

ActiveX Xtra

The ActiveX Xtra lets you use most ActiveX controls within a Director movie or an Authorware piece. To learn more about the Xtra, you can choose one of the following topics.

Conceptual topics

The following topics provide background information on the ActiveX Xtra.

[What does the ActiveX Xtra do?](#)

[ActiveX Xtra Components](#)

[ActiveX Control Properties](#)

[ActiveX Control Methods](#)

[ActiveX Control Events](#)

Task topics

The following topics provide instructions for using the ActiveX Xtra.

[Inserting an ActiveX Control](#)

[Editing property values](#)

[Examining methods and events](#)

[Downloading ActiveX controls within a movie or piece](#)

Reference topics

The following topics provide detailed information about the ActiveX Xtra, including dialog boxes and scripting features.

[Select ActiveX Control Dialog](#)

[ActiveX Control Properties Dialog](#)

[ActiveX Control Methods Dialog](#)

[ActiveX Control Events Dialog](#)

[ActiveX Control URL Dialog](#)

[ActiveX Xtra Scripting Functions](#)

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What does the ActiveX Xtra do?

Use the ActiveX Xtra to employ ActiveX controls within a Director movie or an Authorware piece. The range of uses for the ActiveX Xtra is as limitless as the variety of ActiveX controls available. For example, you can:

- Browse the Internet from within a multimedia production using the Microsoft Web Browser Control (installed with Microsoft Internet Explorer 3.0 or 4.0.)
- Create and access spreadsheets using the FarPoint Spreadsheet Control
- Explore virtual worlds using the InterVista VRML control
- Build and simulate complete windows applications within Director or Authorware using MicroHelp's extensive library of Window widget controls

The ActiveX Xtra functions as a Sprite Xtra within both Director and Authorware and manages application resources for the hosted ActiveX control. This resource management includes property, event, and window management, along with the filing of properties and resources used by the ActiveX control within the Director movie or Authorware piece itself.

ActiveX Xtra Components

To ensure that the runtime component is as small as possible for redistribution, the ActiveX Xtra consists of two MOA Xtras: ActiveX.X32, the runtime component and ActXPriv.X32, the user interface component.

When using the Director or Authorware authoring application to create an interactive title, both components should be installed in the Xtras directory local to the application.

After the interactive title has been packaged, you should redistribute only the runtime component, ActiveX.X32, with the title.

IMPORTANT: Under no circumstances should the user interface component, ActXPriv.X32, be redistributed with a packaged Director or Authorware title.

The files listed below are also provided with the ActiveX Xtra. These are self-installing executables provided by Microsoft that will upgrade a Windows 95 or Windows NT 4.0 system to run ActiveX components. These files can be called by the installation program for a multimedia title that uses the ActiveX Xtra.

- APRXDIST.EXE—ActiveX sub-installer for Win 95/NT 4.0.
- AXDIST.EXE—ActiveX sub-installer for Win 95/NT 4.0.
- WINDIST.EXE—ActiveX sub-installer for Win 95/NT 4.0.

ActiveX Control Properties

An ActiveX control describes its information through properties—named characteristics or values such as color, text, font, and so on. Properties can include not only visual characteristics, but also behavioral ones. For example, a button can have a property that indicates whether the button is a push button (it can be pushed on or off).

An ActiveX control's properties define its state; some or all of these properties can be persistent. A control can change its own properties; the container holding the control can also change a property in response to which the control would change its state, user interface, and so on.

When an ActiveX control is inserted into a Director movie or an Authorware piece, you can view and edit the properties exposed by the control by selecting the [Properties tab](#) of the Control Properties dialog for the ActiveX Xtra.

The ActiveX Xtra lists each property exported by the ActiveX control along with the current value of the property. You can [edit a property value](#) by clicking the existing value with the mouse. For most properties such as numeric or string values, you can enter the new value directly using the keyboard.

[Properties in Director](#)

[Properties in Authorware](#)

ActiveX Control Properties in Director

For Director, all methods exported by an ActiveX control are exported automatically by the ActiveX Xtra as properties of the corresponding Sprite Xtra.

