After Effects Scripting Guide

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Introduction

CHAPTER 1

Overview

Introduction to scripting in After Effects

A script is a series of commands that tells an application to perform a series of operations. You can use scripts in most Adobe applications to automate repetitive tasks, perform complex calculations, and even use some functionality not directly exposed through the graphical user interface. For example, you can direct After Effects to reorder the layers in a composition, find and replace source text in text layers, or send an e-mail message when rendering is complete.

Although both the After Effects expressions language and the After Effects ExtendScript scripting language are based on JavaScript, the expressions features and scripting features of After Effects are separate and distinct. Expressions cannot access information from scripts (such as variables and functions). Whereas a script tells an application to do something, an expression says that a property is something. However, because the After Effects expression language and ExtendScript are both based on JavaScript, familiarity with either one is very helpful in understanding the other.

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 ExtendScript objects that have been defined for After Effects projects.

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.

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).

Nearly all of what scripting can accomplish replicates what can be done by means of the After Effects graphical user interface. A thorough knowledge of the application itself and its graphical user interface is essential to understanding how to use scripting in After Effects.

The ExtendScript language

After Effects scripts use the Adobe ExtendScript language, which is an extended form of JavaScript used by several Adobe applications, including Photoshop, Illustrator, and InDesign. ExtendScript implements the JavaScript language according to the ECMA-262 specification. 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. ExtendScript also implements the E4X ECMA-357 specification, which defines access to data in XML format.

ExtendScript defines a global debugging object, the dollar (`$`) object, and a reporting utility for ExtendScript elements, the ExtendScript Reflection interface.

File and Folder Objects: Because pathname 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).

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

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

The ExtendScript Toolkit (ESTK)

After Effects includes a script editor and debugger, the ExtendScript Toolkit (ESTK), which provides a convenient interface for creating and testing your own scripts.

To start the ESTK, choose File > Scripts > Open Script Editor.

If you choose to use another text editor to create, edit, and save scripts, be sure to choose an application that does not automatically add header information when saving files and that saves with Unicode (UTF-8) encoding. In many text editors, you can set preferences for saving with UTF-8 encoding. Some applications (such as Microsoft Word) by default add header information to files that can cause "line 0" errors in scripts, causing them to fail.

For detailed information on the ExtendScript Toolkit, see the JavaScript Tools Guide.

The .jsx and .jsxbin file-name extensions

ExtendScript script files are distinguished by the `.jsx` file-name extension, a variation on the standard `.js` extension used with 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

The default is for scripts to not be allowed to write files or send or receive communication over a network. To allow scripts to write files and communicate over a network, choose Edit > Preferences > General (Windows) or After Effects > Preferences > General (Mac OS), and select the Allow Scripts To Write Files And Access Network option.

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. The ExtendScript Toolkit (ESTK) debugger can open automatically when the application encounters a script error. This feature is disabled by default so that casual users do not encounter it. To activate this feature, choose Preferences > General, and select Enable JavaScript Debugger.

Loading and running scripts

Running scripts directly from the File > Scripts menu

When After Effects starts, it searches the Scripts folder for scripts to load. Loaded scripts are available from the File > Scripts menu.

To run a loaded script, choose File > Scripts > [script name].

If you edit a script while After Effects is running, you must save your changes for the changes to be applied. If you place a script in the Scripts folder while After Effects is running, you must restart After Effects for the script to appear in the Scripts menu, though you can immediately run the new script using the Run Script File command.

Running scripts using File > Scripts > Run Script File

To run a script that has not been loaded, choose File > Scripts > Run Script File, locate and select a script, and click Open.

Running scripts from the command line, a batch file, or an AppleScript script

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.

To run a script from the command line, call afterfx.exe from the command line. Use the `-r` switch and the full path of the script to run as arguments. This command does not open a new instance of the After Effects application; it runs the script in the existing instance.

Example (for Windows):

```
afterfx -r c:\script_path\example_script.jsx
```

You can use this command-line technique—together with the software that comes with a customizable keyboard—to bind the invocation of a script to a keyboard shortcut.

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 CS6"
    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 CS6"
    DoScript theFile
end tell
```

Note: This documentation is incorrect, the correct invocation in this instance is `DoScriptFile`

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 text of front document
end tell

tell application "Adobe After Effects CS6" activate
    DoScript the_script
end tell
```

Running scripts automatically during application startup or shutdown

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* 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

Running scripts from the Window menu

Scripts in the ScriptUI Panels folder are available from the bottom of the Window menu. If a script has been written to provide a user interface in a dockable panel, the script should be put in the ScriptUI folder. ScriptUI panels work much the same as the default panels in the After Effects user interface.

Instead of creating a Window object and 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");
```

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);
```

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);
```

Stopping a running script

A script can be stopped by pressing Esc or Cmd+period (in Mac OS) when the After Effects or the script's user interface has focus. However, a script that is busy processing a lot of data might not be very responsive.

CHAPTER 2

Changelog

What's new and changed for scripting?

After Effects 14.2.1 (CC 2017.2)

- Buttons in ScriptUI panels have been reverted to the rectangular appearance seen in After Effects 14.1 and previous releases.
- The *AVItem.setProxyToNone()* scripting method no longer fails with an error message, "After Effects error: AEGP trying to add invalid footage".
- The *System.callSystem()* scripting method now waits for all tasks called by the command to complete, instead of failing when the command takes a long time to complete.

After Effects 14.2 (CC 2017.1)

- **Scripting Access to text leading**
  - Added: *TextDocument.leading*
- **Scripting Access to Team Projects (Beta)**
  - Added: *Project.newTeamProject()*
  - Added: *Project.openTeamProject()*
  - Added: *Project.shareTeamProject()*
  - Added: *Project.syncTeamProject()*
  - Added: *Project.closeTeamProject()*

  - Added: *Project.convertTeamProjectToProject()*
  - Added: *Project.listTeamProjects()*
  - Added: *Project.isTeamProjectOpen()*
  - Added: *Project.isAnyTeamProjectOpen()*
  - Added: *Project.isTeamProjectEnabled()*
  - Added: *Project.isLoggedInToTeamProject()*
  - Added: *Project.isSyncCommandEnabled()*
  - Added: *Project.isShareCommandEnabled()*
  - Added: *Project.isResolveCommandEnabled()*
  - Added: *Project.resolveConflict()*
- Drop-down menus in ScriptUI panels are no longer clipped on HiDPI displays on Windows.
- The appearance of buttons, sliders, disclosure triangles ("twirly arrow"), scroll bar, progress bar, radio buttons, and checkboxes in ScriptUI embedded panels have been updated to match the appearance of After Effects native controls.
- After Effects no longer crashes when the *TextDocument.compPointToSource()* scripting method is used with a 3D text layer.
- The match name of the Fast Box Blur effect is "ADBE Box Blur2". The older match name "ADBE Box Blur" will continue to work: when used to add the effect, "ADBE Box Blur" will apply the Fast Box Blur effect, but with the older name "Box Blur"; the Iterations parameter will be set to the new default of 3.

After Effects 14.0 (CC 2017)

- **Scripting Access to Tools**
  - Added: *Project.toolType*
- **Scripting Access to Composition Markers**
  - Added: *CompItem.markerProperty*
- **Scripting Access to Queue in AME**
  - Added: *RenderQueue.queueInAME()*
- **Scripting Access to Available GPU Acceleration Options**
  - Added: *app.availableGPUAccelTypes*

After Effects 13.8 (CC 2015.3)

- **Enable GPU effect rendering via scripting**
  - Added: *Project.gpuAccelType*
- New Gaussian Blur effect added w/ matchname `ADBE Gaussian Blur 2`

After Effects 13.6 (CC 2015)

- **Scripting access to text baselines**
  - Added: *baselineLocs*
- **New scripting method to generate random numbers**
  - Added: *generateRandomNumber()*
- Using the *copyToComp()* scripting method no longer causes After Effects to crash when the layer has a parent.
- The *valueAtTime()* scripting method now waits for time-intensive expressions, like `sampleImage`, to finish evaluating before it returns the result.
- ScriptUI panels now display and resize correctly on high-DPI displays on Windows.
- After Effects no longer crashes when you click OK or Cancel buttons in a scriptUI dialog with tabbed panels.

After Effects 13.2 (CC 2014.2)

- **Scripting improvements for text layers (read-only)**
  - **Returns boolean value:**
    - Added: *fauxBold*
    - Added: *fauxItalic*
    - Added: *allCaps*
    - Added: *smallCaps*
    - Added: *superscript*
    - Added: *subscript*
  - **Returns float:**
    - Added: *verticalScale*
    - Added: *horizontalScale*
    - Added: *baselineShift*
    - Added: *tsume*
  - **Returns array of ([X,Y]) position coordinates (paragraph text layers only):**
    - Added: *boxTextPos*
    - Added: *sourcePointToComp()*
    - Added: *compPointToSource()*

After Effects 13.1 (CC 2014.1)

- **Scripting improvements for text layers (read-only)**
  - **returns string:**
    - Added: *fontLocation*
    - Added: *fontStyle*
    - Added: *fontFamily*
- "Use Legacy UI" toggle implemented

After Effects 13.0 (CC 2014)

- **Scripting access to render settings and output module settings**
  - Added: RenderQueueItem object *getSetting*, *setSetting* methods
  - Added: RenderQueueItem object *getSettings*, *setSettings* methods
  - Added: OutputModule object *getSetting*, *setSetting* methods
  - Added: OutputModule object *getSettings*, *setSettings* methods
- Fetch project item by id: *Project.itemByID()*
- CEP panels implemented

After Effects 12.0 (CC)

- **Access to effect's internal version string**
  - Added: Application effects object's version attribute, see *app.effects*
- **Ability to get and set preview mode**
  - Added: *Viewer.fastPreview*
- Access to layer sampling method (see *samplingQuality*)
- Changed preference and settings methods (see *Settings object*)
- ScriptUI is now based on the same controls as the main application.

CHAPTER 3

Elements of basic JavaScript relevant to After Effects scripting

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.

Keywords and Statement Syntax

Keyword/Statement	Description
`break`	Standard JavaScript; exit the currently executing loop.
`continue`	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.
`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 legalvalue.
`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...whileloop, 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.

Description of Operators

Operators	Description
`new`	Allocate object.
`delete`	Deallocate object.
`type`	of 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.

Continued on next page

Table 3.1 – continued from previous page

Operators	Description
!	Logical NOT.
*	Multiply.
/	Divide.
%	Modulo division.
+	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.

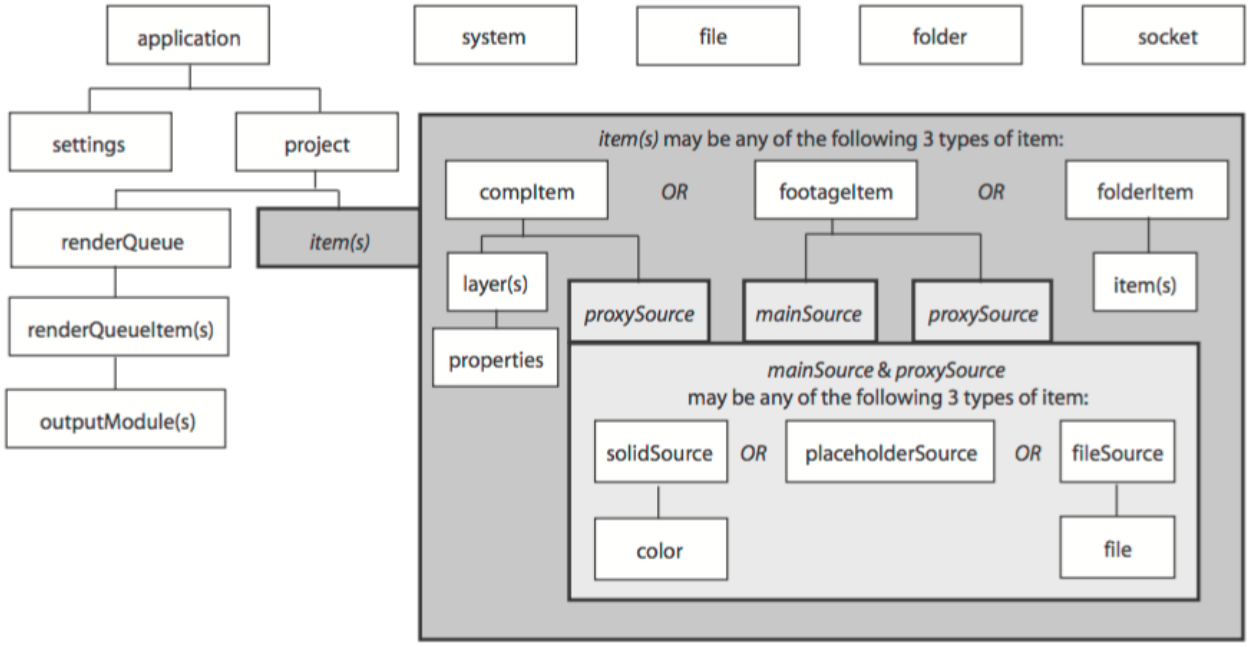
Operator Precedence

Operators (highest precedence to lowest)	Associativity
[], (), .	left to right
new, delete, - (unary negation), !, type of, void , ++, –	right to left
*, /, %	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

CHAPTER 4

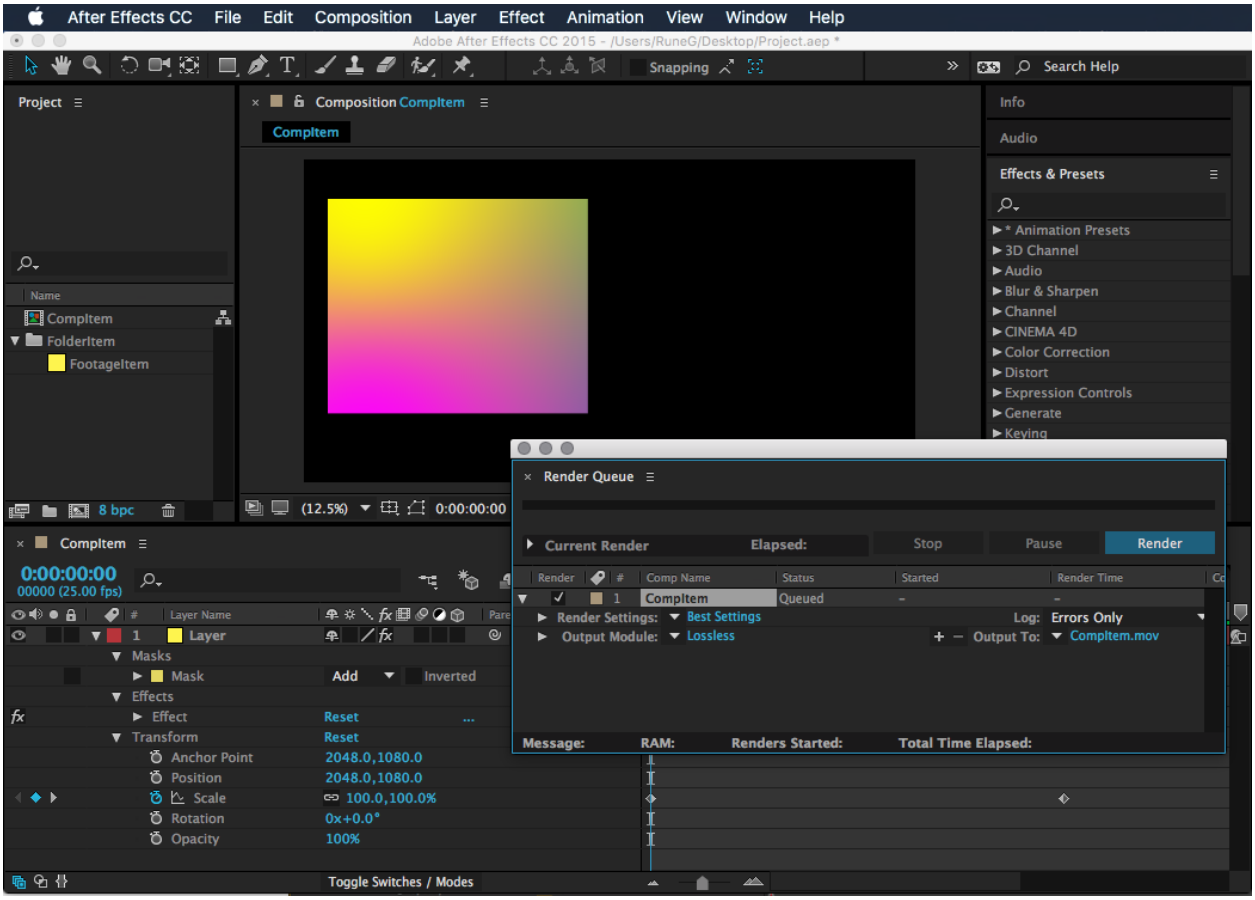
The After Effects Object Model

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 renderqueue 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	Globally available functions that allow you to display text for script debugging purposes, and help conv
Application object	A single global object, available by its name (app), that provides access to objects and application settin
AVItem object	Represents audio/visual files imported into After Effects.
AVLayer object	Represents those layers that contain AVItem objects (composition layers, footage layers, solid layers, te
CameraLayer object	Represents a camera layer within a composition.
Collection object	Associates a set of objects or values as a logical group and provides access to them by index.
CompItem object	Represents a composition, and allows you to manipulate it and get information about it.
FileSource object	Describes footage that comes from a file.
FolderItem object	Represents a folder in the Project panel.

Table 4.1 – continued from previous page

Object	Description
FootageItem object	Represents a footage item imported into a project, which appears in the Project panel.
FootageSource object	Describes the file source of some footage.
ImportOptions object	Encapsulates options for importing files into After Effects.
Item object	Represents an item in a project that appears in the Project panel.
ItemCollection object	Collects items in a project.
KeyframeEase object	Encapsulates keyframe ease values in an After Effects property.
Layer object	A base class for layer classes.
LayerCollection object	Collects layers in a project.
LightLayer object	Represents a light layer within a composition.
MarkerValue object	Encapsulates marker values in an After Effects property.
MaskPropertyGroup object	Encapsulates mask attributes in a layer.
OMCollection object	Collects output modules in a render queue.
OutputModule object	Represents an output module for a render queue.
PlaceholderSource object	Describes a placeholder for footage.
Project object	Represents an After Effects project.
Property object	Represents an After Effects property.
PropertyBase object	A base class for After Effects property and property group classes.
PropertyGroup object	Represents an After Effects property group.
RenderQueue object	Represents the After Effects render queue.
RenderQueueItem object	Represents a renderable item in a render queue.
RenderQueueItem object	Collects render-queue items in a render queue.
RQItemCollection object	Provides access to application settings and preferences.
Shape object	Encapsulates the outline shape information for a mask.
ShapeLayer object	Represents a shape layer within a composition.
SolidSource object	Describes a solid color that is the source of some footage.
System object	Provides access to the operating system from the application.
TextDocument object	Encapsulates the text in a text layer.
TextLayer object	Represents a text layer within a composition.
Viewer object	Represents a Composition, Layer, or Footage panel.

CHAPTER 5

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, to convert numeric time values to and from string values, or to generate a random number.

Global function	Description
`clearOutput()`	Clears text from the Info panel.
`currentFormatToTime()`	Converts string time value to a numeric time value.
`generateRandomNumber()`	Generates a random number.
`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.
`isValid()`	When true, the specified object exists.

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 JavaScript Tools Guide (available from the ExtendScript Toolkit's Help menu).

clearOutput()

`clearOutput()`

Description

Clears the output in the Info panel.

Parameters

None.

Returns

Nothing.

currentFormatToTime()

