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.hasMax

Description

When true, there is a maximum permitted value for the named property; otherwise false.

Type

Boolean; read-only.

Property hasMin attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.hasMin

Description

When true, there is a minimum permitted value for the named property; otherwise false.

Type

Boolean; read-only.

Property isInterpolationTypeValid() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.isInterpolationTypeValid(*type*)

Description

Returns true if the named property can be interpolated using the specified keyframe interpolation type.

Parameters

type	A KeyframeInterpolationType enumerated value; one of: KeyframeInterpolationType.LINEAR KeyframeInterpolationType.BEZIER KeyframeInterpolationType.HOLD

Returns

Boolean.

Property isSpatial attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.isSpatial

Description

When true, the named property defines a spatial value. Examples are position and effect point controls.

Type

Boolean; read-only.

Property isTimeVarying attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.isTimeVarying

Description

When true, the named property is time varying—that is, it has keyframes or an enabled expression. When this attribute is true, the attribute canVaryOverTime must also be true.

Type

Boolean; read-only.

Property keyframeInterpolationType attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.keyframeInterpolationType

Description

The type of interpolation used at a keyframe.

Type

A KeyframeInterpolationType enumerated value; read/write. One of:

KeyframeInterpolationType.LINEAR
KeyframeInterpolationType.BEZIER
KeyframeInterpolationType.HOLD

Property keyInInterpolationType() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.keyInInterpolationType(*keyIndex*)

Description

Returns the 'in' interpolation type for the specified keyframe.

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.

Returns

A KeyframeInterpolationType enumerated value; one of:

KeyframeInterpolationType.LINEAR
KeyframeInterpolationType.BEZIER
KeyframeInterpolationType.HOLD

Property keyInSpatialTangent() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.keyInSpatialTangent(*keyIndex*)

Description

Returns the incoming spatial tangent for the specified keyframe, if the named property is spacial (that is, the value type is TwoD_SPATIAL or ThreeD_SPATIAL).

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.

Returns

Array of floating-point values:

- If the property value type is PropertyValueType.TwoD_SPATIAL, the array contains 2 floating-point values.
- If the property value type is PropertyValueType.ThreeD_SPATIAL, the array contains 3 floating-point values.
- If the property value type is neither of these types, an exception is generated.

Property keyInTemporalEase() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.vkeyInTemporalEase(*keyIndex*)

Description

Returns the incoming temporal ease for the specified keyframe.

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.

Returns

Array of KeyframeEase objects:

- If the property value type is PropertyValueType.TwoD_SPATIAL, the array contains 2 objects.
- If the property value type is PropertyValueType.ThreeD_SPATIAL, the array contains 3 objects.
- For any other value type, the array contains 1 object.

Property keyOutInterpolationType() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.keyOutInterpolationType(*keyIndex*)

Description

Returns the outgoing interpolation type for the specified keyframe.

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.

Returns

A KeyframeInterpolationType enumerated value; one of:

KeyframeInterpolationType.LINEAR
KeyframeInterpolationType.BEZIER
KeyframeInterpolationType.HOLD

Property keyOutSpatialTangent() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.keyOutSpatialTangent(*keyIndex*)

Description

Returns the outgoing spatial tangent for the specified keyframe.

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.

Returns

Array of floating-point values:

- If the property value type is PropertyValueType.TwoD_SPATIAL, the array contains 2 floating-point values.
- If the property value type is PropertyValueType.ThreeD_SPATIAL, the array contains 3 floating-point values.
- If the property value type is neither of these types, an exception is generated.

Property keyOutTemporalEase() method

app.project.item(index).layer(index).propertySpec.keyOutTemporalEase(*keyIndex*)

Description

Returns the outgoing temporal ease for the specified keyframe.

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.

Returns

Array of KeyframeEase objects:

- If the property value type is PropertyValueType.TwoD_SPATIAL, the array contains 2 objects.
- If the property value type is PropertyValueType.ThreeD_SPATIAL, the array contains 3 objects.
- For any other value type, the array contains 1 object.

Property keyRoving() method

app.project.item*(index)*.layer*(index).propertySpec*.keyRoving(*keyIndex*)

Description

Returns true if the specified keyframe is roving. The first and last keyframe in a property cannot rove; if you try to set roving for one of these, the operation is ignored, and keyRoving() continues to return false.

If the property value type is neither TwoD_SPATIAL nor ThreeD_SPATIAL, an exception is generated.

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.

Returns

Boolean.

Property keySelected() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.keySelected(*keyIndex*)

Description

Returns true if the specified keyframe is selected.

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.

Returns

Boolean.

Property keySpatialAutoBezier() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.keySpatialAutoBezier(*keyIndex*)

Description

Returns true if the specified keyframe has spatial auto-Bezier interpolation. (This type of interpolation affects this keyframe only if keySpatialContinuous(*keyIndex*) is also true.)

If the property value type is neither TwoD_SPATIAL nor ThreeD_SPATIAL, an exception is generated.

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.

Returns

Boolean.

Property keySpatialContinuous() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.keySpatialContinuous(*keyIndex*)

Description

Returns true if the specified keyframe has spatial continuity.

If the property value type is neither TwoD_SPATIAL nor ThreeD_SPATIAL, an exception is generated.

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.

Returns

Boolean.

Property keyTemporalAutoBezier() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.keyTemporalAutoBezier(*keyIndex*)

Description

Returns true if the specified keyframe has temporal auto-Bezier interpolation.

Temporal auto-Bezier interpolation affects this keyframe only if keyframeInterpolationType is KeyframeInterpolationType.BEZIER for both keyInInterpolation(*keyIndex*) and keyOutInterpolation(*keyIndex*).

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.

Returns

Boolean.

Property keyTemporalContinuous() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.keyTemporalContinuous(*keyIndex*)

Description

Returns true if the specified keyframe has temporal continuity.

Temporal continuity affects this keyframe only if keyframeInterpolationType is KeyframeInterpolationType.BEZIER for both keyInInterpolation(*keyIndex*) and keyOutInterpolation(*keyIndex*).

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.

Returns

Boolean.

Property keyTime() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.keyTime(*keyIndex*)
app.project.item*(index)*.layer*(index)*.*propertySpec*.keyTime(*markerComment*)

Description

Finds the specified keyframe or marker and returns the time at which it occurs.

If no keyframe or marker can be found that matches the argument, this method generates an exception, and an error is displayed.

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.
markerComment	The comment string attached to a marker (see "MarkerValue comment attribute" on page 99).

Returns

Floating-point value.

Property keyValue() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.keyValue(*keyIndex*)
app.project.item*(index)*.layer*(index)*.*propertySpec*.keyValue(*markerComment*)

Description

Finds the specified keyframe or marker and returns its current value.

If no keyframe or marker can be found that matches the argument, this method generates an exception, and an error is displayed.

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.
markerComment	The comment string attached to a marker (see "MarkerValue comment attribute" on page 99).

Returns

Floating-point value.

Property maxValue attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.maxValue

Description

The maximum permitted value of the named property. If the hasMax attribute is false, an exception occurs, and an error is generated.

Type

Floating-point value; read-only.

Property minValue attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.minValue

Description

The minimum permitted value of the named property. If the hasMin attribute is false, an exception occurs, and an error is generated.

Type

Floating-point value; read-only.

Property nearestKeyIndex() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.nearestKeyIndex(*time*)

Description

Returns the index of the keyframe nearest to the specified time.

Parameters

time	The time in seconds; a floating-point value. The beginning of the composition is 0.

Returns

Integer.

Property numKeys attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.numKeys

Description

The number of keyframes in the named property. If the value is 0, the property is not being keyframed.

Type

Integer; read-only.

Property propertyIndex attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.propertyIndex

Description

The position index of the named property. The first property is at index position 1.

Type

Integer; read-only.

Property propertyValueType attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.propertyValueType

Description

The type of value stored in the named property. The `PropertyValueType` enumeration has one value for each type of data that can be stored in or retrieved from a property. Each type of data is stored and retrieved in a different kind of structure. All property objects store data according to one of these categories.

For example, a 3D spatial property (such as a layer's position) is stored as an array of three floating point values. When setting a value for position, pass in such an array, as follows:

```
mylayer.property("position").setValue([10,20,0]);
```

In contrast, a shape property (such as a layer's mask shape) is stored as a Shape object. When setting a value for a shape, pass a Shape object, as follows:

```
var myShape = new Shape();
```

```
myShape.vertices = [[0,0],[0,100],[100,100],[100,0]];
var myMask = mylayer.property("ADBE Mask Parade").property(1);
myMask.property("ADBE Mask Shape").setValue(myShape);
```

Type

A PropertyValueType enumerated value; read/write. One of:

PropertyValueType.NO_VALUE	Stores no data.
PropertyValueType.ThreeD_SPATIAL	Array of three floating-point positional values. For example, an Anchor Point value might be [10.0, 20.2, 0.0]
PropertyValueType.ThreeD	Array of three floating-point quantitative values. For example, a Scale value might be [100.0, 20.2, 0.0]
PropertyValueType.TwoD_SPATIAL	Array of 2 floating-point positional values For example, an Anchor Point value might be [5.1, 10.0]
PropertyValueType.TwoD	Array of 2 floating-point quantitative values. For example, a Scale value might be [5.1, 100.0]
PropertyValueType.OneD	A floating-point value.
PropertyValueType.COLOR	Array of 4 floating-point values in the range [0.0..1.0]. For example, [0.8, 0.3, 0.1, 1.0]
PropertyValueType.CUSTOM_VALUE	Unimplemented type; you cannot get or set values for properties with this type.
PropertyValueType.MARKER	MarkerValue object; see "MarkerValue object" on page 98.
PropertyValueType.LAYER_INDEX	Integer; a value of 0 means no layer.
PropertyValueType.MASK_INDEX	Integer; a value of 0 means no mask.
PropertyValueType.SHAPE	Shape object; see "Shape object" on page 164.
PropertyValueType.TEXT_DOCUMENT	TextDocument object; see "TextDocument object" on page 171.

Property removeKey() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.removeKey(*keyIndex*)

Description

Removes the specified keyframe from the named property. If no keyframe with the specified index exists, generates an exception and displays an error.

When a keyframe is removed, the remaining index numbers change. To remove more than one keyframe, you must start with the highest index number and work down to the lowest to ensure that the remaining indices reference the same keyframe after each removal.

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.

Returns

Nothing.

Property selectedKeys attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.selectedKeys

Description

The indices of all the selected keyframes in the named property. If no keyframes are selected, or if the property has no keyframes, returns an empty array.

Type

Array of integers; read-only.

Property setInterpolationTypeAtKey() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.setInterpolationTypeAtKey(*keyIndex*, *inType*, *outType*)

Description

Sets the 'in' and 'out' interpolation types for the specified keyframe.

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.
inType	The incoming interpolation type. A KeyframeInterpolationType enumerated value; one of: KeyframeInterpolationType.LINEAR KeyframeInterpolationType.BEZIER KeyframeInterpolationType.HOLD
outType	(Optional) The outgoing interpolation type. If not supplied, the 'out' type is set to the inType value. A KeyframeInterpolationType enumerated value; one of: KeyframeInterpolationType.LINEAR KeyframeInterpolationType.BEZIER KeyframeInterpolationType.HOLD

Returns

Nothing.

Property setRovingAtKey() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.setRovingAtKey(*keyIndex, newVal*)

Description

Turns roving on or off for the specified keyframe. The first and last keyframe in a property cannot rove; if you try to set roving for one of these, the operation is ignored, and keyRoving() continues to return false.

If the property value type is neither TwoD_SPATIAL nor ThreeD_SPATIAL, an exception is generated.

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.

newVal	True to turn roving on, false to turn roving off.

Returns

Nothing.

Property setSelectedAtKey() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.setSelectedAtKey(*keyIndex, onOff*)

Description

Selects or deselects the specified keyframe.

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.
onOff	True to select the keyframe, false to deselect it.

Returns

Nothing.

Property setSpatialAutoBezierAtKey() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.setSpatialAutoBezierAtKey(keyIndex, newVal)

Description

Turns spatial auto-Bezier interpolation on or off for the specified keyframe.

If the property value type is neither TwoD_SPATIAL nor ThreeD_SPATIAL, an exception is generated.

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.
newVal	True to turn spatial auto-Bezier on, false to turn it off.

Returns

Nothing.