The generic Lingo syntax for setting an ActiveX control property is:

```
set the PropertyName of sprite X to Value
```

The generic Lingo syntax for getting an ActiveX control property is:

```
put the PropertyName of sprite X into Value
```

For example, if the Microsoft Access Calendar control is inserted into a Director movie as the second sprite on the score, the following Lingo code sets the Year property of the Calendar control to a specific year:

```
set the Year of sprite 2 to 1995
```

To get the Year property from the same Calendar Control and place it into a Lingo variable named CalendarYear, the following Lingo code would be used:

```
put the Year of sprite 2 into CalendarYear
```

Some ActiveX control properties are read-only. In this case, an attempt to set a property for such a control causes an error within Director.

ActiveX Control Properties in Authorware

For Authorware, all methods exported by an ActiveX control are exported automatically by the ActiveX Xtra as properties of the corresponding Sprite Xtra.

The generic Authorware calc language syntax for setting an ActiveX control property is:

```
SetSpriteProperty ( @"Icon Title", #PropName, Value)
```

The generic Authorware calc language syntax for getting an ActiveX control property is:

```
Value = GetSpriteProperty ( @"Icon Title", #PropName)
```

For example, if the Microsoft Access Calendar control is inserted as a Sprite Xtra into an Authorware piece with the title "Calendar", the following Authorware calc language statement would set the Year property of the Calendar control to specific year:

```
SetSpriteProperty ( @"Calendar", #Year, 1996 )
```

To get the Year property from the same Calendar Control and place it into an Authorware variable named CalendarYear, you can use the following calc language statement:

```
CalendarYear = GetSpriteProperty ( @"Calendar", #Year )
```

Some ActiveX control properties are read-only. In this case, an attempt to set a read-only property is not allowed.

ActiveX Control Methods

An ActiveX control describes its functionality through methods. Methods are functions implemented in the control that can be called from Director or Authorware to perform some action. For example, an edit or other text-oriented control supports methods to allow Director or Authorware to retrieve or modify the current text, perhaps performing such operations as copy and paste with that control.

When an ActiveX control is inserted into a Director movie or an Authorware piece, you can [view the methods](#) exposed by the control by selecting the [Methods tab](#) of the Control Properties dialog for the ActiveX Xtra. The ActiveX Xtra lists each method exported by the ActiveX control along with a description of the parameters for each method.

[Methods in Director](#)

[Methods in Authorware](#)

ActiveX Control Methods in Director

For Director, all methods exported by an ActiveX control are exported automatically by the ActiveX Xtra as functions for the corresponding Sprite Xtra.

The generic Lingo syntax for calling an ActiveX control method is:

```
put MethodName ( sprite N, param1, param2, ... ) into RetValue
```

For example, if the Microsoft Access Calendar control is inserted into a Director movie as the second sprite on the score, the following Lingo code would increment the year displayed within the Calendar control:

```
NextYear ( sprite 2 )
```

For the same Calendar control the following Lingo code would decrement the year displayed by the Calendar control:

```
PrevYear ( sprite 2 )
```

Parameters passed to the ActiveX control are converted automatically from their Director data types to equivalent ActiveX data types by the ActiveX Xtra. The return value is converted automatically from an ActiveX data type to an equivalent Director data type.

ActiveX Control Methods in Authorware

For Authorware, all methods exported by an ActiveX control are exported automatically by the ActiveX Xtra as calc functions for the corresponding Sprite Xtra.

The generic Authorware calc language syntax for calling an ActiveX control method is:

```
RetVal = CallSprite ( @"Icon Name", #MethodName, param1, param2, ... )
```

For example, if the Microsoft Access Calendar control is inserted as a Sprite Xtra into an Authorware piece with the title "Calendar", the following Authorware calc function call on the Sprite Xtra would increment the year displayed within the Calendar control:

```
CallSprite ( @"Calendar", #NextYear )
```

For the same Calendar control the following Authorware calc function call on the Sprite Xtra would decrement the year displayed by the control:

```
CallSprite ( @"Calendar", #PrevYear )
```

Parameters passed to the ActiveX control are converted from their Authorware data types to an equivalent ActiveX data type by the ActiveX Xtra. The return value is converted automatically from an ActiveX data type to an equivalent Authorware data type.