```
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*).

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.

generateRandomNumber()

```
generateRandomNumber()
```

Note: This functionality was added in After Effects 13.6 (CC 2015)

Description

Generates random numbers. This function is recommended instead of `Math.random` for generating random numbers that will be applied as values in a project (e.g., when using setValue).

This method avoids a problem where `Math.random` would not return random values in After Effects CC 2015 (13.5.x) due to a concurrency issue with multiple CPU threads.

Returns

Floating-point, pseudo-random number in the range [0, 1].

Example

```
// change the position X of all layers with random number

var myComp = app.project.activeItem;
var x = 0;

for (var i = 1; i <= myComp.numLayers; i++) {
    // If you use Math.random(), this does not work
    // x = 400*(Math.random()) - 200;
    // use new generateRandomNumber() instead

    x = 400*(generateRandomNumber()) - 200;
    currentPos = myComp.layer(i).property("Position").value;
```

```
    myComp.layer(i).property("Position").setValue([currentPos[0]+x,currentPos[1]]);
}
```

isValid()

`isValid(obj)`

Description

Determines if the specified After Effects object (e.g., composition, layer, mask, etc.) still exists. Some operations, such as *PropertyBase.moveTo()*, might invalidate existing variable assignments to related objects. This function allows you to test whether those assignments are still valid before attempting to access them.

Parameters

`obj`	The After Effects object to check for validity.

Returns

Boolean.

Example

```
var layer = app.project.activeItem.layer(1); // assume layer has three masks
alert(isValid(layer)); // displays "true"
var mask1 = layer.mask(1);
var mask2 = layer.mask(2);
var mask3 = layer.mask(3);
mask3.moveTo(1); // move the third mask to the top of the mask stack
alert(isValid(mask1)); // displays "false"; mask2 and mask3 do as well
```

timeToCurrentFormat()

`timeToCurrentFormat(time, fps[, isDuration])`

Description

Converts a numeric time value (a number of seconds) to a frame time value; that is, a formatted string thatshows which frame corresponds to that time, at the specified rate. For example, if the time is 0.5 seconds, andthe frame rate is 24 fps, the frame would be 0:00:12 (when the project is set to display as timecode). If the framerate 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).

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()

`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()

`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");
```

CHAPTER 6

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

app.activeViewer

`app.activeViewer`

Description

The Viewer object for the currently focused or active-focused viewer (Composition, Layer, or Footage) panel. Returns null if no viewers are open.

Type

Viewer object; read-only.

app.availableGPUAccelTypes

`app.availableGPUAccelTypes`

Note: This functionality was added in After Effects 14.0 (CC 2017)

Description

The Viewer object for the currently focused or active-focused viewer (Composition, Layer, or Footage) panel.

Use this in conjunction with `app.project.gpuAccelType` to set the value for Project Settings > Video Rendering and Effects > Use.

Type

Array of `GpuAccelType` enums, or null if no viewers are open; Read-only. One of:

- `CUDA`
- `Metal`
- `OPENCL`
- `SOFTWARE`

Example The following sample code checks the current computer's available GPU acceleration types, and sets it to Metal if available:

```
// app.availableGPUAccelTypes returns GPU acceleration types available on the current␣
↪system.
// You can use this to check before setting the GPU acceleration type.
{
    var newType = GpuAccelType.METAL;

    // Before trying to set, check which GPU acceleration types are available on the␣
↪current system.
    var canSet = false;
    var currentOptions = app.availableGPUAccelTypes;
    for (op in currentOptions) {
        if (currentOptions[op] == newType)
            canSet = true;
    }

    if (canSet) {
        // Set the GPU acceleration type.
        app.project.gpuAccelType = newType
    }
    else {
        alert("Metal is not available on this OS.");
    }
}
```

app.buildName

`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.

---

app.buildNumber

`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.

---

app.effects

`app.effects`

Description

The effects available in the application.

Type

Array, with each element containing the following properties; read-only:

`displayName`	String representing the localized display name of the effect as seen in the Effect menu.
`category`	String representing the localized category label as seen in the Effect menu. This can be "" for synthetic effects that aren't normally shown to the user.
`matchName`	String representing the internal unique name for the effect. This name does not change between versions of After Effects. Use this value to apply the effect.
`version`	Effect's internal version string. This value might be different than the version number the plug-in vendor decides to show in the effect's about box.

Example

```
var effectName = app.effects[12].displayName;
```

---

app.exitAfterLaunchAndEval

`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.

---

app.exitCode

`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 command 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
```

---

app.isoLanguage

`app.isoLanguage`

Description

A string indicating the locale (language and regional designations) After Effects is running.

Note: `$.locale` returns the operating system language, not the language of the After Effects application.

Type

String; read-only. Some common values include:

- `en_US` for English (United States)
- `de_DE` for German (Germany)
- `es_ES` for Spanish (Spain)
- `fr_FR` for French (France)
- `it_IT` for Italian (Italy)
- `ja_JP` for Japanese (Japan)
- `ko_KR` for Korean (Korea)

Example

```
var lang = app.isoLanguage;
if (lang == "en_US") {
  alert("After Effects is running in English.");
}
elseif (lang == "fr_FR") {
  alert("After Effects is running in French.");
}
else {
  alert("After Effects is running in English or French.");
}
```

---

app.isRenderEngine

`app.isRenderEngine`

Description

True if After Effects is running as a render engine.

Type

Boolean; read-only.

---

app.isWatchFolder

`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.

---

app.memoryInUse

`app.memoryInUse`

Description

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

Type

Number; read-only.

---

app.onError

`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()*. 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;
```

---

app.project

`app.project`

Description

The project that is currently loaded. See *Project object*.

Type

Project object; read-only.

---

app.saveProjectOnCrash

`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.

---

app.settings

`app.settings`

Description

The currently loaded settings. See *Settings object*.

Type

Settings object; read-only.

---

app.version

`app.version`

Note: This functionality was added in After Effects 12.0 (CC)

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 AfterEffects.");
```

Methods

app.activate()

`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.

---

app.beginSuppressDialogs()

```
app.beginSuppressDialogs()
```

Description

Begins suppression of script error dialog boxes in the user interface. Use *app.endSuppressDialogs()* to resume the display of error dialogs.

Parameters

None.

Returns

Nothing.

---

app.beginUndoGroup()

```
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 *app.endUndoGroup()* method to mark the end of the group.

`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 ")

Returns

Nothing.

---

app.cancelTask()

```
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.

---

app.endSuppressDialogs()

```
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 *app.beginSuppressDialogs()* has previously been called.

Parameters

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

Returns

Nothing.

---

app.endUndoGroup()

```
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.

---

app.endWatchFolder()

```
app.endWatchFolder()
```

Description

Ends Watch Folder mode.

Parameters

None.

Returns

Nothing.

See also

- *app.watchFolder()*
- *app.parseSwatchFile()*

- *app.isWatchFolder*

app.newProject()

```
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()*

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();
```

app.open()

```
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);
  }
}
```

app.parseSwatchFile()

`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 Swatch Value.
`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 SwatchValue.value`	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. When `type = "Gray"`, the `value` range is [0.0..1.0]. 0.0 is Black.