Property setSpatialContinuousAtKey() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.setSpatialContinuousAtKey(*keyIndex, newVal*)

Description

Turns spatial continuity on or off for the specified keyframe.

If the property value type is neither TwoD_SPATIAL nor ThreeD_SPATIAL, an exception is generated.

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.
newVal	True to turn spatial continuity on, false to turn it off.

Returns

Nothing.

Property setSpatialTangentsAtKey() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.setSpatialTangentsAtKey(*keyIndex, inTangent, outTangent*)

Description

Sets the incoming and outgoing tangent vectors for the specified keyframe.

If the property value type is neither TwoD_SPATIAL nor ThreeD_SPATIAL, an exception is generated.

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.
inTangent	The incoming tangent vector. An array of 2 or 3 floating-point values. • If the property value type is PropertyValueType.TwoD_SPATIAL, the array contains 2 values. • If the property value type is PropertyValueType.ThreeD_SPATIAL, the array contains 3 values.
outTangent	(Optional) The outgoing tangent vector. If not supplied, the 'out' tangent is set to the inTangent value. An array of 2 or 3 floating-point values. • If the property value type is PropertyValueType.TwoD_SPATIAL, the array contains 2 values. • If the property value type is PropertyValueType.ThreeD_SPATIAL, the array contains 3 values.

Returns

Nothing.

Property setTemporalAutoBezierAtKey() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.setTemporalAutoBezierAtKey(*keyIndex, newVal*)

Description

Turns temporal auto-Bezier interpolation on or off for the specified keyframe. When this is turned on, it affects this keyframe only if keySpatialContinuous(*keyIndex*) is also true.

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.
newVal	True to turn temporal auto-Bezier on, false to turn it off.

Returns

Nothing.

Property setTemporalContinuousAtKey() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.setTemporalContinuousAtKey(*keyIndex*, *newVal*)

Description

Turns temporal continuity on or off for the specified keyframe.

When temporal continuity is turned on, it affects this keyframe only if the KeyframeInterpolationType is KeyframeInterpolationType.BEZIER for both keyInInterpolation(*keyIndex*) and keyOutInterpolation(*keyIndex*).

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.
newVal	True to turn temporal continuity on, false to turn it off.

Returns

Nothing.

Property setTemporalEaseAtKey() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.setTemporalEaseAtKey(*keyIndex*, *inTemporalEase*, *outTemporalEase*)

Description

Sets the incoming and outgoing temporal ease for the specified keyframe. See "KeyframeEase object" on page 81.

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.
inTemporalEase	The incoming temporal ease. An array of 1, 2, or 3 KeyframeEase objects. • If the property value type is PropertyValueType.TwoD_SPATIAL, the array contains 2 objects. • If the property value type is PropertyValueType.ThreeD_SPATIAL, the array contains 3 objects. • For all other value types, the array contains 1 object.
outTemporalEase	(Optional) The outgoing temporal ease. If not supplied, the outgoing ease is set to the inTemporalEase value. An array of 1, 2, or 3 KeyframeEase objects. • If the property value type is PropertyValueType.TwoD_SPATIAL, the array contains 2 objects. • If the property value type is PropertyValueType.ThreeD_SPATIAL, the array contains 3 objects. • For all other value types, the array contains 1 object.

Returns

Nothing.

Property setValue() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.setValue(*newValue*)

Description

Sets the static value of a property that has no keyframes.

If the named property has keyframes, this method generates an exception and displayes an error. To set the value of a property with keyframes, use "Property setValueAtTime() method" on page 137 or "Property setValueAtKey() method" on page 137.

Parameters

newValue	A value appropriate for the type of property being set; see "Property propertyValueType attribute" on page 131.

Returns

Nothing.

Property setValueAtKey() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.setValueAtKey(*keyIndex, newValue*)

Description

Finds the specified keyframe and sets its value.

If the named property has no keyframes, or no keyframe with the specified index, this method generates an exception and displays an error.

Parameters

keyIndex	The index for the keyframe. An integer in the range [1..numKeys], as returned by the addKey or nearestKeyIndex method.
newValue	A value appropriate for the type of property being set; see "Property propertyValueType attribute" on page 131.

Returns

Nothing.

Property setValueAtTime() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.setValueAtTime(*time, newValue*)

Description

Sets the value of a keyframe at the specified time. Creates a new keyframe for the named property, if one does not currently exist for the specified time, and sets its value.

Parameters

time	The time in seconds, a floating-point value. The beginning of the composition is 0.
newValue	A value appropriate for the type of property being set; see "Property propertyValueType attribute" on page 131.

Returns

Nothing.

Property setValuesAtTimes() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.setValuesAtTimes(*times, newValues*)

Description

Sets values for a set of keyframes at specified of times. Creates a new keyframe for the named property, if one does not currently exist for a specified time, and sets its value.

Times and values are expressed as arrays; the arrays must be of the same length.

Parameters

times	An array of times, in seconds. Each time is a floating-point value. The beginning of the composition is 0.
newValues	A array of values appropriate for the type of property being set; see "Property propertyValueType attribute" on page 131.

Returns

Nothing.

Property unitsText attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.unitsText

Description

The text description of the units in which the value is expressed.

Type

String; read-only.

Property value attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.value

Description

The value of the named property at the current time.

- If expressionEnabled is true, returns the evaluated expression value.
- If there are keyframes, returns the keyframed value at the current time.
- Otherwise, returns the static value.

The type of value returned depends on the property value type. See examples for "Property object" on page 118.

Type

A value appropriate for the type of the property (see "Property propertyValueType attribute" on page 131); read-only.

Property valueAtTime() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.valueAtTime(*time, preExpression*)

Description

The value of the named property as evaluated at the specified time.

Note that the type of value returned is not made explicit; it will be of a different type, depending on the property evaluated.

Parameters

time	The time in seconds; a floating-point value. The beginning of the composition is 0.
preExpression	If the property has an expression and this is true, return the value for the specified time without applying the expression to it. When false, return the result of evaluating the expression for the specified time. Ignored if the property does not have an associated expression.

Returns

A value appropriate for the type of the property (see "Property propertyValueType attribute" on page 131).

PropertyBase object

app.project.item(*index*).layer(*index*).*propertySpec*

Description

Properties are accessed by name through layers, using various kinds of expression syntax, as controlled by application preferences. For example, the following are all ways of access properties in the Effects group:

```
var effect1 = app.project.item(1).layer(1).effect("Add Grain")("Viewing Mode");
var effect1again = app.project.item(1).layer(1).effect.addGrain.viewingMode;
var effect1againtoo = app.project.item(1).layer(1)("Effects").addGrain.viewingMode;
var effect1againtoo2 = app.project.item(1).layer(1)("Effects")("Add Grain")("Viewing Mode");
```

See also “PropertyGroup property() method” on page 149.

- PropertyBase is the base class for both Property and PropertyGroup, so PropertyBase attributes and methods are available when working with properties and property groups. See “Property object” on page 118 and “PropertyGroup object” on page 147.

Reference invalidation

When something occurs that changes an object sufficiently for the reference to become invalid, script references to that object can generate errors. In simple cases this is straightforward. For example, if you delete an object, a reference to the deleted object generates the warning "Object is Invalid":

```
var layer1 = app.project.item(1).layer(1);
layer1.remove();
alert(layer1.name); // invalid reference to deleted object
```

Similarly, if you reference an AE property in a deleted object, the warning occurs:

```
var layer1 = app.project.item(1).layer(1);
var layer1position = layer1.transform.position;
layer1.remove();
alert(layer1position.value); // invalid reference to property in selected object
```

A less straightforward case is when a property is removed from a property group. In this case, After Effects generates the "Object is Invalid" error when you subsequently reference that item or other items in the group, because their index positions have changed. For example:

```
var effect1 = app.project.item(1).layer(1).effect(1);
var effect2 = app.project.item(1).layer(1).effect(2);
var effect2param = app.project.item(1).layer(1).effect(2).blendWithOriginal;
effect1.remove();
alert(effect2.name); // invalid reference because group index positions have changed
```

Attributes

Attribute	Reference	Description
name	“PropertyBase name attribute” on page 144	Name of the property.
matchName	“PropertyBase matchName attribute” on page 143	A special name for the property used to build unique naming paths.

Attribute	Reference	Description
propertyIndex	"PropertyBase propertyIndex attribute" on page 145	Index of this property within its parent group.
propertyDepth	"PropertyBase propertyDepth attribute" on page 144	The number of levels of parent groups between this property and the containing layer.
propertyType	"PropertyBase propertyType attribute" on page 145	The property type.
parentProperty	"PropertyBase parentProperty attribute" on page 144	The immediate parent group of this property.
isModified	"PropertyBase isModified attribute" on page 143	When true, the property has been changed since its creation.
canSetEnabled	"PropertyBase canSetEnabled attribute" on page 142	When true, the user interface displays an eyeball icon for this property.
enabled	"PropertyBase enabled attribute" on page 143	When true, this property is enabled.
active	"PropertyBase active attribute" on page 141	When true, this property is active.
elided	"PropertyBase elided attribute" on page 142	When true, this property is not displayed in the user interface.
isEffect	"PropertyBase isEffect attribute" on page 143	When true, this property is an effect.
isMask	"PropertyBase isMask attribute" on page 143	When true, this property is a mask.
selected	"PropertyBase selected attribute" on page 146	When true, this property is selected.

Methods

Method	Reference	Description
propertyGroup()	"PropertyBase propertyGroup() method" on page 145	Gets the parent group for this property.
remove()	"PropertyBase remove() method" on page 146	Removes this from the project.
moveTo()	"PropertyBase moveTo() method" on page 144	Moves this property to a new position in its parent group.
duplicate()	"PropertyBase duplicate() method" on page 142	Duplicates this property object.

PropertyBase active attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.active

Description

When true, this property is active. For a layer, this corresponds to the setting of the eyeball icon. For an effect and all properties, it is the same as the enabled attribute.

Type

Boolean; read/write if canSetEnabled is true, read-only if canSetEnabled is false.

PropertyBase canSetEnabled attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.canSetEnabled

Description

When true, you can set the enabled attribute value. Generally, this is true if the user interface displays an eyeball icon for this property; it is true for all layers.

Type

Boolean; read-only.

PropertyBase duplicate() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.duplicate()

Description

If this property is a child of an indexed group, creates and returns a new PropertyBase object with the same attribute values as this one.

If this property is not a child of an indexed group, the method generates an exception and displays an error.

An indexed group has the type PropertyType.INDEXED_GROUP; see "PropertyBase propertyType attribute" on page 145.

Parameters

None.

Returns

PropertyBase object.

PropertyBase elided attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.elided

Description

When true, this property is a group used to organize other properties. The property is not displayed in the user interface and its child properties are not indented in the Timeline panel.

For example, for a text layer with two animators and no properties twirled down, you might see:

```
Text
Path Options
More Options
Animator 1
Animator 2
```

In this example, "Animator 1" and "Animator 2" are contained in a PropertyBase called "Text Animators." This parent group is not displayed in the user interface, and so the two child properties are not indented in the Timeline panel.

Type

Boolean; read-only.

PropertyBase enabled attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.enabled

Description

When true, this property is enabled. It corresponds to the setting of the eyeball icon, if there is one; otherwise, the default is true.

Type

Boolean; read/write if canSetEnabled is true, read-only if canSetEnabled is false.

PropertyBase isEffect attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.isEffect

Description

When true, this property is an effect PropertyGroup.

Type

Boolean; read-only.

PropertyBase isMask attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.isMask

Description

When true, this property is a mask PropertyGroup.

Type

Boolean; read-only.

PropertyBase isModified attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.isModified

Description

When true, this property has been changed since its creation.

Type

Boolean; read-only.

PropertyBase matchName attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.matchName

Description

A special name for the property used to build unique naming paths. The match name is not displayed, but you can refer to it in scripts. Every property has a unique match-name identifier. Match names are stable from version to version regardless of the display name (the name attribute value) or any changes to the application. Unlike the display name, it is not localized.

An indexed group may not have a name value, but always has a matchName value. (An indexed group has the type PropertyType.INDEXED_GROUP; see "PropertyBase propertyType attribute" on page 145.)

Type

String; read-only.

PropertyBase moveTo() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.moveTo(*newIndex*)

Description

Moves this property to a new position in its parent property group.