ActiveX Control Events

Each ActiveX control typically generates a variety of events. For example, a button ActiveX control might generate a click event when the button is pressed and a calendar ActiveX control might generate a dateChanged event when the date within the calendar is changed. The ActiveX Xtra converts automatically any event generated by the ActiveX control to a Sprite Xtra event that either Director or Authorware can handle.

When an ActiveX control is inserted into a Director movie or an Authorware piece, you can [view the events](#) exposed by the control by selecting the [Events tab](#) of the Control Properties dialog for the ActiveX Xtra. The ActiveX Xtra lists each method exported by the ActiveX control along with a description of the parameters for each method.

[Events in Director](#)

[Events in Authorware](#)

ActiveX Control Events in Director

For Director to respond to an event generated by the ActiveX control, you must create a Lingo event handler to capture the event. These event handlers can be placed into movie, sprite, cast or frame scripts. However, normally the handler will be placed into the script for the sprite that represents the ActiveX control in the score.

For example, if the Microsoft Access Calendar control is inserted into a Director movie as a sprite in the score, the following Lingo code would capture the click event from the Calendar control:

```
on click
    -- Do something interesting here.
    beep 2
end
```

ActiveX Control Events in Authorware

For Authorware, to respond to an event generated by the ActiveX control, you must create an event response type symbol within Authorware.

To set up an event response type symbol:

1 Set up an interaction icon if you haven't already done so.

Refer to the Authorware documentation regarding how to set up an interaction icon.

2 Drag an icon to the right of the interaction icon.

The icon determines what happens when a user clicks the button you're setting up.

If you haven't planned in detail what you want to happen, use a map icon—they're the easiest to modify. The Response Type dialog box appears automatically as soon as you release the icon if it's the first one you've added to the interaction. If it's not the first, Authorware doesn't display the dialog box because it assumes that you want to use the same response type symbol you last chose. If the Response Type dialog box doesn't appear automatically, Control-double-click or Command-double-click the response type symbol to display it.

3 Select Event, then click OK. The response type symbol on the interaction flowline changes to the event symbol.

4 Give the result icon a name.

To select the event(s) you want the event type symbol to recognize as its target response:

1 Double-click the event response type symbol.

The Event response properties dialog appears. Make sure the event card is currently active. The names of all the Sprite Xtras that exist in the Authorware piece appear in the Sender list.

2 Double-click the Sprite Xtra icon to whose event(s) you want to respond.

An x appears to the left of the Sprite Xtra name to indicate that it has been selected. You can select multiple Sprite Xtras. All the events generated by the selected Sprite Xtras appear in the Event Name list.

3 In the Event Name list, double-click the event names(s) that you want to respond to.

An x appears to the left of the event name to indicate that it has been selected. You can select multiple event names. Instructions on the suggested usage of the event that is currently selected may appear in the Description field below the Event Name list.

4 Make your desired settings to the response card, then click OK.

Inserting an ActiveX Control

With the ActiveX Xtra—a type of Sprite Xtra—you can place ActiveX controls (formerly known as OLE/OCX controls) within a Director movie or an Authorware piece. Once inserted, the ActiveX control functions as a Sprite Xtra.

[Inserting a control in Director](#)

[Inserting a control in Authorware](#)

Inserting an ActiveX Control in Director

To insert an ActiveX control onto the Director stage:

- 1 Make sure that the ActiveX controls you want to use within Director are installed on your system.**
Most controls have their own installation utilities provided by the controls' manufacturers. You can also download and install an extensive variety of sample controls from the Microsoft ActiveX Gallery at <http://www.microsoft.com/activex/gallery> using Internet Explorer 3.0 or 4.0.
- 2 Choose Control from the Insert menu. The Control submenu appears.**
- 3 Choose ActiveX from the Control submenu. The [Select ActiveX Control dialog](#) appears.**
- 4 Select the desired ActiveX control then click OK. The [ActiveX Control Properties dialog](#) appears.**
If the ActiveX control does not appear on the list, the system may not have installed the control properly. You can verify this by viewing the list of ActiveX controls in another application such as Visual Basic.
- 5 Set the values for each necessary property in the ActiveX Control, then click OK.**
The ActiveX Control now appears in the cast. In addition to editing each property for the ActiveX control within the ActiveX Control Properties dialog, you can view information regarding each method the control supports and each event the control can generate. See the following topics for more information:
[Editing property values](#)
[Examining methods and events](#)
- 6 Drag the ActiveX control from the cast to the stage.**
After the ActiveX control appears on the stage, it can be repositioned and resized just like any other Sprite Xtra. While the movie is stopped, the ActiveX control is kept in authoring mode and will not react to mouse or keyboard events. When the movie is played, the control becomes responsive to user input.