---

app.pauseWatchFolder()

`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

- *app.isWatchFolder*
- *app.watchFolder()*
- *app.endWatchFolder()*

---

app.purge()

```
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 composition/layer snapshots. • `PurgeTarget.IMAGE_CACHES` : Purges all saved image data.

Returns

Nothing.

---

app.quit()

```
app.quit()
```

Description

Quits the After Effects application.

Parameters

None.

Returns

Nothing.

---

app.scheduleTask()

```
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()*.

---

app.setMemoryUsageLimits()

```
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 32-bit Windows, 4 GB for 64-bit Windows, 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.

---

app.setSavePreferencesOnQuit()

```
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.

---

app.watchFolder()

```
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

- *app.endWatchFolder()*
- *app.parseSwatchFile()*
- *app.isWatchFolder*

CHAPTER 7

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

Project.activeItem

`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.bitsPerChannel

`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.displayStartFrame

`app.project.displayStartFrame`

Description

An alternate way of setting the Frame Count menu setting in the Project Settings dialog box to 0 or 1, and is equivalent to using the `FramesCountType.FC_START_0` or `FramesCountType.FC_START_1` enumerated values for the *framesCountType*.

Type

Integer (0 or 1); read/write.

Project.feetFramesFilmType

`app.project.feetFramesFilmType`

Description

The Use Feet + Frames menu setting in the Project Settings dialog box. Use this attribute instead of the old `timecodeFilmType` attribute.

Type

A `FeetFramesFilmType` enumerated value; read/write. One of:

- `FeetFramesFilmType.MM16`
- `FeetFramesFilmType.MM35`

Project.file

`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.footageTimecodeDisplayStartType

`app.project.footageTimecodeDisplayStartType`

Description

The Footage Start Time setting in the Project Settings dialog box, which is enabled when Timecode is selected as the time display style.

Type

A `FootageTimecodeDisplayStartType` enumerated value; read/write. One of:

- `FootageTimecodeDisplayStartType.FTCS_START_0`
- `FootageTimecodeDisplayStartType.FTCS_USE_SOURCE_MEDIA`

Project.framesCountType

`app.project.framesCountType`

Description

The Frame Count menu setting in the Project Settings dialog box.

Type

A `FramesCountType` enumerated value; read/write. One of:

- `FramesCountType.FC_START_1`
- `FramesCountType.FC_START_0`
- `FramesCountType.FC_TIMECODE_CONVERSION`

> **Warning:** Setting this attribute to `FramesCountType.FC_TIMECODE_CONVERSION` resets the `displayStartFrame` attribute to 0.

Project.framesUseFeetFrames

`app.project.framesUseFeetFrames`

Description

The Use Feet + Frames setting in the Project Settings dialog box. True if using Feet + Frames; false if using Frames.

Type

Boolean; read/write.

Project.gpuAccelType

`app.project.gpuAccelType`

Note: This functionality was added in After Effects 13.8 (CC 2015.3)

Description

Get or set the current projects GPU Acceleration option. see *app.availableGPUAccelTypes*

Type

A `GpuAccelType` enumerated value; read/write. One of:

- `GpuAccelType.CUDA`
- `GpuAccelType.Metal`
- `GpuAccelType.OPENCL`
- `GpuAccelType.SOFTWARE`

Example

The following sample code checks to see if there are queued items in the render queue, and if so queues them in AME but does not immediately start rendering:

```
// access via scripting to Project Settings -> Video Rendering and Effects -> Use

var currentGPUSettings = app.project.gpuAccelType; // returns the current value
var type_str = "";

// check the current value and alert the user

switch(currentGPUSettings) {
    case GpuAccelType.CUDA:  type_str = "CUDA"; break;
    case GpuAccelType.METAL:    type_str = "Metal"; break;
    case GpuAccelType.OPENCL:       type_str = "OpenCL"; break;
    case GpuAccelType.SOFTWARE:     type_str = "Software"; break;
    default:    type_str = "UNKNOWN"; break;
    }

alert("Your current setting is " + type_str);

// set the value to Metal

app.project.gpuAccelType = GpuAccelType.METAL;
```

Project.items

`app.project.items`

Description

All of the items in the project.

Type

ItemCollection object; read-only.

Project.linearBlending

`app.project.linearBlending`

Description

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

Type

Boolean; read/write.

Project.numItems

`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.removeUnusedFootage()

`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

`app.project.renderQueue`

Description

The renderqueue of the project.

Type

RenderQueue object; read-only.

Project.rootFolder

`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.selection

`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.timeDisplayType

`app.project.timeDisplayType`

Description

The time display style, corresponding to the Time Display Style section in the Project Settings dialog box.

Type

A `TimeDisplayType` enumerated value; read/write. One of:

- `TimeDisplayType.FRAMES`
- `TimeDisplayType.TIMECODE`

Project.toolType

`app.project.toolType`

Note: This functionality was added in After Effects 14.0 (CC 2017)

Description

Get and sets the active tool in the Tools panel.

Type

A `ToolType` enumerated value; read/write. One of:

- `ToolType.Tool_Arrow`: Selection Tool
- `ToolType.Tool_Rotate`: Rotation Tool
- `ToolType.Tool_CameraMaya`: Unified Camera Tool
- `ToolType.Tool_CameraOrbit`: Orbit Camera Tool
- `ToolType.Tool_CameraTrackXY`: Track XY Camera Tool
- `ToolType.Tool_CameraTrackZ`: Track Z Camera Tool
- `ToolType.Tool_Paintbrush`: Brush Tool
- `ToolType.Tool_CloneStamp`: Clone Stamp Tool
- `ToolType.Tool_Eraser`: Eraser Tool
- `ToolType.Tool_Hand`: Hand Tool
- `ToolType.Tool_Magnify`: Zoom Tool
- `ToolType.Tool_PanBehind`: Pan Behind (Anchor Point) Tool
- `ToolType.Tool_Rect`: Rectangle Tool
- `ToolType.Tool_RoundedRect`: Rounded Rectangle Tool
- `ToolType.Tool_Oval`: Ellipse Tool
- `ToolType.Tool_Polygon`: Polygon Tool
- `ToolType.Tool_Star`: Star Tool
- `ToolType.Tool_TextH`: Horizontal Type Tool
- `ToolType.Tool_TextV`: Vertical Type Tool
- `ToolType.Tool_Pen`: Pen Tool
- `ToolType.Tool_Feather`: Mask Feather Tool
- `ToolType.Tool_PenPlus`: Add Vertex Tool
- `ToolType.Tool_PenMinus`: Delete Vertex Tool
- `ToolType.Tool_PenConvert`: Convert Vertex Tool
- `ToolType.Tool_Pin`: Puppet Pin Tool
- `ToolType.Tool_PinStarch`: Puppet Starch Tool
- `ToolType.Tool_PinDepth`: Puppet Overlap Tool

- `ToolType.Tool_Quickselect`: Roto Brush Tool
- `ToolType.Tool_Hairbrush`: Refine Edge Tool

Examples

The following sample code checks the current tool, and if it is not the Unified Camera Tool, sets the current tool to that:

```
// Check the current tool, then set it to Unified Camera Tool (UCT).
{
    // Assume a composition is selected in the project.
    var comp = app.project.activeItem;
    if (comp instanceof CompItem) {
        // Add a camera to the current comp. (Requirement for UCT.)
        var cameraLayer = comp.layers.addCamera("Test Camera", [comp.width/2, comp.
↪height/2]);
        comp.openInViewer();

        // If the currently selected tool is not one of the camera tools, set it to␣
↪UCT.
        if (( app.project.toolType != ToolType.Tool_CameraMaya) &&
            ( app.project.toolType != ToolType.Tool_CameraOrbit ) &&
            ( app.project.toolType != ToolType.Tool_CameraTrackXY) &&
            ( app.project.toolType != ToolType.Tool_CameraTrackZ))
                app.project.toolType = ToolType.Tool_CameraMaya;
    }
}
```

The following sample code uses the new app.project.toolType attribute to create a 360? composition (environment layer and camera) from a selected footage item or composition selected in the Project panel. This script a good starting point for building VR compositions from equirectangular footage:

```
// Create a 360 VR comp from a footage item or comp selected in the Project panel.

var item = app.project.activeItem;

if (item != null && (item.typeName == "Footage" || item.typeName == "Composition")) {

    // Create a comp with the footage.
    var comp = app.project.items.addComp(item.name, item.width, item.height, item.
↪pixelAspect, item.duration, item.frameRate);
    var layers = comp.layers;
    var footageLayer = layers.add(item);

    //Apply the CC Environment effect and create a camera.
    var effect = footageLayer.Effects.addProperty("CC Environment");
    var camera = layers.addCamera("360 Camera", [item.width/2, item.height/2]);
    comp.openInViewer(); app.project.toolType = ToolType.Tool_CameraMaya;
}
else {
    alert("Select a single footage item or composition in the Project panel.");
}
```

Project.transparencyGridThumbnails

`app.project.transparencyGridThumbnails`

Description

When true, thumbnail views use the transparency checkerboard pattern.

Type

Boolean; read/write.

Project.xmpPacket

`app.project.xmpPacket`

Description

The project's XMP metadata, stored as RDF (XML-based). For more information on XMP, see the JavaScript Tools Guide.

Type

String; read/write.

Example

The following example code accesses the XMP metadata of the current project, and modifies the Label projectmetadata field.

```
var proj = app.project;

//load the XMPlibrary as an ExtendScript ExternalObject
if(ExternalObject.AdobeXMPScript == undefined){
    ExternalObject.AdobeXMPScript = new ExternalObject('lib:AdobeXMPScript');
}
var mdata = new XMPMeta(app.project.xmpPacket); //get the project's XMPmetadata
//update the Label project metadata's value
var schemaNS = XMPMeta.getNamespaceURI("xmp");
var propName = "xmp:Label";
try{
    mdata.setProperty(schemaNS, propName, "finalversion...no, really!");
}
catch(e){
    alert(e);
}
app.project.xmpPacket = mdata.serialize();
```

Methods

Project.autoFixExpressions()

`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.close()

```
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()

```
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.importFile()

`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.

Returns

FootageItem object.

Example

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

Project.importFileWithDialog()

`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 box.

Project.importPlaceholder()

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

Description

Creates and returns a new PlaceholderItem 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()

`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.itemByID()

`app.project.itemByID(id)`

Note: This functionality was added in After Effects 13.0 (CC 2014)

Description

Retrieves an item by its *Item ID*

Parameters

`id`	The ID of an item, an integer.

Returns

Item object.

Project.reduceProject()

`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.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()

```
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 box.

Parameters

None.

Returns

Boolean; true if the project was saved.

Project.showWindow()

```
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.

Team Projects

Project.newTeamProject()

```
app.project.newTeamProject(teamProjectName, description)
```

Note: This functionality was added in After Effects 14.2 (CC 2017.1)

Description

Creates a new team project.

Parameters

`teamProjectName`	Team project name, string value.
`description`	Optional. Team project description, string value.

Returns

Boolean. `True` if the team project is successfully created, `false` otherwise.

Project.openTeamProject()

```
app.project.openTeamProject(teamProjectName)
```

Note: This functionality was added in After Effects 14.2 (CC 2017.1)

Description

Opens a team project.

Parameters

`teamProjectName`	Team project name, string value.

Returns

Boolean. `True` if the team project is successfully opened, `false` otherwise.

Project.shareTeamProject()

```
app.project.shareTeamProject(comment)
```

Note: This functionality was added in After Effects 14.2 (CC 2017.1)

Description

Shares the currently open team project.

Parameters

comment	Comment, string value. Optional.

Returns

Boolean. `True` if the team project is successfully shared, `false` otherwise.

Project.syncTeamProject()

```
app.project.syncTeamProject()
```

Note: This functionality was added in After Effects 14.2 (CC 2017.1)

Description

Syncs the currently open team project.

Returns

Boolean. `True` if the team project is successfully synced, `false` otherwise.

Project.closeTeamProject()

```
app.project.closeTeamProject()
```

Note: This functionality was added in After Effects 14.2 (CC 2017.1)

Description

Closes a currently open team project.

Returns

Boolean. `True` if the team project is successfully closed, `false` otherwise.

Project.convertTeamProjectToProject()

```
app.project.convertTeamProjectToProject(project_file)
```

Note: This functionality was added in After Effects 14.2 (CC 2017.1)

Description

Converts a team project to an After Effects project on a local disk.

Parameters

project_file	File object for the local After Effects project. File extension should be either .aep or .aet (.aepx is not supported).

Returns

Boolean. `True` if the team project is successfully converted, `false` otherwise.

Project.listTeamProjects()

```
app.project.listTeamProjects()
```

Note: This functionality was added in After Effects 14.2 (CC 2017.1)

Description

Returns an array containing the name strings for all team projects available for the current user. Archived Team Projects are not included.

Returns

Array of strings.

Project.isTeamProjectOpen()

```
app.project.isTeamProjectOpen(teamProjectName)
```

Note: This functionality was added in After Effects 14.2 (CC 2017.1)

Description

Checks whether specified team project is currently open.

Parameters

`teamProjectName`	Team project name, string value.

Returns

Boolean. `True` if the specified team project is currently open, `false` otherwise.

Project.isAnyTeamProjectOpen()