This method is valid only for children of indexed groups; if it is not, or if the index value is not valid, the method generates an exception and displays an error. (An indexed group has the type PropertyType.INDEXED_GROUP; see "PropertyBase propertyType attribute" on page 145.)

Parameters

newIndex	The new index position at which to place this property in its group. An integer.

Returns

Nothing.

PropertyBase name attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.name

Description

The display name of the property. (Compare "PropertyBase matchName attribute" on page 143.)

It is an error to set the name value if the property is not a child of an indexed group (that is, a property group that has the type PropertyType.INDEXED_GROUP; see "PropertyBase propertyType attribute" on page 145).

Type

String; read/write for a child of an indexed group; otherwise read-only.

PropertyBase parentProperty attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.parentProperty

Description

The property group that is the immediate parent of this property, or null if this PropertyBase is a layer.

Type

PropertyGroup object or null; read-only.

PropertyBase propertyDepth attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.propertyDepth

Description

The number of levels of parent groups between this property and the containing layer. The value 0 for a layer.

Type

Integer; read-only.

PropertyBase propertyGroup() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.propertyGroup()
app.project.item*(index)*.layer*(index)*.*propertySpec*.propertyGroup(*countUp*)

Description

Gets the PropertyGroup object for an ancestor group of this property at a specified level of the parent-child hierarchy.

Parameters

countUp	Optional. The number of levels to ascend within the parent-child hierarchy. An integer in the range [1..propertyDepth]. Default is 1, which gets the immediate parent.

Returns

PropertyGroup object, or null if the count reaches the containing layer.

PropertyBase propertyIndex attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.propertyIndex

Description

The position index of this property within its parent group, if it is a child of an indexed group (a property group that has the type PropertyType.INDEXED_GROUP; see "PropertyBase propertyType attribute" on page 145).

Type

Integer; read-only.

PropertyBase propertyType attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.propertyType

Description

The type of this property.

Type

A PropertyType enumerated value; read/write. One of:

PropertyType.PROPERTY	A single property such as position or zoom.
PropertyType.INDEXED_GROUP	A property group whose members have an editable name and an index. Effects and masks are indexed groups. For example, the masks property of a layer refers to a variable number of individual masks by index number.

PropertyType.NAMED_GROUP	A property group in which the member names are not editable. Layers are named groups.

PropertyBase remove() method

app.project.item*(index)*.layer*(index)*.*propertySpec*.remove()

Description

Removes this property from its parent group. If this is a property group, it removes the child properties as well.

This method is valid only for children of indexed groups; if it is not, or if the index value is not valid, the method generates an exception and displays an error. (An indexed group has the type PropertyType.INDEXED_GROUP; see "PropertyBase propertyType attribute" on page 145.)

This method can be called on a text animation property (that is, any animator that has been set to a text layer).

Parameters

None.

Returns

Nothing.

PropertyBase selected attribute

app.project.item*(index)*.layer*(index)*.*propertySpec*.selected

Description

When true, this property is selected. Set to true to select the property, or to false to deselect it.

Sampling this attribute repeatedly for a large number of properties can slow down system performance. To read the full set of selected properties of a composition or layer, use the selectedProperties attribute of a Comp or Layer object.

Type

Boolean; read/write for an effect or mask property group, otherwise read-only.

PropertyGroup object

app.project.item(*index*).layer(*index*).*propertyGroupSpec*

Description

The PropertyGroup object represents a group of properties. It can contain Property objects and other PropertyGroup objects. Property groups can be nested to provide a parent-child hierarchy, with a Layer object at the top (root) down to a single Property object, such as the mask feather of the third mask. To traverse the group hierarchy, use PropertyBase methods and attributes; see "PropertyBase propertyGroup() method" on page 145.

For examples of how to access properties and property groups, see "PropertyBase object" on page 140.

- PropertyGroup is a subclass of PropertyBase. All methods and attributes of PropertyBase, in addition to those listed below, are available when working with PropertyGroup. See "PropertyBase object" on page 140.
- PropertyGroup is a base class for MaskPropertyGroup. PropertyGroup attributes and methods are available when working with mask groups. See "MaskPropertyGroup object" on page 102.

Attributes

Attribute	Reference	Description
numProperties	"PropertyGroup numProperties attribute" on page 148	The number of indexed properties in the group.

Methods

Method	Reference	Description
property()	"PropertyGroup property() method" on page 149	Gets a member property or group.
canAddProperty()	"PropertyGroup canAddProperty() method" on page 148	Reports whether a property can be added to the group.
addProperty()	"PropertyGroup addProperty() method" on page 147	Adds a property to the group.

PropertyGroup addProperty() method

app.project.item*(index)*.layer*(index)*.*propertyGroupSpec*.addProperty(*name*)

Description

Creates and returns a PropertyBase object with the specified name, and adds it to this group.

In general, you can only add properties to an indexed group (a property group that has the type PropertyType.INDEXED_GROUP; see "PropertyBase propertyType attribute" on page 145) The only exception is a text animator property, which can be added to a named group (a property group that has the type PropertyType.NAMED_GROUP).

If this method cannot create a property with the specified name, it generates an exception. To check that you can add a particular property to this group, call canAddProperty before calling this method. (See "PropertyGroup canAddProperty() method" on page 148.)

Parameters

name	The display name or match name of the property to add. (See "PropertyBase matchName attribute" on page 143). The following names are supported: • Any match name for a property that can be added through the user interface. For example, "ADBE Mask Atom", "ADBE Paint Atom", "ADBE Text Position", "ADBE Text Anchor Point". • When adding to an ADBE Mask Parade: "ADBE Mask Atom", "Mask". • When adding to an ADBE Effect Parade, any effect by match name, such as "ADBE Bulge", "ADBE Glo2", "APC Vegas". • Any effect by display name, such as "Bulge", "Glow", "Vegas". • For text animators, "ADBE Text Animator". • For selectors, Range Selector has the name "ADBE Text Selector", Wiggly Selector has the name "ADBE Text Wiggly Selector", and Expression Selector has the name "ADBE Text Expressible Selector".

Returns

PropertyBase object.

PropertyGroup canAddProperty() method

app.project.item*(index)*.layer*(index)*.*propertyGroupSpec*.canAddProperty(*name*)

Description

Returns true if a property with the given name can be added to this property group. For example, you can only add mask to a mask group. The only legal input arguments are "mask" or "ADBE Mask Atom".

```
maskGroup.canAddProperty("mask"); //returns true
maskGroup.canAddProperty("ADBE Mask Atom"); //returns true
maskGroup.canAddProperty("blend"); // returns false
```

Parameters

name	The display name or match name of the property to be checked. (See "PropertyGroup addProperty() method" on page 147).

Returns

Boolean.

PropertyGroup numProperties attribute

app.project.item*(index)*.layer*(index)*.*propertyGroupSpec*.numProperties

Description

The number of indexed properties in this group.

For layers, this method returns a value of 3, corresponding to the mask, effect, and motion tracker groups, which are the indexed groups within the layer. However, layers also have many other properties available only by name; see the "PropertyGroup property() method" on page 149.

Type

Integer; read-only.

PropertyGroup property() method

app.project.item*(index)*.layer*(index)*.*propertyGroupSpec*.property*(index)*
app.project.item*(index)*.layer*(index)*.*propertyGroupSpec*.property*(name)*

Description

Finds and returns a child property of this group, as specified by either its index or name.

A name specification can use the same syntax that is available with expressions. The following are all allowed and are equivalent:

```
mylayer.position
mylayer("position")
mylayer.property("position")
mylayer(1)
mylayer.property(1)
```

Some properties of a layer, such as position and zoom, can be accessed only by name.

When using the name to find a property that is multiple levels down, you must make more than one call to this method. For example, the following call searches two levels down, and returns the first mask in the mask group:

```
myLayer.property("ADBE Masks").property(1)
```

Parameters

index	The index for the child property, in this is an indexed group. An integer in the range [0..numProperties].

name	The name of the child property. This can be: • Any match name • Any name in expression "parenthesis style" syntax, meaning the display name or the compact English name • Any name in expression "intercap style" syntax For supported property names, see the table below.

Returns

PropertyBase object or null if no child property with the specified string name is found.

Properties accessible by name

From any Layer	• "ADBE Mask Parade", or "Masks" • "ADBE Effect Parade", or "Effects" • "ADBE MTrackers", or "Motion Trackers"

From an AVLayer	• "Anchor Point" or "anchorPoint" • "Position" or "position" • "Scale" or "scale" • "Rotation" or "rotation" • "Z Rotation" or "zRotation" or "Rotation Z" or "rotationZ" • "Opacity" or "opacity" • "Marker" or "marker"
From an AVLayer with a non-still source	• "Time Remap" or "timeRemapEnabled"
From an AVLayer with an audio component	• "Audio Levels" or "audioLevels"
From a camera layer	• "Zoom" or "zoom" • "Depth of Field" or "depthOfField" • "Focus Distance" or "focusDistance" • "Aperture" or "aperture" • "Blur Level" or "blurLevel"
From a light layer	• "Intensity" or "intensity" • "Color" or "color" • "Cone Angle" or "coneAngle" • "Cone Feather" or "coneFeather" • "Shadow Darkness" or "shadowDarkness" • "Shadow Diffusion" or "shadowDiffusion" • "Casts Shadows" or "castsShadows"
From a 3D layer	• "Accepts Shadows" or "acceptsShadows" • "Accepts Lights" or "acceptsLights" • "Ambient" or "ambient" • "Diffuse" or "diffuse" • "Specular" or "specular" • "Shininess" or "shininess" • "Casts Shadows" or "castsShadows" • "Light Transmission" or "lightTransmission" • "Metal" or "metal"
From a camera, light or 3D layer	• "X Rotation" or "xRotation" or "Rotation X" or "rotationX" • "Y Rotation" or "yRotation" or "Rotation Y" or "rotationY" • "Orientation" or "orientation"
From a text layer	• "Source Text" or "sourceText" or "Text" or "text"
From a PropertyGroup "ADBE Mask Parade"	• "ADBE Mask Atom"
From a PropertyGroup "ADBE Mask Atom"	• "ADBE Mask Shape", or “maskShape” • "ADBE Mask Feather", or “maskFeather” • "ADBE Mask Opacity", or “maskOpacity” • "ADBE Mask Offset", or “maskOffset”

Examples

1 If a layer named “myLayer” has a Box Blur effect, you can retrieve the effect in any of the following ways:

```
myLayer.property(“Effects”).property(“Box Blur”);
myLayer.property(“Effects”).property(“boxBlur”);
myLayer.property(“Effects”).property(“ADBE Box Blur”);
```

2 If a layer named “myLayer” has a mask named “Mask 1” you can retrieve it as follows:

```
myLayer.property(“Masks”).property(“Mask 1”);
```

3 To get a Bulge Center value from a Bulge effect, you can use either of the following:

```
myLayer.property(“Effects”).property(“Bulge”).property(“Bulge Center”);
myLayer.property(“Effects”).property(“Bulge”).property(“bulgeCenter”);
```

RenderQueue object

app.project.renderQueue

Description

The RenderQueue object represents the render automation process, the data and functionality that is available through the Render Queue panel of a particular After Effects project. Attributes provide access to items in the render queue and their render status. Methods can start, pause, and stop the rendering process.

The RenderQueueItem object provides access to the specific settings for an item to be rendered. See "RenderQueueItem object" on page 155.

Attributes

Attribute	Reference	Description
rendering	"RenderQueue rendering attribute" on page 154	When true, a render is in progress.
numItems	"RenderQueue numItems attribute" on page 153	The total number of items in the render queue.
items	"RenderQueue items attribute" on page 153	The collection of items in the render queue.

Methods

Method	Reference	Description
showWindow()	"RenderQueue showWindow() method" on page 154	Show or hides the Render Queue panel.
render()	"RenderQueue render() method" on page 153	Starts the rendering process; does not return until render is complete.
pauseRendering()	"RenderQueue pauseRendering() method" on page 153	Pauses or restarts the rendering process.
stopRendering()	"RenderQueue stopRendering() method" on page 154	Stops the rendering process.
item()	"RenderQueue Item() method" on page 152	Gets a render-queue item from the collection.

RenderQueue Item() method

app.project.renderQueue.item(*index*)

Description

Gets a specified item from the items collection.

Parameters

index	The position index of the item. An integer in the range [0..numItems].

Returns

RenderQueueItem object.