Inserting an ActiveX Control in Authorware

To insert an ActiveX control onto the Authorware flowline:

- 1 Make sure that the ActiveX controls you want to use within Authorware are installed on your system.**
Most controls have their own installation utilities provided by the controls' manufacturers. You can also download and install an extensive variety of sample controls the Microsoft ActiveX Gallery at <http://www.microsoft.com/activex/gallery> using Internet Explorer 3.0.
- 2 From within Authorware, place the flowline pointer where you want to insert the Sprite Xtra.**
- 3 Choose Control from the Insert menu.**
The Control submenu appears.
- 4 Choose ActiveX from the Control submenu. The [Select ActiveX Control dialog](#) appears.**
- 5 Select the desired ActiveX control then click OK. The [ActiveX Control Properties dialog](#) appears.**
If the ActiveX control does not appear on the list, the system may not have installed the control properly. You can attempt to verify this by viewing the list of ActiveX controls in another application such as Visual Basic.
- 6 Set the values for each property in the ActiveX Control, then click OK.**
The selected ActiveX control is contained within the Sprite Xtra icon that is inserted on the flowline. The icon is automatically named 'ActiveX.' In addition to editing each property for the ActiveX control within the ActiveX Control Properties dialog, you can also view information regarding each method the control supports and each event the control can generate. See the following topics for more information:
[Editing property values](#)
[Examining methods and events](#)
- 7 Place additional icons on the flowline; rearrange them as you want. Continue to develop your Authorware piece as usual.**
An Event response type symbol can be set up to respond to events created generated by the control.

Editing property values

You can edit control property values using the ActiveX properties. For more information on properties, see [ActiveX Control Properties](#).

To edit control property values:

- 1 Choose the control to edit in the Select ActiveX Control dialog, then click OK.**
The [ActiveX Control Properties dialog](#) appears.
- 2 Click on the property whose value you want to change.**
The value appears at the top of the list.
- 3 Modify the property value using one of the following methods:**
 - Enter a new value in the edit box.
 - Choose a value from the dropdown list.
 - Click the ellipsis (...) button to display and modify Custom settings.
- 4 Choose the next property to modify or click OK to save your changes.**
Your changes are saved when you click a new property.

Examining methods and events

You can examine the methods and events associated with ActiveX controls. This is useful when you're using a control that does not have documentation.

For more information on methods, see [ActiveX Control Methods](#). For more information on events, see [ActiveX Control Events](#).

To examine control methods or events:

- 1 Choose the control to edit in the Select ActiveX Control dialog, then click OK.**
The [ActiveX Control Properties dialog](#) appears.
- 2 Click the Methods or Events tab.**
Either the [ActiveX Control Methods dialog](#) or the [ActiveX Control Events dialog](#) appears depending on your choice.
- 3 Click a method or event in the list.**
A description appears at the top of the list.
- 4 Click OK when you're finished examining the methods or events.**

Downloading ActiveX controls within a movie or piece

You can download an ActiveX control dynamically from within a Director movie or Authorware piece as it plays. When the end user encounters the portion of the movie or piece that specifies a download, the control is downloaded.

To download controls dynamically:

- 1 Choose the control to download in the Select ActiveX Control dialog, then click OK.**
The [ActiveX Control Properties dialog](#) appears.
- 2 Click the URL button.**
The [ActiveX Control URL dialog](#) appears.
- 3 Enter the full URL of the control to download.**
The specified URL must match the URL for the ActiveX control exactly. If it does not, the download fails.
- 4 To use the latest version of the control, keep the default -1, -1, -1, -1 for the version number.**
If you want to download an older version of the control, enter the version number. The version number must match a version exactly. If it does not, the download fails.
- 5 Click OK.**
When the end user encounters the portion of the movie or piece that specifies a download, the application tries to retrieve the control. If the URL is incorrect or the control's version number is not available, the download fails. If the URL and version number are correct, the application downloads the control. The system confirms that the user wants to install the control before installing it.