```
app.project.isAnyTeamProjectOpen()
```

Note: This functionality was added in After Effects 14.2 (CC 2017.1)

Description

Checks whether any team project is currently open.

Returns

Boolean. `True` if any team project is currently open, `false` otherwise.

Project.isTeamProjectEnabled()

```
app.project.isTeamProjectEnabled()
```

Note: This functionality was added in After Effects 14.2 (CC 2017.1)

Description

Checks whether or not team projects is enabled for After Effects. (This will almost always return true.)

Returns

Boolean. `True` if team projects is currently enabled, `false` otherwise.

Project.isLoggedInToTeamProject()

```
app.project.isLoggedInToTeamProject()
```

Note: This functionality was added in After Effects 14.2 (CC 2017.1)

Description

Checks whether or not the client (After Effects) is currently logged into the team project server.

Returns

Boolean. `True` if the client (After Effects) is currently logged into the team projects server, `false` otherwise.

Project.isSyncCommandEnabled()

```
app.project.isSyncCommandEnabled()
```

Note: This functionality was added in After Effects 14.2 (CC 2017.1)

Description

Checks whether or not the Sync command is enabled.

Returns

Boolean. `True` if the team projects Sync command is enabled, `false` otherwise.

Project.isShareCommandEnabled()

```
app.project.isShareCommandEnabled()
```

Note: This functionality was added in After Effects 14.2 (CC 2017.1)

Description

Checks whether or not the Share command is enabled.

Returns

Boolean. `True` if the team projects Share command is enabled, `false` otherwise.

Project.isResolveCommandEnabled()

```
app.project.isResolveCommandEnabled()
```

Note: This functionality was added in After Effects 14.2 (CC 2017.1)

Description

Checks whether or not the Resolve command is enabled.

Returns

Boolean. `True` if the team projects Resolve command is enabled, `false` otherwise.

Project.resolveConflict()

```
app.project.resolveConflict(ResolveType)
```

Note: This functionality was added in After Effects 14.2 (CC 2017.1)

Description

Resolves a conflict between the open team project and the version on the team projects server, using the specified resolution method.

Parameters

`ResolveType`	The type of conflict resolution to use. A `ResolveType` enumerated value, one of: • `ResolveType.ACCEPT_THEIRS`: Take the shared version. The shared version replaces your version. • `ResolveType.ACCEPT_YOURS`: Keep your version of the project. The shared version is not taken. • `ResolveType.ACCEPT_THEIRS_AND_COPY`: Copy and rename your version, then take the shared version. The shared version replaces your original version

Returns

Boolean. `True` if the resolution of the specified type was successful, `false` otherwise.

CHAPTER 8

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

System.machineName

`system.machineName`

Description

The name of the computer on which After Effects is running.

Type

String; read-only.

System.osName

`system.osName`

Description

The name of the operating system on which After Effects is running.

> **Warning:** As of Windows 7, this attribute returns a blank value. Use $.os instead.

Type

String; read-only.

System.osVersion

`system.osVersion`

Description

The version of the current local operating system.

Type

String; read-only.

System.userName

`system.userName`

Description

The name of the user currently logged on to the system.

Type

String; read-only.

Methods

System.callSystem()

`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.

CHAPTER 9

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 object* and for *FolderItem object*, 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.

Example

This example gets the second item from the project and checks that it is a folder. It then removes from thefolder any top-level item that is not currently selected. It also checks to make sure that, for each item in thefolder, 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("error within AE: the parentFolder is not set correctly");
        }
        else {
            if(!curItem.selected && curItem.typeName == "Footage")
            {
                //found an unselected solid.
                curItem.remove();
```

```
            }
        }
    }
}
```

Attributes

Item.comment

`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

`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.label

`app.project.item(index).label`

Description

The label color for the item. Colors are represented by their number (0 for None, or 1 to 16 for one of the preset colors in the Labels preferences). Custom label colors cannot be set programmatically.

Type

Integer (0 to 16); read/write.

Item.name

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

Description

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

Type

String; read/write.

Item.parentFolder

`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 *ItemCollection.addFolder()* to add a new folder, and set this value to put items in the new folder.

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.selected

`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

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

Description

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

Type

String; read-only.

Methods

Item.remove()

```
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.

CHAPTER 10

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 object*. All methods and attributes of Collection, in addition to those listed below, are available when working with ItemCollection.

Methods

ItemCollection.addComp()

```
app.project.items.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()

`app.project.items.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.parentFolder* attribute

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
//comp Item'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;
}
```

CHAPTER 11

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*
>
> 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* and *FootageItem object*.

Attributes

AVItem.duration

`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

`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* and *FileSource.missingFootagePath*.

Type

Boolean; read-only.

AVItem.frameDuration

`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

`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

`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

`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

`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

`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

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

Description

The pixel aspect ratio (PAR) of the item.

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

The value you retrieve after setting may be slightly different from the value you supplied. The following table compares the value as it appears in the UI with the more accurate value returned by this attribute.

PAR in the After Effects UI	PAR returned by the pixelAspect attribute
0.91	0.90909090909091
1	1
1.5	1.5
1.09	1.09401709401709
1.21	1.21212121212121
1.33	1.33333333333333
1.46	1.45868945868946
2	2

Type

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

AVItem.proxySource

`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.time

`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. 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

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

Description

All the compositions that use this AVItem. Note that 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

`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

`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.

Methods

AVItem.setProxy()

```
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 thevalue 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 `mainSource`, 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()

```
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()

```
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()

`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()

`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.

CHAPTER 12

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 ite m collection.

> CompItem is a subclass of *AVItem object*, which is a subclass of *Item object*. All methods and attributes of AVItem and Item, in addition to those listed below, are available when working with CompItem.

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

CompItem.activeCamera

```
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

`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

`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

`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.dropFrame

`app.project.item(index).dropFrame`

Description

When true, indicates that the composition uses drop-frame timecode. When false, indicates non-drop-frame timecode. This corresponds to the setting in the Composition Settings dialog box.

Type

Boolean; read/write.

CompItem.frameBlending

`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

`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

`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.layers

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

Description

A *LayerCollection object* that contains all the Layer objects for layers in this composition.

Type

LayerCollection object; read-only.

CompItem.motionBlur

`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.motionBlurAdaptiveSampleLimit

`app.project.item(index).motionBlurAdaptiveSampleLimit`

Description

The maximum number of motion blur samples of 2D layer motion. This corresponds to the Adaptive Sample Limit setting in the Advanced tab of the Composition Settings dialog box.

Type

Integer (between 16 and 256); read/write.

CompItem.motionBlurSamplesPerFrame

`app.project.item(index).motionBlurSamplesPerFrame`

Description

The minimum number of motion blur samples per frame for Classic 3D layers, shape layers, and certain effects. This corresponds to the Samples Per Frame setting in the Advanced tab of the Composition Settings dialog box.

Type

Integer (between 2 and 64); read/write.

CompItem.numLayers

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

Description

The number of layers in the composition.

Type

Integer; read-only.

CompItem.markerProperty

`app.project.item(index).markerProperty`

Note: This functionality was added in After Effects 14.0 (CC 2017)

Description

A *PropertyGroup object* that contains all a composition's markers. Composition marker scripting has the same functionality as layer markers. See *MarkerValue object*

Type

PropertyGroup object or null; read-only.

Example

The following sample code creates a project and composition, then creates two composition markers with different properties:

```
// comp.markerProperty allows you add markers to a comp.
// It has the same functionality as layer.property("Marker")
{
    var currentProj = app.newProject();
    var comp = currentProj.items.addComp("mycomp", 1920, 1080, 1.0, 5, 29.97);
    var solidLayer = comp.layers.addSolid([1, 1, 1], "mylayer", 1920, 1080, 1.0);

    var compMarker = new MarkerValue("This is a comp marker!");
    compMarker.duration = 1; compMarker.url = "http://www.adobe.com/aftereffects";

    var compMarker2 = new MarkerValue("Another comp marker!");
    compMarker2.duration = 1;

    comp.markerProperty.setValueAtTime(1, compMarker)
    comp.markerProperty.setValueAtTime(3, compMarker2)
}
```

CompItem.openInViewer()

```
app.project.item(index).openInViewer()
```

Description

Opens the composition in a Composition panel, and moves the Composition panel to front and gives it focus.

Parameters

None.

Returns

Viewer object for the Composition panel, or null if the composition could not be opened.

CompItem.preserveNestedFrameRate

```
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

```
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

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

Description

The current rendering plug-in 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

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

Description

The available rendering plug-in 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

`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

`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

`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

`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

`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

`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

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

Description

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

Type

Floating-point; read/write.

Methods

CompItem.duplicate()

```
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.layer()

```
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 thislayer to findthe positionof the desired layer.
`relIndex`	The postion 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.

CHAPTER 13

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

FolderItem.items

`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

`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.

Methods

FolderItem.item()

`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 toplevel 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.

CHAPTER 14

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 object*, which is a subclass of *Item object*. All methods and attributes of AVItem and Item, in addition to those listed below, are available when working with FootageItem.

FootageItem.file

`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

`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*, and its three types:

- *SolidSource object*
- *FileSource object*
- *PlaceholderSource object*

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.

Type

FootageSource object; read-only.

FootageItem.openInViewer()

```
app.project.item(index).openInViewer()
```

Description

Opens the footage in a Footage panel, and moves the Footage panel to front and gives it focus.

Note: Missing and placeholder footage can be opened using this method, but cannot manually (via doubleclicking it).

Parameters

None.

Returns

Viewer object for the Footage panel, or null if the footage could not be opened.

FootageItem.replace()

```
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*) 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()

`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()

`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*) 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()

`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].

CHAPTER 15

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 object*, *LightLayer object*, and *AVLayer object*, so Layer attributes and methods are available when working with all layer types. Layers contain AE properties, in addition to their JavaScript attributes and methods. For examples of how to access properties in layers, see *PropertyBase object*.

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 = "DisabledLayer";
```

Attributes

Layer.active

`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.comment

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

Description

A descriptive comment for the layer.

Type

String; read/write.

Layer.containingComp

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

Description

The composition that contains this layer.

Type

CompItem object; read-only.

Layer.enabled

`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

`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

`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

`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

`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

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

Description

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

Type

Boolean; read/write.

Layer.name

`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

`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

`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

`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.samplingQuality

`app.project.item(index).layer(index).samplingQuality`

Note: This functionality was added in After Effects 12.0 (CC)

Description

Set/get layer sampling method (bicubic or bilinear)

Type

A `LayerSamplingQuality` enumerated value; read/write. One of:

- `LayerSamplingQuality.BICUBIC`
- `LayerSamplingQuality.BILINEAR`

Layer.selectedProperties

`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.shy

`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

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

Description

When true, the layer is soloed, otherwise false.

Type

Boolean; read/write.

Layer.startTime

`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

`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

```
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.

Methods

Layer.activeAtTime()

```
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 i n Poi nt and out Poi nt values of this layer.

Parameters

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

Returns

Boolean.

Layer.applyPreset()

```
app.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.copyToComp()

```
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 *LayerCollection object* in the target CompItem. Retrieve the copy using into `Comp.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.

Note: As of After Effects 13.6, this method no longer causes After Effects to crash when the layer has a parent.

Warning: As of After Effects 13.7 (13.6, has not been tested), if the copied layer has an effect on it and the user undoes the action, After Effects will Crash.

Tip: The scripting guide says this method copies the layer to the top of the comp. It actually copies it to above the first selected layer, or to to the top, if nothing is selected. To retrieve the copy you have to check `CompItem.selectedLayers` for the layer with the topmost index, and use `comp.layer( topmost_index_of_selected_layers - 1 )` to retrieve the layer.

Parameters

`intoComp`	The target composition, and *CompItem object*.

Returns

Nothing.

Layer.duplicate()

```
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.moveAfter()

```
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()

```
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()

```
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()

```
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.remove()

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

Description

Deletes the specified layer from the composition.

Parameters

None.

Returns

Nothing.

Layer.setParentWithJump()

```
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`	Optional, a layer object in the same composition. If not specified, it sets the parent to None.

Returns

Nothing.

CHAPTER 16

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 object*. All methods and attributes of Collection, in addition to those listed below, are available when working with LayerCollection.

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

LayerCollection.add()

`app.project.item(index).layers.add(item[, duration])`

Description

Creates a new *AVLayer object* containing the specified item, and adds it to this collection. The new layer honors the "Create Layers at Composition Start Time" preference. 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 du r at i on 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.addBoxText()

```
app.project.item(index).layers.addBoxText([sourceText])
```

Description

Creates a new paragraph (box) text layer and adds the new *TextLayer object* to this collection. To create a point text layer, use the *LayerCollection.addText()* method.

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.

Returns

TextLayer object.

LayerCollection.addCamera()

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

Description

Creates a new camera layer and adds the *CameraLayer object* to this collection. The new layer honors the "Create Layers at Composition Start Time" preference.

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()

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

Description

Creates a new light layer and adds the *LightLayer object* to this collection. The new layer honors the "Create Layers at Composition Start Time" preference.

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()

```
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()

```
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()

```
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 Footage Item as its `source`, and adds the layer to this collection.

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]`.
`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 (MacOS), and specify options under Still Footage.

Returns

AVLayer object.

LayerCollection.addText()

```
app.project.item(index).layers.addText([sourceText])
```

Description

Creates a new point text layer and adds the new *TextLayer object* to this collection. To create a paragraph (box) text layer, use *LayerCollection.addBoxText()*.