RenderQueue items attribute

app.project.renderQueue.items

Description

A collection of all items in the render queue. See "RenderQueueItem object" on page 155.

Type

RQItemCollection object; read-only.

RenderQueue numItems attribute

app.project.renderQueue.numItems

Description

The total number of items in the render queue.

Type

Integer; read-only.

RenderQueue pauseRendering() method

app.project.renderQueue.pauseRendering(*pause*)

Description

Pauses the current rendering process, or continues a paused rendering process. This is the same as clicking Pause in the Render Queue panel during a render. You can call this method from an onStatusChanged or onError callback. See "RenderQueueItem onStatusChanged attribute" on page 157 and "Application onError attribute" on page 26.

Parameters

pause	True to pause a current render process, false to continue a paused render.

Returns

Nothing.

RenderQueue render() method

app.project.renderQueue.render()

Description

Starts the rendering process. This is the same as clicking Render in the Render Queue panel. The method does not return until the render process is complete. To pause or stop the rendering process, call pauseRendering() or stopRendering() from an onError or onStatusChanged callback.

- To respond to errors during the rendering process, define a callback function in app.onError; see "Application onError attribute" on page 26.
- To respond to changes in the status of a particular item while the render is progressing, define a callback function in RenderQueueItem.onStatusChanged in the associated RenderQueueItem object; see "RenderQueueItem onStatusChanged attribute" on page 157.

Parameters

None.

Returns

Nothing.

RenderQueue rendering attribute

app.project.renderQueue.rendering

Description

When true, the rendering process is in progress or paused. When false, it is stopped.

Type

Boolean; read-only.

RenderQueue showWindow() method

app.project.renderQueue.showWindow(*doShow*)

Description

Shows or hides the Render Queue panel.

Parameters

doShow	When true, show the Render Queue panel. When false, hide it.

Returns

Nothing.

RenderQueue stopRendering() method

app.project.renderQueue.stopRendering()

Description

Stops the rendering process. This is the same as clicking Stop in the Render Queue panel during a render. You can call this method from an onStatusChanged or onError callback. See "RenderQueueItem onStatus-Changed attribute" on page 157 and "Application onError attribute" on page 26.

Parameters

None.

Returns

Nothing.

RenderQueueItem object

app.project.renderQueue.items(*index*)

Description

The RenderQueueItem object represents an individual item in the render queue. It provides access to the specific settings for an item to be rendered. Create the object by adding a composition to the Render Queue with the RQItemCollection object; see "RQItemCollection add() method" on page 161.

Attributes

Attribute	Reference	Description
numOutputModules	"RenderQueueItem numOutputModules attribute" on page 157	The total number of Output Modules assigned to the item.
render	"RenderQueueItem render attribute" on page 158	When true, this item is rendered when the queue is started.
startTime	"RenderQueueItem startTime attribute" on page 159	The time when rendering began for the item.
elapsedSeconds	"RenderQueueItem elapsedSeconds attribute" on page 156	The time elapsed in the current rendering of this item.
timeSpanStart	"RenderQueueItem timeSpanStart attribute" on page 160	The start time in the composition to be rendered.
timeSpanDuration	"RenderQueueItem timeSpanDuration attribute" on page 160	The duration of the composition to be rendered.
skipFrames	"RenderQueueItem skipFrames attribute" on page 159	The number of frames to skip when rendering this item.
comp	"RenderQueueItem comp attribute" on page 156	The composition to be rendered by this item.
outputModules	"RenderQueueItem outputModules attribute" on page 158	The collection of Output Modules for this item.
templates	"RenderQueueItem templates attribute" on page 160	A set of Render Settings templates.
status	"RenderQueueItem status attribute" on page 159	The current rendering status of the item.
onStatusChanged	"RenderQueueItem onStatusChanged attribute" on page 157	A callback function that is called during the rendering process when the status of the item changes.
logType	"RenderQueueItem logType attribute" on page 157	A log type for this item.

Methods

Method	Reference	Description
outputModule()	"RenderQueueItem outputModule() method" on page 158	Gets an Output Module for the item.
remove()	"RenderQueueItem remove() method" on page 158	Removes the item from the render queue.
saveAsTemplate()	"RenderQueueItem saveAsTemplate() method" on page 159	Saves a new Render Settings template.

Method	Reference	Description
applyTemplate()	"RenderQueueItem applyTemplate() method" on page 156	Applies a Render Settings template.
duplicate	"RenderQueueItem duplicate() method" on page 156	Duplicates this item.

RenderQueueItem applyTemplate() method

app.project.renderQueue.item.applyTemplate(*templateName*)

Description

Applies a Render Settings template to the item. See also "RenderQueueItem saveAsTemplate() method" on page 159 and "RenderQueueItem templates attribute" on page 160.

Parameters

templateName	A string containing the name of the template to apply.

Returns

Nothing.

RenderQueueItem comp attribute

app.project.renderQueue.item*(index)*.comp

Description

The composition that will be rendered by this render-queue item. To change the composition, you must delete this render-queue item and create a new one.

Type

CompItem object; read-only.

RenderQueueItem duplicate() method

app.project.renderQueue.item*(index)*.duplicate()

Description

Creates a duplicate of this item and adds it this render queue.

Parameters

None.

Returns

RenderQueueItem object.

RenderQueueItem elapsedSeconds attribute

app.project.renderQueue.item*(index)*.elapsedSeconds

Description

The number of seconds spent rendering this item.

Type

Integer, or null if item has not been rendered; read-only.

RenderQueueItem logType attribute

app.project.renderQueue.item*(index)*.outputModule.logType

Description

A log type for this item, indicating which events should be logged while this item is being rendered.

Type

A LogType enumerated value; (read/write). One of:

LogType.ERRORS_ONLY
LogType.ERRORS_AND_SETTINGS
LogType.ERRORS_AND_PER_FRAME_INFO

RenderQueueItem numOutputModules attribute

app.project.renderQueue.item*(index)*.numOutputModules

Description

The total number of Output Modules assigned to this item.

Type

Integer; read-only.

RenderQueueItem onStatusChanged attribute

app.project.renderQueue.item*(index)*.onStatusChanged

Description

The name of a callback function that is called whenever the value of the RenderQueueItem.status attribute changes. See "RenderQueueItem status attribute" on page 159.

You cannot make changes to render queue items or to the application while rendering is in progress or paused; you can, however, use this callback to pause or stop the rendering process. See "RenderQueue pauseRendering() method" on page 153 and "RenderQueue stopRendering() method" on page 154.

See also "Application onError attribute" on page 26.

Type

A function name string, or null if no function is assigned.

Example

```
function myStatusChanged() {
  alert(app.project.renderQueue.item(1).status)
}
```

```
app.project.renderQueue.item(1).onStatusChanged = myStatusChanged();
app.project.renderQueue.item(1).render = false; //changes status and shows dialog
```

RenderQueueItem outputModules attribute

app.project.renderQueue.item*(index)*.outputModules

Description

The collection of Output Modules for the item.

Type

OMCollection object; read-only.

RenderQueueItem outputModule() method

app.project.renderQueue.item*(index)*.outputModule(*index*)

Description

Gets an output module with the specified index position.

Parameters

index	The position index of the output module. An integer in the range [1..numOutputModules].

Returns

OutputModule object.

RenderQueueItem remove() method

app.project.renderQueue.item*(index)*.remove()

Description

Removes this item from the render queue.

Parameters

None.

Returns

Nothing.

RenderQueueItem render attribute

app.project.renderQueue.item*(index)*.render

Description

When true, the item will be rendered when the render queue is started. When set to true, the RenderQueueItem.status is set to RQItemStatus.QUEUED. When set to false, status is set to RQItemStatus.UNQUEUED.

Type

Boolean; read/write.

RenderQueueItem saveAsTemplate() method

app.project.renderQueue.item*(index)*.saveAsTemplate(*name*)

Description

Saves the item's current render settings as a new template with the specified name.

Parameters

name	A string containing the name of the new template.

Returns

Nothing.

RenderQueueItem skipFrames attribute

app.project.renderQueue.item*(index)*.skipFrames

Description

The number of frames to skip when rendering this item. Use this to do rendering tests that are faster than a full render.

A value of 0 skip no frames, and results in regular rendering of all frames. A value of 1 skips every other frame. This is equivalent to "rendering on twos." Higher values skip a larger number of frames.

The total length of time remains unchanged. For example, if skip has a value of 1, a sequence output would have half the number of frames and in movie output, each frame would be double the duration.

Type

Integer in the range [0..99]. Read/write.

RenderQueueItem startTime attribute

app.project.renderQueue.item*(index)*.startTime

Description

The day and time that this item started rendering.

Type

Date object, or null if the item has not started rendering; read-only.

RenderQueueItem status attribute

app.project.renderQueue.item*(index)*.status

Description

The current render status of the item.

Type

An RQItemStatus enumerated value; read-only. One of:

RQItemStatus.WILL_CONTINUE	Rendering process has been paused.
RQItemStatus.NEEDS_OUTPUT	Item lacks a valid output path.
RQItemStatus.UNQUEUED	Item is listed in the Render Queue panel but composition is not ready to render.
RQItemStatus.QUEUED	Composition is ready to render.
RQItemStatus.RENDERING	Composition is rendering
RQItemStatus.USER_STOPPED	Rendering process was stopped by user or script.
RQItemStatus.ERR_STOPPED	Rendering process was stopped due to an error.
RQItemStatus.DONE	Rendering process for the item is complete.

RenderQueueItem templates attribute

app.project.renderQueue.item*(index)*.templates

Description

The names of all Render Settings templates available for the item. See also "RenderQueueItem saveAsTemplate() method" on page 159.

Type

Array of strings; read-only.

RenderQueueItem timeSpanDuration attribute

app.project.renderQueue.item*(index)*.timeSpanDuration

Description

The duration in seconds of the composition to be rendered. The duration is determined by subtracting the start time from the end time. Setting this value is the same as setting a custom end time in the Render Settings dialog box.

Type

Floating-point value; read/write.

RenderQueueItem timeSpanStart attribute

app.project.renderQueue.item*(index)*.timeSpanStart

Description

The time in the composition, in seconds, at which rendering will begin. Setting this value is the same as setting a custom start time in the Render Settings dialog box.

Type

Floating-point value; read/write.

RQItemCollection object

app.project.renderQueue.items

Description

The RQItemCollection contains all of the render-queue items in a project, as shown in the Render Queue panel of the project. The collection provides access to the RenderQueueItem objects, and allows you to create them from compositions. The first RenderQueueItem object in the collection is at index position 1. See "RenderQueueItem object" on page 155

- RQItemCollection is a subclass of Collection. All methods and attributes of Collection are available when working with RQItemCollection. See "Collection object" on page 51.

Methods

Method	Reference	Description
add()	"RQItemCollection add() method" on page 161	Adds a composition to the Render Queue.

RQItemCollection add() method

app.project.renderQueue.items.add(*comp*)

Description

Adds a composition to the Render Queue, creating a RenderQueueItem.

Parameters

comp	The CompItem object for the composition to be added.

Returns

RenderQueueItem object.

Settings object

Description

The Settings object provides an easy way to manage settings for scripts. The settings are saved in the After Effects preferences file and are persistent between application sessions. Settings are identified by section and key within the file, and each key name is associated with a value. In the preferences file, section names are enclosed in brackets and quotation marks, and key names are listing in quotation marks below the section name. All values are strings.

You can create new settings with this object, as well as accessing existing settings.

Methods

Method	Reference	Description
saveSetting()	"Settings saveSetting() method" on page 163	Saves a default value for a setting.
getSetting()	"Settings getSetting() method" on page 162	Retrieves a setting value.
haveSetting()	"Settings haveSetting() method" on page 162	Reports whether a specified setting is assigned.

Settings getSetting() method

app.settings.getSetting(*sectionName, keyName*)

Description

Retrieves a scripting preferences item value from the preferences file.

Parameters

sectionName	A string containing the name of a settings section
keyName	A string containing the key name of the setting item.

Returns

String.

Example

If you have saved a setting named with the key name "Aligned Clone" in the "Eraser - Paint Settings" section, you can retrieve the value with this script:

```
var n = app.settings.getSetting("Eraser - Paint Settings", "Aligned Clone");
alert("The setting is " + n);
```

Settings haveSetting() method

app.settings.haveSetting(*sectionName, keyName*)

Description

Returns true if the specified scripting preferences item exists and has a value.