Select ActiveX Control Dialog

The Select ActiveX Control dialog lets you select and insert a control.

List—Displays the ActiveX controls installed on your system.

Search—Lets you scroll to an installed control. Enter the name of the control, then press Enter. The first occurrence of the name is highlighted. Pressing Enter again displays the next occurrence of the name.

OK—Inserts the selected control, then displays the [ActiveX Control Properties Dialog](#).

Cancel—Closes the dialog.

Help—Displays help for the dialog.

ActiveX Control Properties Dialog

The ActiveX Control Properties dialog lets you examine and modify control property values.

Methods tab—Displays the [ActiveX Control Methods dialog](#).

Events tab—Displays the [ActiveX Control Events dialog](#).

Edit box—Lets you edit the highlighted property value. Your changes are saved after you click a different property.

You can modify the property value using one of the following methods:

- Enter a new value in the edit box.
- Choose a value from the dropdown list.
- Click the ellipsis (...) button to display and modify Custom settings.

List—Displays the control properties.

Select—Lets you select a different control.

OK—Saves your changes.

Cancel—Closes the dialog.

URL—Displays the [ActiveX Control URL dialog](#).

Custom—Displays a dialog box showing Custom properties for the control. Some controls may not provide this feature.

About—Displays information about the control. Some controls may not provide this feature.

Help—Displays help for the dialog.

ActiveX Control Methods Dialog

The ActiveX Control Methods dialog lets you examine control methods.

Properties tab—Displays the [ActiveX Control Properties Dialog](#).

Events tab—Displays the [ActiveX Control Events dialog](#).

Description box—Displays information about the method.

List—Displays the control methods.

Select—Lets you select a different control.

OK—Saves your changes.

Cancel—Closes the dialog.

URL—Displays the [ActiveX Control URL dialog](#).

Custom—Displays a dialog box showing Custom properties for the control. Some controls may not provide this feature.

About—Displays information about the control. Some controls may not provide this feature.

Help—Displays help for the dialog.

ActiveX Control Events Dialog

The ActiveX Control Events dialog lets you examine control events.

Properties tab—Displays the [ActiveX Control Properties Dialog](#).

Methods tab—Displays the [ActiveX Control Methods dialog](#).

Description box—Displays information about the event.

List—Displays the control events.

Select—Lets you select a different control.

OK—Saves your changes.

Cancel—Closes the dialog.

URL—Displays the [ActiveX Control URL dialog](#).

Custom—Displays a dialog box showing Custom properties for the control. Some controls may not provide this feature.

About—Displays information about the control. Some controls may not provide this feature.

Help—Displays help for the dialog.

ActiveX Control URL Dialog

The ActiveX Control URL dialog lets you specify that a download of an ActiveX control will occur dynamically from within a Director movie or Authorware piece as it plays. When the end user encounters the portion of the movie or piece that specifies a download, the control is downloaded.

Download from URL—Enter the full URL of the control to download. The specified URL must match the URL for the ActiveX control exactly. If it does not, the download fails.

Version to Download—Enter the version number of the control to download. To use the latest version of the control, keep the default -1, -1, -1, -1 for the version number. If you want to download an older version of the control, enter the version number. The version number must match a version exactly. If it does not, the download fails.

CLASSID—Displays the class ID of the ActiveX control. The value displayed here can be copied and pasted into the [ActiveX Xtra Scripting Functions](#).

OK—Saves the specification.

When the end user encounters the portion of the movie or piece that specifies a download, the application tries to retrieve the control. If the URL is incorrect or the control's version number is not available, the download fails. If the URL and version number are correct, the application downloads the control. The system confirms that the user wants to install the control before installing it.

Cancel—Closes the dialog without saving the download specification.

Help—Displays help for the dialog.

ActiveX Xtra Scripting Functions

The ActiveX Xtra provides information about its status and control over features—such as security and downloading—through a set of scripting functions. These functions can be called from either Lingo in Director or Functions in Authorware. They are implemented as global functions in a Scripting Xtra within the ActiveX Xtra.