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.

Returns

TextLayer object.

LayerCollection.byName()

```
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()

```
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.

CHAPTER 17

AVLayer object

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

Description

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

> AVLayer is a subclass of *Layer object*. All methods and attributes of Layer, in addition to those listed below, are available when working with AVLayer.
>
> AVLayer is a base class for *TextLayer object*, so AVLayer attributes and methods are available when working with TextLayer objects.

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
- Geometry Options // Ray-traced 3D
- Material Options
    - Casts Shadows
    - Light Transmission
    - Accepts Shadows
    - Accepts Lights
    - Appears in Reflections // Ray-traced 3D
    - Ambient
    - Diffuse
    - Specular Intensity
    - Specular Shininess
    - Metal
    - Reflection Intensity // Ray-traced 3D
    - Reflection Sharpness // Ray-traced 3D
    - Reflection Rolloff // Ray-traced 3D
    - Transparency // Ray-traced 3D
    - Transparency Rolloff // Ray-traced 3D
    - Index of Refraction // Ray-traced 3D
- Audio
    - AudioLevels

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

AVLayer.adjustmentLayer

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

Description

True if the layer is an adjustment layer.

Type

Boolean; read/write.

AVLayer.audioActive

`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.audioEnabled

`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

`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` Layer faces in the direction of the motion path.
- `AutoOrientType.CAMERA_OR_POINT_OF_INTEREST` Layer always faces the active camera or points at its point of interest.
- `AutoOrientType.CHARACTERS_TOWARD_CAMERA` Each character in a per-character 3D text layer automatically faces the active camera.
- `AutoOrientType.NO_AUTO_ORIENT` Layer rotates freely, independent of any motion path, point of interest, or other layers.

AVLayer.blendingMode

`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.canSetCollapseTransformation

`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

`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

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

Description

True if collapse transformation is on for this layer.

Type

Boolean; read/write.

AVLayer.effectsActive

`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.environmentLayer

`app.project.item(index).layer(index).environmentLayer`

Description

True if this is an environment layer in a Ray-traced 3D composition. Setting this attribute to true automaticallymakes the layer 3D (`threeDLayer` becomes true).

Type

Boolean; read/write.

AVLayer.frameBlending

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

Description

True if frame blending is enabled for the layer.

Type

Boolean; read-only.

AVLayer.frameBlendingType

`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

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

Description

True if the layer is a guide layer.

Type

Boolean; read/write.

AVLayer.hasAudio

`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

`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

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

Description

The height of the layer in pixels.

Type

Floating-point; read-only.

AVLayer.isNameFromSource

`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

`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

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

Description

True if motion blur is enabled for the layer.

Type

Boolean; read/write.

AVLayer.preserveTransparency

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

Description

True if preserve transparency is enabled for the layer.

Type

Boolean; read/write.

AVLayer.quality

`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.source

`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.threeDLayer

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

Description

True if this is a 3D layer.

Type

Boolean; read/write.

AVLayer.threeDPerChar

`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

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

Description

True if time remapping is enabled for this layer.

Type

Boolean; read/write.

AVLayer.trackMatteType

`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

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

Description

The width of the layer in pixels.

Type

Floating-point; read-only.

Methods

AVLayer.audioActiveAtTime()

`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.calculateTransformFromPoints()

`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.openInViewer()

`app.project.item(index).layer(index).openInViewer()`

Description

Opens the layer in a Layer panel, and moves the Layer panel to front and gives it focus.

Parameters

None.

Returns

Viewer object for the Layer panel, or null if the layer could not be opened (e.g., for text or shape layers, which cannot be opened in the Layer panel).

AVLayer.replaceSource()

```
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()*.

Returns

Nothing.

> **Warning:** If this method is performed on a null layer, the layers `isNull` attribute is not changed from `true`. This causes the layer not to be visible in comp viewer and renders.

AVLayer.sourceRectAtTime()

```
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`].

CHAPTER 18

CameraLayer object

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

Description

The CameraLayer object represents a camera layer within a composition. Create it using *LayerCollection.addCamera()*. 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 object*. All methods and attributes of Layer are available when working with CameraLayer.

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`
  - `PointofInterest`
  - `Position`
  - `Scale`
  - `Orientation`
  - `XRotation`
  - `YRotation`
  - `Rotation`
  - `Opacity`
- `CameraOptions`
  - `Zoom`
  - `DepthofField`
  - `FocusDistance`

- BlurLevel

CHAPTER 19

LightLayer object

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

Description

The LightLayer object represents a light layer within a composition. Create it using the *LayerCollection.addLight()* method. 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 object*. All methods and attributes of Layer are available when working with Light-Layer.

AE Properties

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

- `Marker`
- **`Transform`**
  - `PointofInterest`
  - `Position`
  - `Scale`
  - `Orientation`
  - `XRotation`
  - `YRotation`
  - `Rotation`
  - `Opacity`
- **`LightOptions`**
  - `Intensity`
  - `Color`
  - `ConeAngle`

- ConeFeather
- CastsShadows
- ShadowDarkness
- ShadowDiffusion

Attributes

LightLayer.lightType

`app.project.item(index).layer(index).lightType`

Description

For a light layer, its light type. Trying to set this attribute for a non-light layer produces an error.

Type

A `LightType` enumerated value; read/write. One of:

- `LightType.PARALLEL`
- `LightType.SPOT`
- `LightType.POINT`
- `LightType.AMBIENT`

CHAPTER 20

ShapeLayer object

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

Description

The ShapeLayer object represents a shape layer within a composition. Create it using *LayerCollection.addShape()*. 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.

CHAPTER 21

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*. 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.

AE Properties

TextLayer defines no additional attributes, but has the following AE properties and property groups, in addition to those inherited from AVLayer:

- `Text`
- `SourceText`
- `PathOptions`
- `Path`
- `ReversePath`
- `PerpendicularToPath`
- `ForceAlignment`
- `FirstMargin`
- `LastMargin`
- `MoreOptions`
- `AnchorPointGrouping`
- `GroupingAlignment`
- `Fill&Stroke`
- `InterCharacterBlending`

- `Animators`

Unused Properties and Attributes

The `TimeRemapandMotionTrackers` properties, inherited from AVLayer, are not applicable to text layers, and their related AVLayer attributes are not used:

- `canSetTimeRemapEnabled`
- `timeRemapEnabled`
- `trackMatteType`
- `isTrackMatte`
- `hasTrackMatte`

CHAPTER 22

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("AddGrain")("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()*.

> PropertyBase is the base class for both *Property* and *PropertyGroup*, so PropertyBase attributes and methods are available when working with properties and property groups.

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 anobject, 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 inselected object
```

A less straightforward case is when a property is removed from a property group. In this case, After Effectsgenerates 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

PropertyBase.active

`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 and if the current time is between the layer's in and out points. For an effect and all properties, it is the same as the e n abl e d attribute, except that it's read-only.

Type

Boolean; read-only.

PropertyBase.canSetEnabled

`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.elided

`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`

- `PathOptions`
- `MoreOptions`
- `Animator1`
- `Animator2`

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

`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

`app.project.item(index).layer(index).propertySpec.isEffect`

Description

When true, this property is an effect PropertyGroup.

Type

Boolean; read-only.

PropertyBase.isMask

`app.project.item(index).layer(index).propertySpec.isMask`

Description

When true, this property is a mask PropertyGroup.

Type

Boolean; read-only.

PropertyBase.isModified

`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

`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*.)

Type

String; read-only.

PropertyBase.name

`app.project.item(index).layer(index).propertySpec.name`

Description

The display name of the property. (Compare *PropertyBase.matchName*.) 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*).

Type

String; read/write for a child of an indexed group; otherwise read-only.

PropertyBase.parentProperty

`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

`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.propertyIndex

`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*).

Type

Integer; read-only.

PropertyBase.propertyType

`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.selected

`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 either *CompItem.selectedProperties* or *Layer.selectedProperties*.

Type

Boolean; read/write.

Methods

PropertyBase.duplicate()

```
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*.

Parameters

None.

Returns

PropertyBase object.

PropertyBase.moveTo()

```
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*.)

> **Warning:** Using this method invalidates existing references to other children in the same indexed group. For example, if you have three effects on a layer, each effect assigned to a different variable, moving one of the effectsinvalidates the references for all of these variables. You will need to reassign them.

Parameters

`newIndex`	The new index position at which to place this property in its group. An integer.

Returns

Nothing.

PropertyBase.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.remove()

```
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*.) 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.

CHAPTER 23

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* and *PropertyGroup.property()*.

> Property is a subclass of *PropertyBase*. All methods and attributes of PropertyBase, in addition to those listed below, are available when working with Property.

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

Examples

- Get and set the value of opacity:

```
var myProperty = myLayer.opacity;
// opacity has propertyValueType of OneD, and is stored as a float
myProperty.setValue(50);//set opacity to 50%
// Variable my Opacity is a float value
var myOpacity = myProperty.value;
```

- 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 my Position is an array of 3 floats
var myPosition = myProperty.value;
```

- 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);
```

- 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);
```

- 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");
}
```

- 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);
```

- Change the key frame values for the first three keyframes of some sourcetext:

```
myProperty = myTextLayer.sourceText;
if(myProperty.numKeys<3){
 alert("error, I thought there were 3 keyframes");
}
else{
    myProperty.setValueAtKey(1, newTextDocument("keynumber1"));
    myProperty.setValueAtKey(2, newTextDocument("keynumber2"));
    myProperty.setValueAtKey(3, newTextDocument("keynumber3"));
}
```

- 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 defaultof 100.
myLayer.scale.setValue([50, 50, 100]);
myLayer.scale.setValue([50, 50]);
//These two are equivalent. The second fills in a defaultof 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(newTextDocument("foo"));
myTextLayer.sourceText.setValue("foo");
```

Attributes

Property.canSetExpression

`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.

Type

Boolean; read-only.

Property.canVaryOverTime

`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.dimensionsSeparated

`app.project.item(index).layer(index).propertySpec.dimensionsSeparated`

Description

When true, the property's dimensions are represented as separate properties. For example, if the layer's position is represented as X Position and Y Position properties in the Timeline panel, the Position property has this attribute set to true.

Note: This attribute applies only when the *isSeparationLeader* attribute is true.

Type

Boolean; read/write.

Property.expression

`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

`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

`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

`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

`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.isSeparationFollower

`app.project.item(index).layer(index).propertySpec.isSeparationFollower`

Description

When true, the property represents one of the separated dimensions for a multidimensional property. For example, the X Position property has this attribute set to true.

Note: The original, consolidated, multidimensional property is the "separation leader" and the new, separated, single-dimensional properties are its "separation followers".

Type

Boolean; read-only.

Property.isSeparationLeader

`app.project.item(index).layer(index).propertySpec.isSeparationLeader`

Description

When true, the property is multidimensional and can be separated. For example, the Position property has this attribute set to true.

Note: The original, consolidated, multidimensional property is the "separation leader" and the new, separated, single-dimensional properties are its "separation followers".

Type

Boolean; read-only.

Property.isSpatial

`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

`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.maxValue

`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

`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.numKeys

`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

`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

`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` : Custom property value, such as the Histogram property for the Levels effect.
- `PropertyValueType.MARKER`: *MarkerValue object*
- `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*
- `PropertyValueType.TEXT_DOCUMENT`: *TextDocument object*

Property.selectedKeys

`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.separationDimension

`app.project.item(index).layer(index).propertySpec.separationDimension`

Description

For a separated follower, the dimension number it represents in the multidimensional leader. The first dimension starts at 0. For example, the Y Position property has a `separationDimension` value of 1; X Position has a value of 0.

Type

Integer; read-only.

Property.separationLeader

`app.project.item(index).layer(index).propertySpec.separationLeader`

Description

The original multidimensional property for this separated follower. For example, if the current property is Y Position, this attribute's value points to the Position property.

Note: The original, consolidated, multidimensional property is the "separation leader" and the new, separated, single-dimensional properties are its "separation followers".

Type

Property object; read-only.

Property.unitsText

`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

`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*.

Type

A value appropriate for the type of the property (see *Property.propertyValueType*); read-only.

Methods

Property.addKey()

`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.getSeparationFollower()

`app.project.item(index).layer(index).propertySpec.getSeparationFollower(dim)`

Description

For a separated, multidimensional property, retrieves a specific follower property. For example, you can use this method on the Position property to access the separated X Position and Y Position properties

---

Note: This attribute applies only when the *isSeparationLeader* attribute is true.

Parameters

`dim`	The dimension number (starting at 0).

Returns

Property object, or an error if the property is not multidimensional or does not have the specified dimension.

Property.isInterpolationTypeValid()

`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.keyInInterpolationType()

`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*.

Returns

A `KeyframeInterpolationType` enumerated value; one of:

- `KeyframeInterpolationType.LINEAR`
- `KeyframeInterpolationType.BEZIER`
- `KeyframeInterpolationType.HOLD`

Property.keyInSpatialTangent()

`app.project.item(index).layer(index).propertySpec.keyInSpatialTangent(keyIndex)`

Description

Returns the incoming spatial tangent for the specified keyframe, if the named property is spatial (that is, the value type is `TwoD_SPATIALorThreeD_SPATIAL`).

Parameters

`keyIndex`	The index for the keyframe. An integer in the range `[1..numKeys]`, as returned by the *addKey* or *nearestKeyIndex*.