Parameters

sectionName	A string containing the name of a settings section
keyName	A string containing the key name of the setting item.

Returns

Boolean.

Settings saveSetting() method

app.settings.saveSetting(*sectionName, keyName, value*)

Description

Saves a default value for a scripting preferences item.

Parameters

sectionName	A string containing the name of a settings section
keyName	A string containing the key name of the setting item.
value	A string containing the new value.

Returns

Nothing.

Shape object

app.project.item*(index)*.layer*(index)*.property*(index)*.property("maskShape").value

Description

The Shape object encapsulates information describing a shape in a shape layer, or the outline shape of a Mask. It is the value of the "Mask Path" AE properties, and of the "Path" AE property of a shape layer. Use the constructor, `new Shape()`, to create a new, empty Shape object, then set the attributes individually to define the shape.

A shape has a set of anchor points, or *vertices*, and a pair of direction handles, or *tangent vectors*, for each anchor point. A tangent vector (in a non-RotoBezier mask) determines the direction of the line that is drawn to or from an anchor point. There is one incoming tangent vector and one outgoing tangent vector associated with each vertex in the shape.

A tangent value is a pair of *x,y* coordinates specified relative to the associated vertex. For example, a tangent of [-1,-1] is located above and to the left of the vertex and has a 45 degree slope, regardless of the actual location of the vertex. The longer a handle is, the greater its influence; for example, an incoming shape segment stays closer to the vector for an `inTangent` of [-2,-2] than it does for an `inTangent` of [-1,-1], even though both of these come toward the vertex from the same direction.

If a shape is not closed, the `inTangent` for the first vertex and the `outTangent` for the final vertex are ignored. If the shape is closed, these two vectors specify the direction handles of the final connecting segment out of the final vertex and back into the first vertex.

RotoBezier masks calculate their tangents automatically. (See "MaskPropertyGroup rotoBezier attribute" on page 103.) If a shape is used in a RotoBezier mask, the tangent values are ignored. This means that, for RotoBezier masks, you can construct a shape by setting only the `vertices` attribute and setting both `inTangents` and `outTangents` to null. When you access the new shape, its tangent values are filled with the automatically-calculated tangent values.

Example: Create a square mask

A square is a closed shape with 4 vertices. The `inTangents` and `outTangents` for connected straight-line segments are 0, the default, and do not need to be explicitly set.

```
var myShape = new Shape();
myShape.vertices = [[0,0], [0,100], [100,100], [100,0]];
myShape.closed = true;
```

Example: Create a "U" shaped mask

A "U" is an open shape with the same 4 vertices used in the square:

```
var myShape = new Shape();
myShape.vertices = [[0,0], [0,100], [100,100], [100,0]];
myShape.closed = false;
```

Example: Create an oval

An oval is a closed shape with 4 vertices and with `inTangent` and `outTangent` values:

```
var myShape = new Shape();
myShape.vertices = [[300,50],[200,150],[300,250],[400,150]];
myShape.inTangents = [[55.23,0],[0,-55.23],[-55.23,0],[0,55.23]];
myShape.outTangents = [[-55.23,0],[0,55.23],[55.23,0],[0,-55.23]];
myShape.closed = true;
```

Attributes

Attribute	Reference	Description
closed	"Shape closed attribute" on page 165	When true, the shape is a closed curve.
vertices	"Shape vertices attribute" on page 166	The anchor points of the shape.
inTangents	"Shape inTangents attribute" on page 165	The tangent vectors coming into the shape vertices.
outTangents	"Shape outTangents attribute" on page 165	The tangent vectors coming out of the shape vertices.

Shape closed attribute

shapeObject.value.closed

Description

When true, the first and last vertices are connected to form a closed curve. When false, the closing segment is not drawn.

Type

Boolean; read/write.

Shape inTangents attribute

shapeObject.value.inTangents

Description

The incoming tangent vectors, or direction handles, associated with the vertices of the shape. Specify each vector as an array of two floating-point values, and collect the vectors into an array the same length as the vertices array.

Each tangent value defaults to [0,0]. When the mask shape is not RotoBezier, this results in a straight line segment.

If the shape is in a RotoBezier mask, all tangent values are ignored and the tangents are automatically calculated.

Type

Array of floating-point pair arrays; read/write.

Shape outTangents attribute

shapeObject.value.outTangents

Description

The outgoing tangent vectors, or direction handles, associated with the vertices of the shape. Specify each vector as an array of two floating-point values, and collect the vectors into an array the same length as the vertices array.

Each tangent value defaults to [0,0]. When the mask shape is not RotoBezier, this results in a straight line segment.

If the shape is in a RotoBezier mask, all tangent values are ignored and the tangents are automatically calculated.

Type

Array of floating-point pair arrays; read/write.

Shape vertices attribute

shapeObject.value.vertices

Description

The anchor points of the shape. Specify each point as an array of two floating-point values, and collect the point pairs into an array for the complete set of points. For example:

```
myShape.vertices = [[0,0], [0,1], [1,1], [1,0]];
```

Type

Array of floating-point pair arrays; read/write.

ShapeLayer object

app.project.item*(index)*.layer*(index)*

Description

The ShapeLayer object represents a shape layer within a composition. Create it using the LayerCollection object's `addShape()` method; see "LayerCollection addShape() method" on page 94. It can be accessed in an item's layer collection either by index number or by a name string.

- ShapeLayer is a subclass of AVLayer, which is a subclass of Layer. All methods and attributes of AVLayer and Layer are available when working with ShapeLayer. See "Layer object" on page 83 and "AVLayer object" on page 39.

SolidSource object

app.project.item*(index)*.mainSource
app.project.item*(index)*.proxySource

Description

The SolidSource object represents a solid-color footage source.

- SolidSource is a subclass of FootageSource. All methods and attributes of FootageSource, in addition to those listed below, are available when working with SolidSource. See "FootageSource object" on page 67.

Attributes

Attribute	Reference	Description
color	"SolidSource color attribute" on page 168	The color of the solid.

SolidSource color attribute

solidSource.color

Description

The color of the solid, expressed as red, green, and blue values.

Type

Array of three floating-point values, [R, G, B], in the range [0.0..1.0]; read/write.

System object

system

Description

The System object provides access to attributes found on the user's system, such as the user name and the name and version of the operating system. It is available through the system global variable.

Example

```
alert ("Your OS is " + system.osname + " running version " + system.osversion);
confirm("You are: " + system.userName + " running on " + system.machineName + ".");
```

Attributes

Attribute	Reference	Description
userName	"System userName attribute" on page 170	The current user name.
machineName	"System machineName attribute" on page 169	The name of the host computer.
osName	"System osName attribute" on page 170	The name of the operating system.
osVersion	"System osVersion attribute" on page 170	The version of the operating system.

Methods

Method	Reference	Description
callSystem()	"System callSystem() method" on page 169	Execute's a command on the system's command line.

System callSystem() method

system.callSystem (cmdLineToExecute);

Description

Executes a system command, as if you had typed it on the operating system's command line. Returns whatever the system outputs in response to the command, if anything.

In Windows, you can invoke commands using the /c switch for the cmd.exe command, passing the command to run in escaped quotes (\"...\"). For example, the following retrieves the current time and displays it to the user:

```
var timeStr = system.callSystem("cmd.exe /c \"time /t\"");
alert("Current time is " + timeStr);
```

Parameters

cmdLineToExecute	A string containing the command and its parameters.

Returns

The output from the command.

System machineName attribute

system.machineName

Description

The name of the computer on which After Effects is running.

Type

String; read-only.

System osName attribute

system.osName

Description

The name of the operating system on which After Effects is running.

Type

String; read-only.

System osVersion attribute

system.osVersion

Description

The version of the current local operating system.

Type

String; read-only.

System userName attribute

system.userName

Description

The name of the user currently logged on to the system.

Type

String; read-only.

TextDocument object

new TextDocument(*docText*)
app.project.item*(index)*.layer*(index)*.property("Source Text").value

Description

The TextDocument object stores a value for a TextLayer's Source Text property. Create it with the constructor, passing the string to be encapsulated.

Examples

This sets a value of some source text and displays an alert showing the new value:

```
var myTextDocument = new TextDocument("Happy Cake");
myTextLayer.property("Source Text").setValue(myTextDocument);
alert(myTextLayer.property("Source Text").value);
```

This sets keyframe values for text that show different words over time:

```
var textProp = myTextLayer.property("Source Text");
textProp.setValueAtTime(0, new TextDocument("Happy"));
textProp.setValueAtTime(.33, new TextDocument("cake"));
textProp.setValueAtTime(.66, new TextDocument("is"));
textProp.setValueAtTime(1, new TextDocument("yummy!"));
```

Attributes

Attribute	Reference	Description
text	"TextDocument text attribute" on page 171	The text layer's Source Text value.

TextDocument text attribute

textDocument.text

Description

The text value for the text layer's Source Text property.

Type

String; read/write.

TextLayer object

app.project.item*(index)*.layer*(index)*

Description

The TextLayer object represents a text layer within a composition. Create it using the LayerCollection object's addText method; see "LayerCollection addText() method" on page 95. It can be accessed in an item's layer collection either by index number or by a name string.

- TextLayer is a subclass of AVLayer, which is a subclass of Layer. All methods and attributes of AVLayer and Layer are available when working with TextLayer. See "Layer object" on page 83 and "AVLayer object" on page 39.

AE Properties

TextLayer defines no additional attributes, but has the following AE properties and property groups, in addition to those inherited from AVLayer:

Text
- Source Text
- Path Options
  - Path
  - Reverse Path
  - Perpendicular To Path
  - Force Alignment
  - First Margin
  - Last Margin
- More Options
  - Anchor Point Grouping
  - Grouping Alignment
  - Fill & Stroke
  - Inter-Character Blending
- Animators

Unused Properties and Attributes

The Time Remap and Motion Trackers properties, inherited from AVLayer, are not applicable to text layers, and their related AVLayer attributes are not used:

canSetTimeRemapEnabled
timeRemapEnabled
trackMatteType
isTrackMatte
hasTrackMatte

Examples

This section describes sample scripts that are included on your DVD, giving an overview of what they do and a description of how they work.

This set of examples is by no means exhaustive, but it does demonstrate some of scripting's more complex features in action. It also shows some typical programming constructions from JavaScript that apply to scripting.

For more examples from Adobe and from other After Effects users, visit Adobe Studio Exchange at http://share.studio.adobe.com, and choose Script in the Adobe After Effects section.

Save and increment

This script, `save_and_increment.jsx`, automatically saves a new copy of the open After Effects project and increments a three-digit number in its name to distinguish it from previous versions of the project.

Note: Although much of the functionality of this script has been superseded by the incremental save feature that was introduced in After Effects 6.5, it is still included here because it makes effective use of conditionals, functions, and the ExtendScript File object.

This script does the following:

- Determines whether the currently open project has ever been saved. If the project has not been saved, pops up an alert telling the user to save the project, and ends.
- If the project has been saved at least once before, defines variables for the name of the file and the numbering and file extension that we plan to add to it.
- Checks to see if there is an underscore character four characters from the end of the current file name. If there is, assume that the incrementer has run before and increment the current numerical string, then extract the name without the numerical extension.
- An incrementer loop tests for whether the numbering has extended to two or three digits (for example, if the numbering has reached "_010" or above, or "_100" or above), assigning a zero for each if not.
- Creates a new file using the updated name and extension, and displays an alert letting the user know the new file name being saved.
- Saves the project with the new file name.

Render named items

This script, renderNamedItems.jsx, finds compositions in the open project with a particular text string in their names and sends all such compositions to the render queue.

This script does the following:

- Checks to see if a default string for rendering has already been set in the user preferences. If so, set this as a user prompt. This is handy if you're always looking for the same string (for example, "FINAL" or "CURRENT"). If not, we set a new sectionName and keyName in the preferences file, along with a placeholder value for the string that will be entered by the user.
- Display a prompt to the user asking for a text string to use.
- Goes through the project looking for the text entered by the user, and checks if the item that contains that text is a composition. Sends all matching compositions to the render queue.
- If the user cancels, the text is undefined. Otherwise, saves the new setting in preferences, converting it to all lowercase letters for consistency (although the search is not case sensitive).
- Makes the Render Queue panel visible and bring it to the front, ready for the user to assign save locations for the new render queue items.