The global functions provided by the ActiveX Xtra are:

ActiveXInstalled

ActiveXInstalled

Returns -1 if ActiveX support is installed, otherwise 0.

Determines whether ActiveX support is currently installed on the system. If ActiveX support isn't installed, the multimedia title shouldn't use the ActiveX Xtra.

ActiveXSecuritySetting

ActiveXSecuritySetting

Returns ActiveX security setting: 'High', 'Medium', or 'None'.

This setting is used by the system when ActiveX controls are downloaded and installed from a URL.

High - The ActiveX control referenced by the URL must be a digitally signed with a valid signature before the control is installed into the system. Otherwise the download and installation for the control fails and a warning is displayed to the user.

Medium - The ActiveX control referenced by the URL does not have to be digitally signed with a valid signature before the control is installed, but the user will be warned if the signature is missing or invalid. If the user elects not to install the control, the download and installation will fail.

None - There is no security enabled and the user may not be warned about dangerous content when an ActiveX control is downloaded and installed on the system.

ActiveXDownloadSetting

ActiveXDownloadSetting

Returns ActiveX download setting: 'Enabled' or 'Disabled'. This setting allows the user to specify whether the download of ActiveX content is allowed, regardless of the ActiveX security level.

Enabled - Download of ActiveX controls from a URL is enabled.

Disabled - Download of ActiveX controls from a URL is disabled.

If a multimedia title attempts to download and install an ActiveX control when the download setting is disabled, an error message will be displayed to the user warning that the control could not be accessed.

ActiveXSecurityDialog

ActiveXSecurityDialog

Displays a dialog box for the user to set ActiveX security settings. This dialog box is modeled after the security dialog boxes within Microsoft Internet Explorer 3.02.

Since the ActiveX Xtra does not allow the system security settings to be changed from a script handler, displaying the security dialog box is the only way to dynamically change the settings in a multimedia title. Only allowing the user to modify security settings is done for obvious reasons.

Typically, a multimedia title that uses ActiveX controls will use the ActiveXSecuritySetting and ActiveXDownloadSetting handlers to determine the current system security settings. If the settings are inappropriate for the multimedia title, the user can be asked to adjust the security settings to the desired level from the ActiveX Xtra security dialog box.

ActiveXControlQuery

ActiveXControlQuery string CLASSID

Returns -1 if the ActiveX control is installed, otherwise 0. This handler can be used to determine if an ActiveX control is currently installed on the system.

The CLASSID value must be the unique 64-bit identifier for the control. For example the following values is the CLASSID for the Microsoft Calendar Control:

```
"{8E27C92B-1264-101C-8A2F-040224009C02}"
```

ActiveXControlDownload

ActiveXControlDownload string CLASSID, string URL, integer VER1,
integer VER2, integer VER3, integer VER4

Downloads a particular version of the specified ActiveX control from a URL. Returns -1 if the download succeeded, otherwise 0.

The CLASSID value must be the unique 64-bit identifier for the control. For example the following values is the CLASSID for the Microsoft Calendar Control:

```
"{8E27C92B-1264-101C-8A2F-040224009C02}"
```

The URL value is the URL from which to download and install the ActiveX control from. It can be a local file URL as well. If the value is just the filename of the control installation file, it must be found on the application search path for Director or Authorware.

The version parameters specify the version of the control to be installed, or these parameters can all be set to -1 to use the latest version of the control.

ActiveXControlRegister

ActiveXControlRegister string FILENAME

Locates the specified control file on the application path and calls the DllRegisterServer entry point. Typically, this will install an ActiveX control that is self registering. Returns -1 if the install succeeded, otherwise 0.

Because this handler does not download an ActiveX control, it is not affected by the ActiveX security settings.

ActiveXControlUnregister

ActiveXControlUnregister string FILENAME

Locates the specified control file on the application path and calls the DllUnregisterServer entry point. Typically, this will uninstall an ActiveX control that is self registering. Returns -1 if the install succeeded, otherwise 0.

Because this handler does not download an ActiveX control, it is not affected by the ActiveX security settings.