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()

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

Returns

Array of *KeyframeEase objects*:

- If the property value type is `PropertyValueType.TwoD`, the array contains 2 objects.
- If the property value type is `PropertyValueType.ThreeD`, the array contains 3 objects.
- For any other value type, the array contains 1 object.

Property.keyOutInterpolationType()

`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*.

Returns

A `KeyframeInterpolationType` enumerated value; one of:

- `KeyframeInterpolationType.LINEAR`
- `KeyframeInterpolationType.BEZIER`
- `KeyframeInterpolationType.HOLD`

Property.keyOutSpatialTangent()

`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*.

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()

`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*.

Returns

Array of KeyframeEase objects:

- If the property value type is `PropertyValueType.TwoD`, the array contains 2 objects.
- If the property value type is `PropertyValueType.ThreeD`, the array contains 3 objects.
- For any other value type, the array contains 1 object.

Property.keyRoving()

`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*.

Returns

Boolean.

Property.keySelected()

`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*.

Returns

Boolean.

Property.keySpatialAutoBezier()

`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*.

Returns

Boolean.

Property.keySpatialContinuous()

`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*.

Returns

Boolean.

Property.keyTemporalAutoBezier()

`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 the keyframe interpolation type is `KeyframeInterpolationType.BEZIER` for both `keyInInterpolationType(keyIndex)` and `keyOutInterpolationType(keyIndex)`.

Parameters

`keyIndex`	The index for the keyframe. An integer in the range `[1..numKeys]`, as returned by the *addKey* or *nearestKeyIndex*.

Returns

Boolean.

Property.keyTemporalContinuous()

`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 keyframe interpolation type is `KeyframeInterpolationType.BEZIER` for both `keyInInterpolationType(keyIndex)` and `keyOutInterpolationType(keyIndex)`.

Parameters

`keyIndex`	The index for the keyframe. An integer in the range `[1..numKeys]`, as returned by the *addKey* or *nearestKeyIndex*.

Returns

Boolean.

Property.keyTime()

`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*.
`markerComment`	The comment string attached to a marker (see *MarkerValue.comment* attribute).

Returns

Floating-point value.

Property.keyValue()

```
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*.
`markerComment`	The comment string attached to a marker (see *MarkerValue.comment* attribute).

Returns

Floating-point value for keyframes, MarkerValue object for markers.

Property.nearestKeyIndex()

```
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.removeKey()

```
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*.

Returns

Nothing.

Property.setInterpolationTypeAtKey()

`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*.
`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()

`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*.
`newVal`	True to turn roving on, false to turn roving off.

Returns

Nothing.

Property.setSelectedAtKey()

`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*.
`onOff`	True to select the keyframe, false to deselect it.

Returns

Nothing.

Property.setSpatialAutoBezierAtKey()

`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*.
`newVal`	True to turn spatial auto-Bezier on, false to turn it off.

Returns

Nothing.

Property.setSpatialContinuousAtKey()

`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*.
`newVal`	True to turn spatial auto-Bezier on, false to turn it off.

Returns

Nothing.

Property.setSpatialTangentsAtKey()

`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()

`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*.
`newVal`	True to turn temporal auto-Bezier on, false to turn it off.

Returns

Nothing.

Property.setTemporalContinuousAtKey()

`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 keyframe interpolation type is `KeyframeInterpolationType.BEZIER` for both `keyInInterpolationType(keyIndex)` and `keyOutInterpolationType(keyIndex)`.

Parameters

`keyIndex`	The index for the keyframe. An integer in the range `[1..numKeys]`, as returned by the *addKey* or *nearestKeyIndex*.
`newVal`	True to turn temporal continuity on, false to turn it off.

Returns

Nothing.

Property.setTemporalEaseAtKey()

`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*.

Parameters

`keyIndex`	The index for the keyframe. An integer in the range `[1..numKeys]`, as returned by the *addKey* or *nearestKeyIndex*.
`inTemporalEase`	The incoming temporal ease. An array of 1, 2, or 3 KeyframeEase objects. • If the property value type is `PropertyValueType.TwoD`, the array contains 2 objects. • If the property value type is `PropertyValueType.ThreeD`, 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`, the array contains 2 objects. • If the property value type is `PropertyValueType.ThreeD`, the array contains 3 objects. • For all other value types, the array contains 1 object.

Returns

Nothing.

Property.setValue()

```
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 displays an error. To set the value of a property with keyframes, use *Property.setValueAtTime()* or *Property.setValueAtKey()*.

Parameters

`newValue`	A value appropriate for the type of property being set; see *Property.propertyValueType*.

Returns

Nothing.

Property.setValueAtKey()

```
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*.
`newValue`	A value appropriate for the type of property being set; see *Property.propertyValueType*.

Returns

Nothing.

Property.setValueAtTime()

```
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*.

Returns

Nothing.

Property.setValuesAtTimes()

```
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*.

Returns

Nothing.

Property.valueAtTime()

```
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.

Note: As After Effects 13.6, this method now waits for time-intensive expressions, like `sampleImage`, to finish evaluating before it returns the result.

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 138).

CHAPTER 24

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()*. For examples of how to access properties and property groups, see *PropertyBase object*.

> PropertyGroup is a subclass of *PropertyBase*. All methods and attributes of PropertyBase, in addition to those listed below, are available when working with PropertyGroup.
>
> PropertyGroup is a base class for *MaskPropertyGroup*. PropertyGroup attributes and methods are available when working with mask groups.

Attributes

PropertyGroup.numProperties

`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 *PropertyGroup.property()*.

Type

Integer; read-only.

Methods

PropertyGroup.addProperty()

`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*) 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()*.)

Parameters

`name`	The display name or match name of the property to add. (See *PropertyBase.matchName*). 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()

`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()*.

Returns

Boolean.

PropertyGroup.property()

```
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 [1..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” (these are for the Specular Intensity property) • “Shininess” or “shininess” (these are for the Specular Shininess property) • “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 “source Text” or “Text” or “text”
From a PropertyGroup “ADBE Mask Parade”	• “ADBE Mask Atom”
From a PropertyGroup “ADBE Mask Atom”	• “ADBE Mask Shape”, or “maskShape”, or

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("Mask1");
```

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");
```

CHAPTER 25

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 object*. All methods and attributes of *PropertyBase object* and PropertyGroup, in addition to those listed below, are available when working with MaskPropertyGroup.

Attributes

MaskPropertyGroup.color

`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

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

Description

When true, the mask is inverted; otherwise false.

Type

Boolean; read/write.

MaskPropertyGroup.locked

`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.maskFeatherFalloff

`app.project.item(index).layer(index).mask(index).maskFeatherFalloff`

Description

The feather falloff mode for the mask. Equivalent to the Layer > Mask > Feather Falloff setting.

Type

A `MaskFeatherFalloff` enumerated value; read/write. One of:

- `MaskFeatherFalloff.FFO_LINEAR`
- `MaskFeatherFalloff.FFO_SMOOTH`

MaskPropertyGroup.maskMode

`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

`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

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

Description

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

Type

Boolean; read/write.

CHAPTER 26

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.

Attributes

RenderQueue.canQueueInAME

`app.project.renderQueue.canQueueInAME`

Note: This functionality was added in After Effects 14.0 (CC 2017)

Description

indicates whether or not there are queued render items in the After Effects render queue. Only queued items can be added to the AME queue.

RenderQueue.queueInAME()

Type

Boolean; read-only.

RenderQueue.items

`app.project.renderQueue.items`

Description

A collection of all items in the render queue. See *RenderQueueItem object*.

Type

RQItemCollection object; read-only.

RenderQueue.numItems

`app.project.renderQueue.numItems`

Description

The total number of items in the render queue.

Type

Integer; read-only.

RenderQueue.rendering

`app.project.renderQueue.rendering`

Description

When true, the rendering process is in progress or paused. When false, it is stopped.

Type

Boolean; read-only.

Methods

RenderQueue.item()

`app.project.renderQueue.item(index)`

Description

Gets a specified item from the ite ms collection.

Parameters

`index` The position index of the item. An integer in the range `[0..numItems]`.

Returns

RenderQueueItem object.

RenderQueue.pauseRendering()

```
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 *RenderQueueItem.onStatusChanged* or *app.onError* callback.

Parameters

`pause`	True to pause a current render process, false to continue a paused render.

Returns

Nothing.

RenderQueue.render()

```
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 *RenderQueue.pauseRendering()* or *RenderQueue.stopRendering()* from an `onError` or `onStatusChanged` callback.

- To respond to errors during the rendering process, define a callback function in *app.onError*.
- 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.

Parameters

None.

Returns

Nothing.

RenderQueue.showWindow()

```
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()

```
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 *RenderQueueItem.onStatusChanged* or *app.onError* callback.

Parameters

None.

Returns

Nothing.

RenderQueue.queueInAME()

```
app.project.renderQueue.queueInAME(render_immediately_in_AME)
```

Note: This functionality was added in After Effects 14.0 (CC 2017)

Description

Calls the Queue In AME command. This method requires passing a boolean value, telling AME whether to only queue the render items (false) or if AME should also start processing its queue (true).

Note: This requires Adobe Media Encoder CC 2017 (11.0) or later.

Note: When AME receives the queued items, it applies the most recently used encoding preset. If `render_immediately_in_AME` is set to true, you will not have an opportunity to change the encoding settings.

Parameters

`render_immediately_in_AME`	Telling AME whether to only queue the render items (`false`) or if AME should also start processing its queue (`true`).

Returns

Nothing.

Example

The following sample code checks to see if there are queued items in the render queue, and if so queues them in AME but does not immediately start rendering:

```
// Scripting support for Queue in AME.
// Requires Adobe Media Encoder 11.0.
{
    if (app.project.renderQueue.canQueueInAME == true)
    {
        // Send queued items to AME, but do not start rendering.
        app.project.renderQueue.queueInAME(false);
    }
```

```
    else {
        alert("There are no queued item in the Render Queue.");
    }
}
```

CHAPTER 27

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.

> RQItemCollection is a subclass of *Collection object*. All methods and attributes of Collection are available when working with RQItemCollection.

Methods

RQItemCollection.add()

`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.

CHAPTER 28

RenderQueueItem object

`app.project.renderQueue.item(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()*.

Attributes

RenderQueueItem.comp

`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.elapsedSeconds

`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

`app.project.renderQueue.item(index).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

`app.project.renderQueue.item(index).numOutputModules`

Description

The total number of Output Modules assigned to this item.

Type

Integer; read-only.

RenderQueueItem.onStatusChanged

`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.

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()* and *RenderQueue.stopRendering()*. See also *app.onError*.

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

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

Description

The collection of Output Modules for the item.

Type

OMCollection object; read-only.

RenderQueueItem.render

`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.skipFrames

`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

`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

`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

`app.project.renderQueue.item(index).templates`

Description

The names of all Render Settings templates available for the item. See also *RenderQueueItem.saveAsTemplate()*.

Type

Array of strings; read-only.

RenderQueueItem.timeSpanDuration

```
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

```
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.

Methods

RenderQueueItem.applyTemplate()

```
app.project.renderQueue.item(index).applyTemplate(templateName)
```

Description

Applies a Render Settings template to the item. See also *RenderQueueItem.saveAsTemplate()* and *RenderQueueItem.templates*.

Parameters

`templateName`	A string containing the name of the template to apply.

Returns

Nothing.

RenderQueueItem.duplicate()

```
app.project.renderQueue.item(index).duplicate()
```

Description

Creates a duplicate of this item and adds it this render queue.

Note: Duplicating an item whose status is "Done" sets the new item's status to "Queued".

Parameters

None.

Returns

RenderQueueItem object.

RenderQueueItem.getSetting()

```
app.project.renderQueue.item(index).getSetting()
```

Note: This functionality was added in After Effects 13.0 (CC 2014)

Description

See https://blogs.adobe.com/creativecloud/new-changed-after-effects-cc-2014/?segment=dva

---

RenderQueueItem.getSettings()

```
app.project.renderQueue.item(index).getSettings()
```

Note: This functionality was added in After Effects 13.0 (CC 2014)

Description

See https://blogs.adobe.com/creativecloud/new-changed-after-effects-cc-2014/?segment=dva

---

RenderQueueItem.outputModule()

```
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()

`app.project.renderQueue.item(index).remove()`

Description

Removes this item from the render queue.

Parameters

None.

Returns

Nothing.

RenderQueueItem.saveAsTemplate()

`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.setSetting()

`app.project.renderQueue.item(index).setSetting()`

Note: This functionality was added in After Effects 13.0 (CC 2014)

Description

See https://blogs.adobe.com/creativecloud/new-changed-after-effects-cc-2014/?segment=dva

---

RenderQueueItem.setSettings()

```
app.project.renderQueue.item(index).setSettings()
```

Note: This functionality was added in After Effects 13.0 (CC 2014)

Description

See https://blogs.adobe.com/creativecloud/new-changed-after-effects-cc-2014/?segment=dva

CHAPTER 29

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 *Output-Module objects*, but does not provide any additional functionality. The first OutputModule object in the collection is at index position 1.

> OMCollection is a subclass of *Collection object*. All methods and attributes of Collection are available when working with OMCollection.

CHAPTER 30

OutputModule object

`app.project.renderQueue.item(index).outputModule(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

OutputModule.file

`app.project.renderQueue.item(index).outputModule(index).file`

Description

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

Type

ExtendScript File object; read/write.