New render locations

This script, newRenderLocations.jsx, allows the user to select queued items in the render queue and assign a new render destination for them.

This script does the following:

- Prompts the user for a new folder to use as a render destination.
- Checks that the user entered a new location (and didn't cancel), then creates a loop for each selected render queue item, and for each output module in it.
- If an item is queued, gives the current render location a new name and location, and displays an alert stating the new file path.

Smart import

This script, smartImport.jsx, allows the user to import the full, nested contents of a folder just by selecting it. It attempts to detect whether each item is a still, moving footage, or an image sequence. The user still has to make other choices in dialog boxes, such as which layer of a multi-layer image (such as a PSD file) to import.

This script does the following:

- Prompts the user for a folder whose contents are to be imported, and checks that the user chooses a folder rather than cancelling.
- Defines a function, processFolder(), to import each of the files in the chosen folder, which uses several helper functions.
- Defines a helper function, testForSequence(), to test whether a given file is part of a sequence. This uses regular expressions, which are a special type of JavaScript designed to reduce the number of steps required to evaluate a string.

  The first one tests for the presence of sequential numbers anywhere in the file name, followed by another making certain that the sequential files aren't of a type that can't be imported as a sequence (moving image files). The function then checks adjacent files to see if a sequence exists, stopping after we've evaluated ten

files to save processing time.

If no match is found for a number string, assumes there is no image sequence and checks for an array consisting of the matched string and its location within the file name.

If all files are part of a numbered sequence, assumes a sequence and returns the first file of that sequence.

- Defines a helper function to pop up error dialog boxes if there is a problem with any file we are attempting to import.
- Defines a helper function to actually import any image sequence discovered using `testForSequence()`. There is an option for forcing alphabetical order in sequences, which is commented out in the script as written. If you want to force alphabetical order, uncomment the line `importOptions.forceAlphabetical = true`.
- Calls the main function, `processFolder()`.

Render and e-mail

This script, `render_and_email.jsx`, renders all queued items in an open project and sends an e-mail report to indicate when the render has completed. It makes use of two other scripts that follow, `email_methods.jsx` (to send the e-mail properly) and `email_setup.jsx` (which establishes the sender, recipient, and e-mail server).

This script does the following:

- Establishes conditions under which the script will run. An open project with at least one item queued is required.
- Checks whether e-mail settings are already saved in the preferences. If not, run the `email_setup.jsx` script, which prompts the user for the mail gateway and sender and recipient addresses. (If there are saved settings that you need to change, you can always run the script to make new settings that overwrite the existing ones.)
- Render the items in the render queue.
- When rendering is complete, creates a text string for the e-mail message that contains the start time of the render, the render time of each item in the queue, and the total render time.
- E-mails the message, using the settings (such as the server) from the `email_methods.jsx` script
- Displays an error if for any reason it is unable to send the mail.

A helper script, `email_methods.jsx`, creates an e-mail object, using the ExtendScript Socket object. For details of that utility, see the *Creative Suite 3 JavaScript Tools Guide*.

Another helper script, `email_setup.jsx`, prompts the user for the server name, e-mail sender, and e-mail recipient that are saved as Settings. You can run this script as standalone any time you want to change the settings. This script is a good example of how to create settings that are saved in preferences for the sole use of scripting (as opposed to altering existing After Effects preferences settings).

Convert selected properties to markers

This script, `Convert Selected Properties to Markers.jsx`, goes through the properties in each layer that are currently selected in the Timeline panel, and converts the value of each property at each frame time to a Flash Video event cue point in a marker.

This script adds a layer-time marker on the layer at the same time as each keyframe for each selected property. Each marker is associated with an event-type Flash Video cue point, and the cue point is given a parameter whose name is the name of the property and whose value is the property's value at that time. If the selected property has an expression, a marker is created for each frame, with the values sampled at each frame.

Note: This script does not convert properties that have complex value types, such as the Path property for a paint stroke, the Curves property of a Curve effect, or a gradient property.

When you render the composition as Flash video, all markers that contain cue-point data are converted to Flash Video cue points.