OutputModule.includeSourceXMP

`app.project.renderQueue.item(index).outputModule(index).includeSourceXMP`

Description

When true, writes all source footage XMP metadata to the output file. Corresponds to the Include Source XMP Metadata option in the Output Module Settings dialog box.

Type

Boolean; read/write.

OutputModule.name

`app.project.renderQueue.item(index).outputModule(index).name`

Description

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

Type

String; read-only.

OutputModule.postRenderAction

`app.project.renderQueue.item(index).outputModule(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.templates

`app.project.renderQueue.item(index).outputModule(index).templates`

Description

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

Type

Array of strings; read-only.

Methods

OutputModule.applyTemplate()

```
app.project.renderQueue.item(index).outputModule(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.getSetting()

```
app.project.renderQueue.item(index).outputModule(index).getSetting()
```

Note: This functionality was added in After Effects 13.0 (CC 2014)

Description

See https://blogs.adobe.com/creativecloud/new-changed-after-effects-cc-2014/?segment=dva

---

OutputModule.getSettings()

```
app.project.renderQueue.item(index).outputModule(index).getSettings()
```

Note: This functionality was added in After Effects 13.0 (CC 2014)

Description

See https://blogs.adobe.com/creativecloud/new-changed-after-effects-cc-2014/?segment=dva

---

OutputModule.remove()

```
app.project.renderQueue.item(index).outputModule(index).remove()
```

Description

Removes this OutputModule object from the collection.

Parameters

None.

Returns

Nothing.

OutputModule.saveAsTemplate()

`app.project.renderQueue.item(index).outputModule(index).saveAsTemplate(name)`

Description

Saves this output module as a template and adds it to the te mpl ate s array.

Parameters

`name`	A string containing the name of the new template.

Returns

Nothing.

OutputModule.setSetting()

`app.project.renderQueue.item(index).outputModule(index).setSetting()`

Note: This functionality was added in After Effects 13.0 (CC 2014)

Description

See https://blogs.adobe.com/creativecloud/new-changed-after-effects-cc-2014/?segment=dva

---

OutputModule.setSettings()

`app.project.renderQueue.item(index).outputModule(index).setSettings()`

Note: This functionality was added in After Effects 13.0 (CC 2014)

Description

See https://blogs.adobe.com/creativecloud/new-changed-after-effects-cc-2014/?segment=dva

CHAPTER 31

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 object*. All methods and attributes of FootageSource, in addition to those listed below, are available when working with FileSource.

Attributes

FileSource.file

```
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

```
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*.

Type

String; read-only.

Methods

FileSource.reload()

```
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.

CHAPTER 32

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 object*, or the `proxySource` of a *CompItem object* or FootageItem.

> FootageSource is the base class for *SolidSource object*, so FootageSource attributes and methods are available when working with SolidSource objects.

Attributes

FootageSource.alphaMode

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

Description

The.alphaMode 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 Alpha Mode enumerated value; (read/write). One of:

- `AlphaMode.IGNORE`
- `AlphaMode.STRAIGHT`

- `AlphaMode.PREMULTIPLIED`

FootageSource.conformFrameRate

```
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

```
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

```
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.hasAlpha

```
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

```
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

```
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

```
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

```
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

```
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

```
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

```
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`

Methods

FootageSource.guessAlphaMode()

```
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()

```
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.

CHAPTER 33

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 object*. All methods and attributes of FootageSource are available when working with PlaceholderSource. PlaceholderSource does not define any additional methods or attributes.

CHAPTER 34

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.

Attributes

SolidSource.color

```
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.

CHAPTER 35

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.

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

Objects

- *ItemCollection object* All of the items (imported files, folders, solids, and so on) found in the Project panel.
- *LayerCollection object* All of the layers in a composition.
- *OMCollection object* All of the Output Module items in the project.
- *RQItemCollection object* 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.

CHAPTER 36

ImportOptions object

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

Description

The ImportOptions object encapsulates the options used to import a file with the *Project.importFile()* methods. 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

ImportOptions.file

`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

`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

`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.

Type

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

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

ImportOptions.sequence

`importOptions.sequence`

Description

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

Type

Boolean; read/write.

Methods

ImportOptions.canImportAs()

`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.

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;
}
```

CHAPTER 37

KeyframeEase object

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

Description

The KeyframeEase object encapsulates the keyframe ease settings of a layer?s AE property. Keyframe ease is determined by the speed and influence values that you set using the property?s *setTemporalEaseAtKey* method. The constructor creates a KeyframeEase object. Both parameters are required.

- `speed`: A floating-point value. Sets the `speed` attribute.
- `influence`: A floating-pointvalue 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 either two or three 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

KeyframeEase.influence

`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

`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.

CHAPTER 38

MarkerValue object

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

Description

The MarkerValue object represents a layer, or composition, 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 MarkerValueo bject, except `params`. This is an array containing key-value pairs, which can then be accessed with the *getParameters()* and *setParameters()* 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.

Examples

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

```
var myMarker = new MarkerValue("FadeUp");
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;
```

Attributes

MarkerValue.chapter

```
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

```
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

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

Description

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

Type

String; read/write.

MarkerValue.duration

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

Description

The marker's duration, in seconds. The duration appears in the Timeline panel as a short bar extending from the marker location.

Type

Floating point; read/write.

MarkerValue.eventCuePoint

```
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

```
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.url

```
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.

Methods

MarkerValue.getParameters()

```
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()

`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("MyMarker");
var parms = new Object;
parms.timeToBlink = 1;
parms.assignMe = "A string"
mv.setParameters(parms);
myLayer.property("Marker").setValueAtTime(2, mv);
```

CHAPTER 39

Settings object

`app.settings`

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 sectionname. All values are strings. You can create new settings with this object, as well as accessing existing settings.

Note for Version 12/CC and newer versions of AE: Preferences and settings methods now take a third argument to specify the target preferences file if Section/Key is not in "Adobe After Effects $versionNumber.x Prefs.txt". If the third argument is not passed, default value (`PREFType.PREF_Type_MACHINE_SPECIFIC`) is used and After Effects tries to save/get from the "Adobe After Effects $versionNumber.x Prefs.txt" preferences file. The third argument is enum `PREFType` value.

You can now pass the preference type with a script with new `PREFType` enum:

- `PREF_Type_MACHINE_SPECIFIC`: Adobe After Effects $versionNumber.x Prefs.txt
- `PREF_Type_MACHINE_INDEPENDENT`: Adobe After Effects $versionNumber.x Prefs-indep-general.txt
- `PREF_Type_MACHINE_INDEPENDENT_RENDER`: Adobe After Effects $versionNumber.x Prefs-indep-render.txt
- `PREF_Type_MACHINE_INDEPENDENT_OUTPUT`: Adobe After Effects $versionNumber.x Prefs-indep-output.txt
- `PREF_Type_MACHINE_INDEPENDENT_COMPOSITION`: Adobe After Effects $versionNumber.x Prefs-indep-composition.txt
- `PREF_Type_MACHINE_SPECIFIC_TEXT`: Adobe After Effects $versionNumber.x Prefs-text.txt
- `PREF_Type_MACHINE_SPECIFIC_PAINT`: Adobe After Effects $versionNumber.x Prefs-paint.txt

Methods

Settings.getSetting()

`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-PaintSettings", "AlignedClone");
alert("The setting is" + n);
```

Settings.haveSetting()

`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()

`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.

CHAPTER 40

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*) 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.

For closed mask shapes, variable-width mask feather points can exist anywhere along the mask path. Feather points are part of the Mask Path property. Reference a specific feather point by the number of the mask path segment (portion of the path between adjacent vertices) where it appears.

Note: The feather points on a mask are listed in an array in the order that they were created.

Examples

- 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;
```

- 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;
```

- Create an oval. An oval is a closed shape with 4 vertices and with i nTange nt and out Tange nt 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;
```

- Create a square mask with two feather points. A large square mask with two feather points, one closer to the left end the second mask segment (off the bottom edge) with a radius of 30 pixels and the other one centered the third mask segment (off the right edge) with a larger radius of 100 pixels.

```
var myShape = new Shape();
myShape.vertices = [[100,100], [100,400], [400,400], [400,100]]; // segments␣
↪drawn counter clockwise
myShape.closed = true;
myShape.featherSegLocs = [ 1 ,2 ]; // segments are numbered starting at 0, so␣
↪second segment is 1
myShape.featherRelSegLocs = [0.15, 0.5]; // 0.15 is closer to the lower-left␣
↪corner of the square
myShape.featherRadii = [30, 100]; // second feather point (onright-sidesegment)␣
↪has a larger radius
```

Attributes

Shape.closed

`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.featherInterps

`shapeObject.value.featherInterps`

Description

An array containing each feather point's radius interpolation type (0 for non-Hold feather points, 1 for Hold feather points).

Note: Values are stored in the array in the order that feather points are created.

Type

Array of integers (0 or 1); read/write.

Shape.featherRadii

`shapeObject.value.featherRadii`

Description

An array containing each feather point's radius (feather amount); inner feather points have negative values.

Note: Values are stored in the array in the order that feather points are created.

Type

Array of floating-point values; read/write.

Shape.featherRelCornerAngles

`shapeObject.value.featherRelCornerAngles`

Description

An array containing each feather point's relative angle percentage between the two normals on either side of a curved outer feather boundary at a corner on a mask path. The angle value is 0% for feather points not at corners.

Note: Values are stored in the array in the order that feather points are created.

Type

Array of floating-point percentage values (0 to 100); read/write.

Shape.featherRelSegLocs

`shapeObject.value.featherRelSegLocs`

Description

An array containing each feather point's relative position, from 0 to 1, on its mask path segment (section of the mask path between vertices, numbered starting at 0).

Note: Values are stored in the array in the order that feather points are created. To move a feather point to a different mask path segment, first change the *featherSegLocs* attribute value, then this attribute.

Type

Array of floating-point values (0 to 1); read/write.

Shape.featherSegLocs

`shapeObject.value.featherSegLocs`

Description

An array containing each feather point's mask path segment number (section of the mask path between vertices, numbered starting at 0).

Note: Values are stored in the array in the order that feather points are created. Move a feather point to a different segment by changing both its segment number (this attribute) and, optionally, its *featherRelSegLocs* attribute value.

Type

Array of integers; read/write.

Example

```
// Assuming a rectangle closed mask (segments numbered 0-3) has 3 mask feather points,
// move all 3 feather points to the first mask segment.

// Get the Shape object for the mask, assumed here to be the first mask on the layer.
var my_maskShape = layer.mask(1).property("ADBE Mask Shape").value;

// Check where mask feather points are located.
// Note: They are stored in the order that they are added.
var where_are_myMaskFeatherPoints = my_maskShape.featherSegLocs;

// Move all 3 feather points to the first mask segment (numbered 0).
my_maskShape.featherSegLocs = [0, 0, 0];

// Update the mask path.
layer.mask(1).property("ADBE Mask Shape").setValue(my_maskShape);
```

Shape.featherTensions

`shapeObject.value.featherTensions`

Description

An array containing each feather point's tension amount, from 0 (0% tension) to 1 (100% tension).

Note: Values are stored in the array in the order that feather points are created.

Type

Array of floating-point values (0 to 1); read/write.

Shape.featherTypes

`shapeObject.value.featherTypes`

Description

An array containing each feather point's direction, either 0 (outer feather point) or 1 (inner feather point).

Note: You cannot change the direction of a feather point after it has been created.

Note: Values are stored in the array in the order that feather points are created.

Type

Array of integers (0 or 1); read/write.

Shape.inTangents

`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

`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

`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.

CHAPTER 41

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 = newTextDocument("HappyCake");
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, newTextDocument("Happy"));
textProp.setValueAtTime(.33, newTextDocument("cake"));
textProp.setValueAtTime(.66, newTextDocument("is"));
textProp.setValueAtTime(1, newTextDocument("yummy!"));
```

This sets various character and paragraph settings for some text:

```
var textProp = myTextLayer.property("Source Text");
var textDocument = textProp.value;
myString = "Happy holidays!";
textDocument.resetCharStyle();
textDocument.fontSize = 60;
textDocument.fillColor = [1, 0, 0];
textDocument.strokeColor = [0, 1, 0];
textDocument.strokeWidth = 2;
```

```
textDocument.font = "Times New Roman PSMT";
textDocument.strokeOverFill = true;
textDocument.applyStroke = true;
textDocument.applyFill = true;
textDocument.text = myString;
textDocument.justification = ParagraphJustification.CENTER_JUSTIFY;
textDocument.tracking = 50;
textProp.setValue(textDocument);
```

Attributes

TextDocument.allCaps

`textDocument.allCaps`

Note: This functionality was added in After Effects 13.2 (CC 2014.2)

Description

True if a text layer has allcaps enabled; otherwise false.

Warning: This value only reflects the first character in the text layer at the current time.

Type

Boolean; read-only.

TextDocument.applyFill

`textDocument.applyFill`

Description

When true, the text layer shows a fill. Access the `fillColor` attribute for the actual color. When false, only a stroke is shown.

Type

Boolean; read/write.

TextDocument.applyStroke

`textDocument.applyStroke`

Description

When true, the text layer shows a stroke. Access the `strokeColor` attribute for the actual color and `strokeWidth` for its thickness. When false, only a fill is shown.

Type

Boolean; read/write.

TextDocument.baselineLocs

`textDocument.baselineLocs`

Note: This functionality was added in After Effects 13.6 (CC 2015)

Description

The baseline (x,y) locations for a text layer. Line wraps in a paragraph text box are treated as multiple lines.

Note: If a line has no characters, the x and y values for start and end will be the maximum float value (3.402823466e+38F).

Type

Array of floating-point values in the form of: `line0.start_x, line0.start_y, line0.end_x, line0.end_y, line1.start_x, line1.start_y, line1.end_x, line1.end_y ... lineN-1.start_x, lineN-1.start_y, lineN-1.end_x, lineN-1.end_y`

TextDocument.baselineShift

`textDocument.baselineShift`

Note: This functionality was added in After Effects 13.2 (CC 2014.2)

Description

This text layer's baseline shift in pixels.

> **Warning:** This value only reflects the first character in the text layer at the current time.

Type

Floating-point value; read-only.

TextDocument.boxText

`textDocument.boxText`

Description

True if a text layer is a layer of paragraph (bounded) text; otherwise false.

Type

Boolean; read-only.

TextDocument.boxTextPos

`textDocument.boxTextPos`

Note: This functionality was added in After Effects 13.2 (CC 2014.2) As of After Effects 14 (CC2017), it seems this is also writeable.

Description

The layer coordinates from a paragraph (box) text layer's anchor point as a [width, height] array of pixel dimensions.

> **Warning:** This attribute only works on paragraph text layers. This value only reflects the first character in the text layer at the current time.

Type

Array of ([X,Y]) position coordinates; read-only.

Example

For a paragraph text layer:

```
// Returns [x,y] position from layer anchor point in layer coordinates.
// e.g. approximately [0, -25] with default character panel settings.
var boxTextLayerPos =  myTextLayer.sourceText.value.boxTextPos;
```

TextDocument.boxTextSize

`textDocument.boxTextSize`

Description

The size of a paragraph (box) text layer as a [width, height] array of pixel dimensions.

Type

Array of two integers (minimum value of 1); read/write.

TextDocument.fauxBold

`textDocument.fauxBold`

Note: This functionality was added in After Effects 13.2 (CC 2014.2)

Description

True if a text layer has faux bold enabled; otherwise false.

Warning: This value only reflects the first character in the text layer at the current time.

Type

Boolean; read-only.

Example

For a text layer with fauxBold enabled:

```
var isFauxBold = myTextLayer.sourceText.value.fauxBold; // returns true
```

TextDocument.fauxItalic

`textDocument.fauxItalic`

Note: This functionality was added in After Effects 13.2 (CC 2014.2)

Description

True if a text layer has faux italic enabled; otherwise false.

Warning: This value only reflects the first character in the text layer at the current time.

Type

Boolean; read-only.

TextDocument.fillColor

`textDocument.fillColor`

Description

The text layer's fill color, as an array of `[r, g, b]` floating-point values. For example, in an 8-bpc project, a red value of 255 would be 1.0, and in a 32-bpc project, an overbright blue value can be something like 3.2.

Warning: This value only reflects the first character in the text layer at the current time. If you change this value, it resets all characters in the text layer to the specified setting.

Type

Array `[r, g, b]` of floating-point values; read/write.

TextDocument.font

`textDocument.font`

Description

The text layer's font specified by its PostScript name.

Warning: This value only reflects the first character in the text layer at the current time. If you change this value, it resets all characters in the text layer to the specified setting.

Type

String; read/write.

TextDocument.fontFamily

`textDocument.fontFamily`

Note: This functionality was added in After Effects 13.1 (CC 2014.1)

Description

String with with the name of the font family.

Warning: This value only reflects the first character in the text layer at the current time.

Type

String; read-only.

TextDocument.fontLocation

`textDocument.fontLocation`

Note: This functionality was added in After Effects 13.1 (CC 2014.1)

Description

Path of font file, providing its location on disk.

Warning: Not guaranteed to be returned for all font types; return value may be empty string for some kinds of fonts.

Warning: This value only reflects the first character in the text layer at the current time.

Type

String; read-only.

TextDocument.fontSize

`textDocument.fontSize`

Description

The text layer's font size in pixels.

Warning: This value only reflects the first character in the text layer at the current time. If you change this value, it resets all characters in the text layer to the specified setting.

Type

Floating-point value (0.1 to 1296, inclusive); read/write.

TextDocument.fontStyle

`textDocument.fontStyle`

Note: This functionality was added in After Effects 13.1 (CC 2014.1)

Description

String with style information, e.g., "bold", "italic"

Warning: This value only reflects the first character in the text layer at the current time.

Type

String; read-only.

TextDocument.horizontalScale

`textDocument.horizontalScale`

Note: This functionality was added in After Effects 13.2 (CC 2014.2)

Description

This text layer's horizontal scale in pixels.

Warning: This value only reflects the first character in the text layer at the current time.

Type

Floating-point value; read-only.

Example

For a text layer with horizontalScale set to 50%:

```
var valOfHScale = myTextLayer.sourceText.value.horizontalScale; // returns 0.5
```

TextDocument.justification

`textDocument.justification`

Description

The paragraph justification for the text layer.

Type

A `ParagraphJustification` enumerated value; read-only. One of:

- `ParagraphJustification.LEFT_JUSTIFY`
- `ParagraphJustification.RIGHT_JUSTIFY`
- `ParagraphJustification.CENTER_JUSTIFY`
- `ParagraphJustification.FULL_JUSTIFY_LASTLINE_LEFT`
- `ParagraphJustification.FULL_JUSTIFY_LASTLINE_RIGHT`
- `ParagraphJustification.FULL_JUSTIFY_LASTLINE_CENTER`
- `ParagraphJustification.FULL_JUSTIFY_LASTLINE_FULL`

TextDocument.leading

`textDocument.leading`

Note: This functionality was added in After Effects 14.2 (CC 2017.1)

Description

The text layer's spacing between lines.

Warning: If the text layer has different leading settings for each line, this attribute returns the setting for the first line. Also, if you change the value, it resets all lines in the text layer to the specified setting..

Type

Floating-point value; read/write.

Example

This creates a text layer and sets the leading to 100:

```
var composition = app.project.activeItem;
var myTextLayer = comp.layers.addText("Spring\nSummer\nAutumn\nWinter");
var myTextSource = myTextLayer.sourceText;
var myTextDocument = myTextSource.value;
myTextDocument.leading = 100;
myTextSource.setValue(myTextDocument);
```

TextDocument.pointText

`textDocument.pointText`

Description

True if a text layer is a layer of point (unbounded) text; otherwise false.

Type

Boolean; read-only.

TextDocument.smallCaps

`textDocument.smallCaps`

Note: This functionality was added in After Effects 13.2 (CC 2014.2)

Description

True if a text layer has small caps enabled; otherwise false.

Warning: This value only reflects the first character in the text layer at the current time.

Type

Boolean; read-only.

TextDocument.strokeColor

`textDocument.strokeColor`

Description

The text layer's stroke color, as an array of [r, g, b] floating-point values. For example, in an 8-bpc project, a red value of 255 would be 1.0, and in a 32-bpc project, an overbright blue value can be something like 3.2.

Warning: This value only reflects the first character in the text layer at the current time. If you change this value, it resets all characters in the text layer to the specified setting.

Type

Array [r, g, b] of floating-point values; read/write.

TextDocument.strokeOverFill

`textDocument.strokeOverFill`

Description

Indicates the rendering order for the fill and stroke of a text layer. When true, the stroke appears over the fill.

Warning: This value only reflects the first character in the text layer at the current time. If you change this value, it resets all characters in the text layer to the specified setting.

Type

Boolean; read/write.

TextDocument.strokeWidth

`textDocument.strokeWidth`

Description

The text layer's stroke thickness in pixels.

Warning: This value only reflects the first character in the text layer at the current time. If you change this value, it resets all characters in the text layer to the specified setting.

Type

Floating-point value (0 to 1000, inclusive); read/write.

TextDocument.subscript

`textDocument.subscript`

Note: This functionality was added in After Effects 13.2 (CC 2014.2)

Description

True if a text layer has subscript enabled; otherwise false.

Warning: This value only reflects the first character in the text layer at the current time.

Type

Boolean; read-only.

TextDocument.superscript

`textDocument.superscript`

Note: This functionality was added in After Effects 13.2 (CC 2014.2)

Description

True if a text layer has superscript enabled; otherwise false.

Warning: This value only reflects the first character in the text layer at the current time.

Type

Boolean; read-only.

TextDocument.text

`textDocument.text`

Description

The text value for the text layer's Source Text property.

Type

String; read/write.

TextDocument.tracking

`textDocument.tracking`

Description

The text layer's spacing between characters.

> **Warning:** This value only reflects the first character in the text layer at the current time. If you change this value, it resets all characters in the text layer to the specified setting.

Type

Floating-point value; read/write.

TextDocument.tsume

`textDocument.tsume`

Note: This functionality was added in After Effects 13.2 (CC 2014.2)

Description

This text layer's tsume value.

> **Warning:** This value only reflects the first character in the text layer at the current time.

Type

Floating-point value; read-only.

TextDocument.verticalScale

`textDocument.verticalScale`

Note: This functionality was added in After Effects 13.2 (CC 2014.2)

Description

This text layer's vertical scale in pixels.

Warning: This value only reflects the first character in the text layer at the current time.

Type

Floating-point value; read-only.

Methods

TextDocument.compPointToSource()

`textDocument.compPointToSource()`

Note: This functionality was added in After Effects 13.2 (CC 2014.2)

Description

Converts composition coordinates, such as `sourcePointToComp`, to layer coordinates.

Warning: This method only works on paragraph text layers. This value only reflects the first character in the text layer at the current time.

Parameters

`sourcePointToComp`	A position array of composition coordinates in ([X, Y]) format.

Returns

Array of ([X,Y]) position coordinates; read-only.

TextDocument.resetCharStyle()

`textDocument.resetCharStyle()`

Description

Restores the default text character characteristics in the Character panel.

Parameters

None.

Returns

Nothing.

TextDocument.resetParagraphStyle()

`textDocument.resetParagraphStyle()`

Description

Restores the default text paragraph characteristics in the Paragraph panel.

Parameters

None.

Returns

Nothing.

TextDocument.sourcePointToComp()

`textDocument.sourcePointToComp()`

Note: This functionality was added in After Effects 13.2 (CC 2014.2)

Description

Converts layer coordinates, such as `boxTextPos`, to composition coordinates.

> **Warning:** This method only works on paragraph text layers. This value only reflects the first character in the text layer at the current time.

Parameters

`boxTextPos`	A position array of layer coordinates in ([X, Y]) format.

Returns

Array of ([X,Y]) position coordinates; read-only.

Example

For a paragraph text layer:

```
// Converts position in layer coordinates to comp coordinates.
var boxTextCompPos = myTextLayer.sourcePointToComp(boxTextLayerPos);
```

CHAPTER 42

Viewer object

`app.activeViewer`

Description

The Viewer object represents a Composition, Layer, or Footage panel.

Example

This maximizes the active viewer panel, and displays its type if it contains a composition:

```
var activeViewer = app.activeViewer;
activeViewer.maximized = true;
if (activeViewer.type == ViewerType.VIEWER_COMPOSITION)
    alert("Compositionpanelisactive.");
```

Attributes

Viewer.active

`viewer.active`

Description

When true, indicates if the viewer panel is focused, and thereby frontmost.

Type

Boolean; read-only.

Viewer.fastPreview

`viewer.fastPreview`

Description

The state of the Fast Previews menuThis is a read/write attribute using an enumerated value:

> **Warning:** If you try to get or set the attribute's value in the Layer or Footage panel, you'll get an error message.

Note: The Draft preview mode is only available in ray-traced 3D compositions. If you try to use it in a Classic 3D composition, you'll get an error: "Cannot set Draft fast preview mode in a Classic 3D composition."

Type

A `FastPreviewType` enumerated value; read/write. One of:

- `FastPreviewType.FP_OFF`: Off (Final Quality)
- `FastPreviewType.FP_ADAPTIVE_RESOLUTION`: Adaptive Resolution
- `FastPreviewType.FP_DRAFT`: Draft
- `FastPreviewType.FP_FAST_DRAFT`: Fast Draft
- `FastPreviewType.FP_WIREFRAME`: Wireframe

Example

```
app.activeViewer.views[0].options.fastPreview == FastPreviewType.FP_ADAPTIVE_
↪RESOLUTION
app.activeViewer.views[0].options.fastPreview == FastPreviewType.FP_DRAFT
app.activeViewer.views[0].options.fastPreview == FastPreviewType.FP_FAST_DRAFT
app.activeViewer.views[0].options.fastPreview == FastPreviewType.FP_OFF
app.activeViewer.views[0].options.fastPreview == FastPreviewType.FP_WIREFRAME
```

Viewer.maximized

`viewer.maximized`

Description

When true, indicates if the viewer panel is at its maximized size.

Type

Boolean; read/write.

Viewer.type

`viewer.type`

Description

The content in the viewer panel.

Type

A `ViewerType` enumerated value; read-only. One of:

- `ViewerType.VIEWER_COMPOSITION`
- `ViewerType.VIEWER_LAYER`
- `ViewerType.VIEWER_FOOTAGE`

Methods

Viewer.setActive()

`viewer.setActive()`

Description

Moves the viewer panel to the front and places focus on it, making it active. Calling this method will set the *viewer's active attribute* to true.

Parameters

None.

Returns

Boolean indicating if the viewer panel was made active.