After Effects Object Summary

This code dump summarizes all public JavaScript objects (instantiable classes) and enumerated types defined for After Effects CS3.

```
================================================================================
AlphaMode enum
--------------------------------------------------------------------------------
 AlphaMode.IGNORE
 AlphaMode.PREMULTIPLIED
 AlphaMode.STRAIGHT
================================================================================
Application object
--------------------------------------------------------------------------------
 activate() no return
 beginSuppressDialogs() no return
 beginUndoGroup(string undoName) no return
 buildName : string : readOnly
 buildNumber : integer : readOnly
 cancelTask(integer taskID) no return
 endSuppressDialogs(boolean showAlert) no return
 endUndoGroup() no return
 endWatchFolder() no return
 exitAfterLaunchAndEval : boolean : read/write
 exitCode : integer : read/write
 findMenuCommandId() returns integer
 isProfessionalVersion : boolean : readOnly
 isRenderEngine : boolean : readOnly
 isUISuppressed : boolean : readOnly
 isWatchFolder : boolean : readOnly
 language : Language : readOnly
 memoryInUse : number : readOnly
 newProject() no return
 open([File file]) returns Project
 openTemplate(File fileToOpenWithTemplateSemantics) no return
 parseSwatchFile(File swatchFile) returns SwatchObject
 pauseWatchFolder(boolean doPause) no return
 project : Project : readOnly
 purge(PurgeTarget target) no return
 quit() no return
 saveProjectOnCrash : boolean : read/write
 scheduleTask(stringToExecute, float delay, boolean repeat) returns taskID
 setMemoryUsageLimits(float imageCachePercent, float maximumMemoryPercent) no return
 setSavePreferencesOnQuit(boolean doSave) no return
 settings : Settings : readOnly
```

```
 version : string : readOnly
 watchFolder(File file) no return
 onError(string errorString, string severity) no return
================================================================================
AVLayer object
--------------------------------------------------------------------------------
 (integer propertyIndex) returns PropertyBase
 (string propertyName) returns PropertyBase
 active : boolean : readOnly
 activeAtTime(float atTime) returns boolean
 addProperty(string propertyName) returns PropertyBase
 adjustmentLayer : boolean : read/write
 applyPreset(string presetName) no return
 audioActive : boolean : readOnly
 audioActiveAtTime(float atTime) returns boolean
 audioEnabled : boolean : read/write
 autoOrient : AutoOrientType : read/write
 blendingMode : BlendingMode : read/write
 calculateTransformFromPoints(Array [top,left], Array [top,right], Array [bottom,right])
      returns Object with transform properties set
 canAddProperty(string propertyName) returns boolean
 canSetCollapseTransformation : boolean : readOnly
 canSetEnabled : boolean : readOnly
 canSetTimeRemapEnabled : boolean : readOnly
 collapseTransformation : boolean : read/write
 comment : string : read/write
 containingComp :  CompItem  : readOnly
 copyToComp(CompItem intoComp) no return
 duplicate() returns AVLayer
 effectsActive : boolean : read/write
 elided : boolean : readOnly
 enabled : boolean : read/write
 frameBlending : boolean : readOnly
 frameBlendingType : FrameBlendingType : read/write
 guideLayer : boolean : read/write
 hasAudio : boolean : readOnly
 hasTrackMatte : boolean : readOnly
 hasVideo : boolean : readOnly
 height : float : readOnly
 inPoint : float : read/write
 index : integer : readOnly
 isEffect : boolean : readOnly
 isMask : boolean : readOnly
 isModified : boolean : readOnly
 isNameFromSource : boolean : readOnly
 isNameSet : boolean : readOnly
 isTrackMatte : boolean : readOnly
 locked : boolean : read/write
 matchName : string : readOnly
 motionBlur : boolean : read/write
 moveAfter(Layer otherLayer) no return
```

```
 moveBefore(Layer otherLayer) no return
 moveTo(integer index) no return
 moveToBeginning() no return
 moveToEnd() no return
 name : string : read/write
 nullLayer : boolean : readOnly
 numProperties : integer : readOnly
 outPoint : float : read/write
 parent : Layer : read/write
 parentProperty : PropertyGroup : readOnly
 preserveTransparency : boolean : read/write
 property(integer propertyIndex) returns PropertyBase
 property(string propertyName) returns PropertyBase
 propertyDepth : integer : readOnly
 propertyGroup([integer countUp]) returns PropertyGroup
 propertyType : PropertyType : readOnly
 quality : LayerQuality : read/write
 remove() no return
 replaceSource(Item newSource, boolean fixExpressions) no return
 selected : boolean : read/write
 selectedProperties : Array of PropertyBase: readOnly
 setParentWithJump(Layer newParent) no return
 shy : boolean : read/write
 solo : boolean : read/write
 source : AVItem : readOnly
 sourceRectAtTime(float atTime, boolean includeExtents)
      returns Object with float properties: top; left; width; height
 startTime : float : read/write
 stretch : float : read/write
 threeDLayer : boolean : read/write
 threeDPerChar : boolean : read/write
 time : float : readOnly
 timeRemapEnabled : boolean : read/write
 trackMatteType : TrackMatteType : read/write
 width : float : readOnly
================================================================================
BlendingMode enum
--------------------------------------------------------------------------------
 BlendingMode.ADD
 BlendingMode.ALPHA_ADD
 BlendingMode.CLASSIC_COLOR_BURN
 BlendingMode.CLASSIC_COLOR_DODGE
 BlendingMode.CLASSIC_DIFFERENCE
 BlendingMode.COLOR
 BlendingMode.COLOR_BURN
 BlendingMode.COLOR_DODGE
 BlendingMode.DANCING_DISSOLVE
 BlendingMode.DARKEN
 BlendingMode.DARKER_COLOR
 BlendingMode.DIFFERENCE
 BlendingMode.DISSOLVE
```

```
 BlendingMode.EXCLUSION
 BlendingMode.HARD_LIGHT
 BlendingMode.HARD_MIX
 BlendingMode.HUE
 BlendingMode.LIGHTEN
 BlendingMode.LIGHTER_COLOR
 BlendingMode.LINEAR_BURN
 BlendingMode.LINEAR_DODGE
 BlendingMode.LINEAR_LIGHT
 BlendingMode.LUMINESCENT_PREMUL
 BlendingMode.LUMINOSITY
 BlendingMode.MULTIPLY
 BlendingMode.NORMAL
 BlendingMode.OVERLAY
 BlendingMode.PIN_LIGHT
 BlendingMode.SATURATION
 BlendingMode.SCREEN
 BlendingMode.SILHOUETE_ALPHA
 BlendingMode.SILHOUETTE_LUMA
 BlendingMode.SOFT_LIGHT
 BlendingMode.STENCIL_ALPHA
 BlendingMode.STENCIL_LUMA
 BlendingMode.VIVID_LIGHT
================================================================================
CloseOptions enum
--------------------------------------------------------------------------------
 CloseOptions.DO_NOT_SAVE_CHANGES
 CloseOptions.PROMPT_TO_SAVE_CHANGES
 CloseOptions.SAVE_CHANGES
================================================================================
CompItem object
--------------------------------------------------------------------------------
 activeCamera : Layer : readOnly
 applyPreset(string presetName) no return
 bgColor : Array of float : read/write
 comment : string : read/write
 displayStartTime : float : read/write
 draft3d : boolean : read/write
 duplicate() returns CompItem
 duration : float : read/write
 footageMissing : boolean : readOnly
 frameBlending : boolean : read/write
 frameDuration : float : read/write
 frameRate : float : read/write
 hasAudio : boolean : readOnly
 hasVideo : boolean : readOnly
 height : integer : read/write
 hideShyLayers : boolean : read/write
 id : integer : readOnly
 layer(integer layerIndex) returns Layer
 layer(string layerName) returns Layer
```

```
 layer(Layer otherLayer, integer relativeIndex) returns Layer
 layers : LayerCollection: readOnly
 motionBlur : boolean : read/write
 name : string : read/write
 numLayers : integer : readOnly
 parentFolder : FolderItem : read/write
 pixelAspect : float : read/write
 preserveNestedFrameRate : boolean : read/write
 preserveNestedResolution : boolean : read/write
 proxySource : FootageSource : readOnly
 remove() no return
 renderer : string : read/write
 renderers : Array of string: readOnly
 resolutionFactor : Array of integer : read/write
 selected : boolean : read/write
 selectedLayers : Array of Layer : readOnly
 selectedProperties : Array of PropertyBase: readOnly
 setProxy(File proxyFile) no return
 setProxyToNone() no return
 setProxyWithPlaceholder(string name, integer width, integer height, float frameRate, float duration)
      no return
 setProxyWithSequence(File proxyFile, boolean forceAlphabetical) no return
 setProxyWithSolid(ArrayOfFloat color, string name, integer width, integer height,
      float pixelAspecRatio) no return
 shutterAngle : integer : read/write
 shutterPhase : integer : read/write
 time : float : read/write
 typeName : string : readOnly
 useProxy : boolean : read/write
 usedIn : Array of CompItem : readOnly
 width : integer : read/write
 workAreaDuration : float : read/write
 workAreaStart : float : read/write
================================================================================
FieldSeparationType enum
--------------------------------------------------------------------------------
 FieldSeparationType.LOWER_FIELD_FIRST
 FieldSeparationType.OFF
 FieldSeparationType.UPPER_FIELD_FIRST
================================================================================
FileSource object
--------------------------------------------------------------------------------
 alphaMode : AlphaMode : read/write
 conformFrameRate : float : read/write
 displayFrameRate : float : readOnly
 fieldSeparationType : FieldSeparationType : readOnly
 file : File : readOnly
 guessAlphaMode() no return
 guessPulldown(PulldownMethod pulldownMethod) no return
 hasAlpha : boolean : readOnly
 highQualityFieldSeparation : boolean : read/write
```

```
 invertAlpha : boolean : read/write
 isStill : boolean : readOnly
 loop : integer : read/write
 missingFootagePath : string : readOnly
 nativeFrameRate : float : readOnly
 premulColor : Array of float : read/write
 reload() no return
 removePulldown : PulldownPhase : readOnly
================================================================================
FolderItem object
--------------------------------------------------------------------------------
 comment : string : read/write
 id : integer : readOnly
 item(integer itemIndex) returns Item
 items : ItemCollection : readOnly
 name : string : read/write
 numItems : integer : readOnly
 parentFolder : FolderItem : read/write
 remove() no return
 selected : boolean : read/write
 typeName : string : readOnly
================================================================================
FootageItem object
--------------------------------------------------------------------------------
 comment : string : read/write
 duration : float : readOnly
 file : File : readOnly
 footageMissing : boolean : readOnly
 frameDuration : float : readOnly
 frameRate : float : readOnly
 hasAudio : boolean : readOnly
 hasVideo : boolean : readOnly
 height : integer : read/write
 id : integer : readOnly
 mainSource : FootageSource : readOnly
 name : string : read/write
 parentFolder : FolderItem : read/write
 pixelAspect : float : read/write
 proxySource : FootageSource : readOnly
 remove() no return
 replace(File proxyFile) no return
 replaceWithPlaceholder(string name, integer width, integer height, float frameRate, float duration)
      no return
 replaceWithSequence(File proxyFile, boolean forceAlphabetical) no return
 replaceWithSolid(ArrayOfFloat color, string name, integer width, integer height, float pixelAspecRatio)
      no return
 selected : boolean : read/write
 setProxy(File proxyFile) no return
 setProxyToNone() no return
 setProxyWithPlaceholder(string name, integer width, integer height, float frameRate, float duration)
      no return
```

```
 setProxyWithSequence(File proxyFile, boolean forceAlphabetical) no return
 setProxyWithSolid(ArrayOfFloat color, string name, integer width, integer height,
       float pixelAspecRatio) no return
 time : float : readOnly
 typeName : string : readOnly
 useProxy : boolean : read/write
 usedIn : Array of CompItem : readOnly
 width : integer : read/write
================================================================================
ImportAsType enum
--------------------------------------------------------------------------------
 ImportAsType.COMP
 ImportAsType.COMP_CROPPED_LAYERS
 ImportAsType.FOOTAGE
 ImportAsType.PROJECT
================================================================================
ImportOptions object
--------------------------------------------------------------------------------
 new ImportOptions(File fileToImport) returns ImportOptions
 canImportAs(ImportAsType asType) returns boolean
 file : File : read/write
 forceAlphabetical : boolean : read/write
 importAs : ImportAsType : read/write
 sequence : boolean : read/write
================================================================================
ItemCollection object
--------------------------------------------------------------------------------
 addComp(string name, integer width, integer height, float pixelAspectRatio, float duration,
       float frameRate) returns CompItem
 addFolder(string name) returns FolderItem
================================================================================
KeyframeEase object
--------------------------------------------------------------------------------
 new KeyframeEase(float speed, float influence) returns KeyframeEase
 influence : float : read/write
 speed : float : read/write
================================================================================
KeyframeInterpolationType enum
--------------------------------------------------------------------------------
 KeyframeInterpolationType.BEZIER
 KeyframeInterpolationType.HOLD
 KeyframeInterpolationType.LINEAR
================================================================================
Language enum
--------------------------------------------------------------------------------
 Language.ENGLISH
 Language.FRENCH
 Language.GERMAN
 Language.ITALIAN
 Language.JAPANESE
 Language.SPANISH
```

```
================================================================================
CameraLayer object
--------------------------------------------------------------------------------
 (integer propertyIndex) returns PropertyBase
 (string propertyName) returns PropertyBase
 active : boolean : readOnly
 activeAtTime(float atTime) returns boolean
 addProperty(string propertyName) returns PropertyBase
 adjustmentLayer : boolean : readOnly
 applyPreset(string presetName) no return
 autoOrient : AutoOrientType : read/write
 canAddProperty(string propertyName) returns boolean
 canSetEnabled : boolean : readOnly
 comment : string : read/write
 containingComp :  CompItem  : readOnly
 copyToComp(CompItem intoComp) no return
 duplicate() returns CameraLayer
 elided : boolean : readOnly
 enabled : boolean : read/write
 hasVideo : boolean : readOnly
 inPoint : float : read/write
 index : integer : readOnly
 isEffect : boolean : readOnly
 isMask : boolean : readOnly
 isModified : boolean : readOnly
 isNameSet : boolean : readOnly
 locked : boolean : read/write
 matchName : string : readOnly
 moveAfter(Layer otherLayer) no return
 moveBefore(Layer otherLayer) no return
 moveTo(integer index) no return
 moveToBeginning() no return
 moveToEnd() no return
 name : string : read/write
 nullLayer : boolean : readOnly
 numProperties : integer : readOnly
 outPoint : float : read/write
 parent : Layer : read/write
 parentProperty : PropertyGroup : readOnly
 property(integer propertyIndex) returns PropertyBase
 property(string propertyName) returns PropertyBase
 propertyDepth : integer : readOnly
 propertyGroup([integer countUp]) returns PropertyGroup
 propertyType : PropertyType : readOnly
 remove() no return
 selected : boolean : read/write
 selectedProperties : Array of PropertyBase: readOnly
 setParentWithJump(Layer newParent) no return
 shy : boolean : read/write
 solo : boolean : read/write
 startTime : float : read/write
```

```
 stretch : float : read/write
 time : float : readOnly
================================================================================
LayerCollection object
--------------------------------------------------------------------------------
 add(AVItem theItem,
 [float duration]) returns AVLayer
 addCamera(string name,
 ArrayOfFloat centerPoint) returns Layer
 addLight(string name,
 ArrayOfFloat centerPoint) returns Layer
 addNull([float duration]) returns AVLayer
 addShape() returns Layer
 addSolid(ArrayOfFloat color, string name, integer width, integer height, float pixelAspectRatio,
       [float duration]) returns AVLayer
 addText([TextDocument textDoc]) returns AVLayer
 addText(string text) returns AVLayer
 byName(string name) returns Layer
 precompose(ArrayOfInteger layerIndices, string name, [boolean moveAllAttributes])
      returns CompItem
================================================================================
LayerQuality enum
--------------------------------------------------------------------------------
 LayerQuality.BEST
 LayerQuality.DRAFT
 LayerQuality.WIREFRAME
================================================================================
LogType enum
--------------------------------------------------------------------------------
 LogType.ERRORS_AND_PER_FRAME_INFO
 LogType.ERRORS_AND_SETTINGS
 LogType.ERRORS_ONLY
================================================================================
MarkerValue object
--------------------------------------------------------------------------------
 new MarkerValue(string comment, [string chapter], [string url], [string frameTarget])
      returns MarkerValue
 chapter : string : read/write
 comment : string : read/write
 cuePointName : string : read/write
 eventCuePoint : boolean : read/write
 frameTarget : string : read/write
 getParameters() returns object with properties set
 setParameters(Object keyValuePairs) no return
 url : string : read/write
================================================================================
MaskMode enum
--------------------------------------------------------------------------------
 MaskMode.ADD
 MaskMode.DARKEN
 MaskMode.DIFFERENCE
```

```
 MaskMode.INTERSECT
 MaskMode.LIGHTEN
 MaskMode.NONE
 MaskMode.SUBTRACT
================================================================================
MaskMotionBlur enum
--------------------------------------------------------------------------------
 MaskMotionBlur.OFF
 MaskMotionBlur.ON
 MaskMotionBlur.SAME_AS_LAYER
================================================================================
MaskPropertyGroup object
--------------------------------------------------------------------------------
 (integer propertyIndex) returns PropertyBase
 (string propertyName) returns PropertyBase
 active : boolean : readOnly
 addProperty(string propertyName) returns PropertyBase
 canAddProperty(string propertyName) returns boolean
 canSetEnabled : boolean : readOnly
 color : Array of float : read/write
 duplicate() returns MaskPropertyGroup
 elided : boolean : readOnly
 enabled : boolean : readOnly
 inverted : boolean : read/write
 isEffect : boolean : readOnly
 isMask : boolean : readOnly
 isModified : boolean : readOnly
 locked : boolean : read/write
 maskMode : MaskMode : read/write
 maskMotionBlur : MaskMotionBlur : read/write
 matchName : string : readOnly
 moveTo(integer index) no return
 name : string : read/write
 numProperties : integer : readOnly
 parentProperty : PropertyGroup : readOnly
 property(integer propertyIndex) returns PropertyBase
 property(string propertyName) returns PropertyBase
 propertyDepth : integer : readOnly
 propertyGroup([integer countUp]) returns PropertyGroup
 propertyIndex : integer : readOnly
 propertyType : PropertyType : readOnly
 remove() no return
 rotoBezier : boolean : read/write
 selected : boolean : read/write
================================================================================
OMCollection object
--------------------------------------------------------------------------------
 add() returns OutputModule
================================================================================
OutputModule object
--------------------------------------------------------------------------------
```

```
 applyTemplate(string templateName) no return
 file : File : read/write
 name : string : readOnly
 postRenderAction : PostRenderAction : read/write
 remove() no return
 saveAsTemplate(string templateName) no return
 templates : Array of string: readOnly
================================================================================
PlaceholderSource object
--------------------------------------------------------------------------------
 alphaMode : AlphaMode : read/write
 conformFrameRate : float : read/write
 displayFrameRate : float : readOnly
 fieldSeparationType : FieldSeparationType : read/write
 guessAlphaMode() no return
 guessPulldown(PulldownMethod pulldownMethod) no return
 hasAlpha : boolean : readOnly
 highQualityFieldSeparation : boolean : read/write
 invertAlpha : boolean : read/write
 isStill : boolean : readOnly
 loop : integer : read/write
 nativeFrameRate : float : readOnly
 premulColor : Array of float : read/write
 removePulldown : PulldownPhase : read/write
================================================================================
PostRenderAction enum
--------------------------------------------------------------------------------
 PostRenderAction.IMPORT
 PostRenderAction.IMPORT_AND_REPLACE_USAGE
 PostRenderAction.NONE
 PostRenderAction.SET_PROXY
================================================================================
Project object
--------------------------------------------------------------------------------
 activeItem : Item : readOnly
 autoFixExpressions(oldText,
 newText) no return
 bitsPerChannel : integer : read/write
 close(CloseOptions closeOptions) returns boolean
 consolidateFootage() returns integer
 displayStartFrame : integer : read/write
 file : File : readOnly
 importFile(ImportOptions importOptions) returns Item
 importFileWithDialog() returns ArrayOfItem
 importPlaceholder(string itemName, integer itemWidth, integer itemHeight, float frameRate,
       float duration) returns FootageItem
 item(integer itemIndex) returns Item
 items : ItemCollection : readOnly
 linearBlending : boolean : read/write
 numItems : integer : readOnly
 reduceProject(ArrayOfItem itemsToPreserve) returns integer
```

```
 removeUnusedFootage() returns integer
 renderQueue : RenderQueue : readOnly
 rootFolder : FolderItem : readOnly
 save(File toFile) returns boolean
 saveWithDialog() returns boolean
 selection : Array of Item : readOnly
 showWindow(boolean doShow) no return
 timecodeBaseType : TimecodeBaseType : read/write
 timecodeDisplayType : TimecodeDisplayType : read/write
 timecodeFilmType : TimecodeFilmType : read/write
 timecodeNTSCDropFrame : boolean : read/write
 transparencyGridThumbnails : boolean : read/write
================================================================================
Property object
--------------------------------------------------------------------------------
 active : boolean : readOnly
 addKey(float atTime) returns integer
 canSetEnabled : boolean : readOnly
 canSetExpression : boolean : readOnly
 canVaryOverTime : boolean : readOnly
 duplicate() returns Property
 elided : boolean : readOnly
 enabled : boolean : readOnly
 expression : string : read/write
 expressionEnabled : boolean : read/write
 expressionError : string : readOnly
 hasMax : boolean : readOnly
 hasMin : boolean : readOnly
 isEffect : boolean : readOnly
 isInterpolationTypeValid(KeyframeInterpolationType type) returns boolean
 isMask : boolean : readOnly
 isModified : boolean : readOnly
 isSpatial : boolean : readOnly
 isTimeVarying : boolean : readOnly
 keyInInterpolationType(integer keyIndex) returns KeyframeInterpolationType
 keyInSpatialTangent(integer keyIndex) returns ArrayOfFloat
 keyInTemporalEase(integer keyIndex) returns ArrayOfKeyframeEase
 keyOutInterpolationType(integer keyIndex) returns KeyframeInterpolationType
 keyOutSpatialTangent(integer keyIndex) returns ArrayOfFloat
 keyOutTemporalEase(integer keyIndex) returns ArrayOfKeyframeEase
 keyRoving(integer keyIndex) returns boolean
 keySelected(integer keyIndex) returns boolean
 keySpatialAutoBezier(integer keyIndex) returns boolean
 keySpatialContinuous(integer keyIndex) returns boolean
 keyTemporalAutoBezier(integer keyIndex) returns boolean
 keyTemporalContinuous(integer keyIndex) returns boolean
 keyTime(integer keyIndex) returns float
 keyTime(string markerName) returns float
 keyValue(integer keyIndex) returns type-stored-in-property
 keyValue(string markerName) returns type-stored-in-property
 matchName : string : readOnly
```

```
 moveTo(integer index) no return
 name : string : readOnly
 nearestKeyIndex(float atTime) returns integer
 numKeys : integer : readOnly
 parentProperty : PropertyGroup : readOnly
 propertyDepth : integer : readOnly
 propertyGroup([integer countUp]) returns PropertyGroup
 propertyIndex : integer : readOnly
 propertyType : PropertyType : readOnly
 propertyValueType : PropertyValueType : readOnly
 remove() no return
 removeKey(integer keyIndex) no return
 selected : boolean : read/write
 selectedKeys : Array of integer : readOnly
 setInterpolationTypeAtKey(integer keyIndex, KeyframeInterpolationType inType,
     [KeyframeInterpolationType outType]) no return
 setRovingAtKey(integer keyIndex, boolean isRoving) no return
 setSelectedAtKey(integer keyIndex, boolean isSelected) no return
 setSpatialAutoBezierAtKey(integer keyIndex, boolean isAutoBezier) no return
 setSpatialContinuousAtKey(integer keyIndex, boolean isContinuous) no return
 setSpatialTangentsAtKey(integer keyIndex, ArrayOfFloat inTangent, [ArrayOfFloat outTangent])
     no return
 setTemporalAutoBezierAtKey(integer keyIndex, boolean isAutoBezier) no return
 setTemporalContinuousAtKey(integer keyIndex, boolean isContinuous) no return
 setTemporalEaseAtKey(integer keyIndex, ArrayOfKeyframeEase inEase,
     [ArrayOfKeyframeEase outEase]) no return
 setValue(type-stored-in-property newValue) no return
 setValueAtKey(integer keyIndex, type-stored-in-property newValue) no return
 setValueAtTime(float atTime, type-stored-in-property newValue) no return
 setValuesAtTimes(ArrayOfFloat atTimes, ArrayOf-type-stored-in-property newValues) no return
 unitsText : string : readOnly
 value : type-stored-in-property: readOnly
 valueAtTime(float atTime, bool preExpression) returns type-stored-in-property
=========================================================================
PropertyGroup object
-------------------------------------------------------------------------
 (integer propertyIndex) returns PropertyBase
 (string propertyName) returns PropertyBase
 active : boolean : readOnly
 addProperty(string propertyName) returns PropertyBase
 canAddProperty(string propertyName) returns boolean
 canSetEnabled : boolean : readOnly
 duplicate() returns PropertyGroup
 elided : boolean : readOnly
 enabled : boolean : readOnly
 isEffect : boolean : readOnly
 isMask : boolean : readOnly
 isModified : boolean : readOnly
 matchName : string : readOnly
 moveTo(integer index) no return
 name : string : readOnly
```

```
 numProperties : integer : readOnly
 parentProperty : PropertyGroup : readOnly
 property(integer propertyIndex) returns PropertyBase
 property(string propertyName) returns PropertyBase
 propertyDepth : integer : readOnly
 propertyGroup([integer countUp]) returns PropertyGroup
 propertyIndex : integer : readOnly
 propertyType : PropertyType : readOnly
 remove() no return
 selected : boolean : read/write
================================================================================
PropertyType enum
--------------------------------------------------------------------------------
 PropertyType.INDEXED_GROUP
 PropertyType.NAMED_GROUP
 PropertyType.PROPERTY
================================================================================
PropertyValueType enum
--------------------------------------------------------------------------------
 PropertyValueType.COLOR
 PropertyValueType.CUSTOM_VALUE
 PropertyValueType.LAYER_INDEX
 PropertyValueType.MARKER
 PropertyValueType.MASK_INDEX
 PropertyValueType.NO_VALUE
 PropertyValueType.OneD
 PropertyValueType.SHAPE
 PropertyValueType.TEXT_DOCUMENT
 PropertyValueType.ThreeD
 PropertyValueType.ThreeD_SPATIAL
 PropertyValueType.TwoD
 PropertyValueType.TwoD_SPATIAL
================================================================================
PulldownPhase enum
--------------------------------------------------------------------------------
 PulldownPhase.OFF
 PulldownPhase.SSWWW
 PulldownPhase.SWWWS
 PulldownPhase.SWWWW_24P_ADVANCE
 PulldownPhase.WSSWW
 PulldownPhase.WSWWW_24P_ADVANCE
 PulldownPhase.WWSSW
 PulldownPhase.WWSWW_24P_ADVANCE
 PulldownPhase.WWWSS
 PulldownPhase.WWWSW_24P_ADVANCE
 PulldownPhase.WWWWS_24P_ADVANCE
================================================================================
PulldownMethod enum
--------------------------------------------------------------------------------
 PulldownMethod.ADVANCE_24P
 PulldownMethod.PULLDOWN_3_2
```

```
================================================================================
PurgeTarget enum
--------------------------------------------------------------------------------
 PurgeTarget.ALL_CACHES
 PurgeTarget.IMAGE_CACHES
 PurgeTarget.SNAPSHOT_CACHES
 PurgeTarget.UNDO_CACHES
================================================================================
RenderQueue object
--------------------------------------------------------------------------------
 item(integer itemIndex) returns RenderQueueItem
 items : RQItemCollection : readOnly
 numItems : integer : readOnly
 pauseRendering(boolean doPause) no return
 render() no return
 rendering : boolean : readOnly
 showWindow(boolean doShow) no return
 stopRendering() no return
================================================================================
RenderQueueItem object
--------------------------------------------------------------------------------
 applyTemplate(string templateName) no return
 comp : CompItem : readOnly
 duplicate() returns RenderQueueItem
 elapsedSeconds : float : readOnly
 logType : LogType : read/write
 numOutputModules : integer : readOnly
 outputModule(integer outputModuleIndex) returns OutputModule
 outputModules : OMCollection : readOnly
 remove() no return
 render : boolean : read/write
 saveAsTemplate(string templateName) no return
 skipFrames : integer : read/write
 startTime : float : readOnly
 status : RQItemStatus : readOnly
 templates : Array of string: readOnly
 timeSpanDuration : float : read/write
 timeSpanStart : float : read/write
 onStatusChanged() no return
================================================================================
RQItemCollection object
--------------------------------------------------------------------------------
 add(CompItem compToAdd) returns RenderQueueItem
================================================================================
RQItemStatus enum
--------------------------------------------------------------------------------
 RQItemStatus.DONE
 RQItemStatus.ERR_STOPPED
 RQItemStatus.NEEDS_OUTPUT
 RQItemStatus.QUEUED
 RQItemStatus.RENDERING
```

```
 RQItemStatus.UNQUEUED
 RQItemStatus.USER_STOPPED
 RQItemStatus.WILL_CONTINUE
================================================================================
Settings object
--------------------------------------------------------------------------------
 getSetting(string sectionName, string sectionKey) returns string
 haveSetting(string sectionName, string sectionKey) returns boolean
 saveSetting(string sectionName, string sectionKey, string newValue) no return
================================================================================
Shape object
--------------------------------------------------------------------------------
 new Shape() returns Shape
 closed : boolean : read/write
 inTangents : Array of float[2] : read/write
 outTangents : Array of float[2] : read/write
 vertices : Array of float[2] : read/write
================================================================================
SolidSource object
--------------------------------------------------------------------------------
 alphaMode : AlphaMode : read/write
 color : Array of float : read/write
 conformFrameRate : float : readOnly
 displayFrameRate : float : readOnly
 fieldSeparationType : FieldSeparationType : readOnly
 guessAlphaMode() no return
 guessPulldown(PulldownMethod pulldownMethod) no return
 hasAlpha : boolean : readOnly
 highQualityFieldSeparation : boolean : readOnly
 invertAlpha : boolean : read/write
 isStill : boolean : readOnly
 loop : integer : readOnly
 nativeFrameRate : float : readOnly
 premulColor : Array of float : read/write
 removePulldown : PulldownPhase : readOnly
================================================================================
System object
--------------------------------------------------------------------------------
 callSystem(string cmdLineToExectute) returns outputOfCommandAsString
 machineName : string : readOnly
 osName : string : readOnly
 osVersion : string : readOnly
 userName : string : readOnly
================================================================================
TextDocument object
--------------------------------------------------------------------------------
 new TextDocument(string text) returns TextDocument
 text : string : read/write
================================================================================
TimecodeBaseType enum
--------------------------------------------------------------------------------
```

```
 TimecodeBaseType.AUTO
 TimecodeBaseType.FPS100
 TimecodeBaseType.FPS24
 TimecodeBaseType.FPS25
 TimecodeBaseType.FPS30
 TimecodeBaseType.FPS48
 TimecodeBaseType.FPS50
 TimecodeBaseType.FPS60
================================================================================
TimecodeDisplayType enum
--------------------------------------------------------------------------------
 TimecodeDisplayType.FEET_AND_FRAMES
 TimecodeDisplayType.FRAMES
 TimecodeDisplayType.TIMECODE
================================================================================
TimecodeFilmType enum
--------------------------------------------------------------------------------
 TimecodeFilmType.MM16
 TimecodeFilmType.MM35
================================================================================
TrackMatteType enum
--------------------------------------------------------------------------------
 TrackMatteType.ALPHA
 TrackMatteType.ALPHA_INVERTED
 TrackMatteType.LUMA
 TrackMatteType.LUMA_INVERTED
 TrackMatteType.NO_TRACK_MATTE
================================================================================
AutoOrientType enum
--------------------------------------------------------------------------------
 AutoOrientType.ALONG_PATH
 AutoOrientType.CAMERA_OR_POINT_OF_INTEREST
 AutoOrientType.NO_AUTO_ORIENT
================================================================================
FrameBlendingType enum
--------------------------------------------------------------------------------
 FrameBlendingType.FRAME_MIX
 FrameBlendingType.NO_FRAME_BLEND
 FrameBlendingType.PIXEL_MOTION
--------------------------------------------------------------------------------
```