Avid® Media Composer® and Film Composer®

Effects Guide

Avid
tools for storytellers®

Avid Media Composer and Film Composer Effects Guide • Part 0130-04528-01 Rev. A • August 2000

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CHAPTER 1

Preparing to Work with Effects

Your Avid editing system offers many effects that you can apply to your sequences. This chapter describes some of the concepts with which you must become familiar before you begin creating and editing effects into sequences.

- **About Effect Types**
- **About Horizontal, Vertical, and Nested Effects**
- **Effects Creation Tools**
- **About Real-Time and Downstream Key Effects**
- **About Effects in 24p or 25p Projects**
- **Using the Effect Palette**
- **Using Third-Party Plug-in Effects**
- **Changing Timeline View Settings for Effects**
- **Adjusting Trim Settings for Effects**

About Effect Types

Much overlapping occurs between the various types of effects you can create, as well as the methods used to create them. Roughly speaking, there are four basic types of effects:

- **Transition effects** (dissolves, wipes, and so forth) are applied at the cut point between two video clips that are on the same video track (that is, the same video layer).

  Chapter 2 and **Chapter 3** describe techniques for creating transition effects.

- **Segment effects** (both single-layer and multilayer) are applied to an entire clip or group of clips. There are two types of segment effects:

  - A single-layer segment effect, such as the Mask effect, is applied to a segment on one video track. Single-layer segment effects use one stream of video.

    Chapter 2 and **Chapter 3** describe techniques for creating single-layer segment effects.

  - A multilayer segment effect, such as the Picture-in-Picture (PIP) effect, is applied to the top layer or a middle layer of segments that contain two or more video tracks that will be played simultaneously.

    Chapter 4 describes techniques for creating multilayer effects.

- **Title effects** are created with the Title tool and edited onto their own layers in a sequence.

  Chapter 6 and **Chapter 7** describe techniques for creating and editing title effects.

- **Motion effects** (freeze frame, variable speed, and strobe) are created by manipulating the playback characteristics of a clip of footage.

  Chapter 2 describes techniques for creating motion effects.

A number of effects have both 2D (two-dimensional) and 3D (three-dimensional) versions on systems equipped with the 3D Effects option. **Chapter 5** describes techniques for creating 3D effects.

For a complete list of effects, with information on the capabilities of each effect, see the release notes for your Avid editing system.

About Horizontal, Vertical, and Nested Effects

You can break down effect designs into two different types: horizontal and vertical.

Horizontal refers to effects that you apply across an individual video track. Horizontal effects include:

- Transition effects between two video clips (dissolves, wipes)
- Segment effects and motion effects that modify the appearance of a single clip (color effects, flops)

Vertical refers to effects that you apply by adding video elements on more than one track to create a composite. They are called vertical effects because you add elements by creating additional video tracks that appear vertically above existing tracks. Vertical effects include picture-in-pictures, titles, and superimpositions. Individual elements in a vertical effect can also contain horizontal effects.

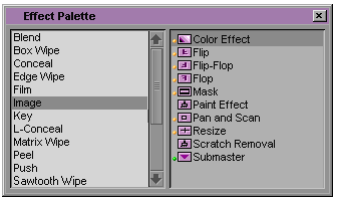
You might need to change a single element in a vertical effect sequence. For example, you might want to apply a color effect within an existing Picture-in-Picture effect. To do this, you can nest an effect inside another effect. Instead of one video layer being physically above another video layer, a nested effect is contained within another effect on the same video layer. For more information about nested effects, see **"Nesting Effects" on page 206**.

Effects Creation Tools

The following chart presents the basic tools used to create effects.

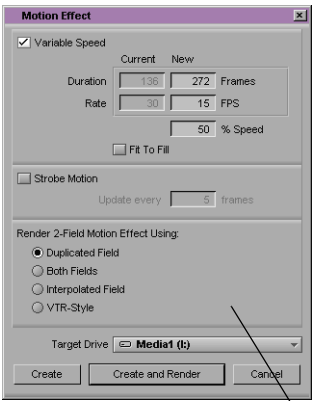
Sources of effects:

Effect Palette



Apply transition and segment effects directly to tracks.

Motion Effect dialog box



Edit effect clips into the Timeline.

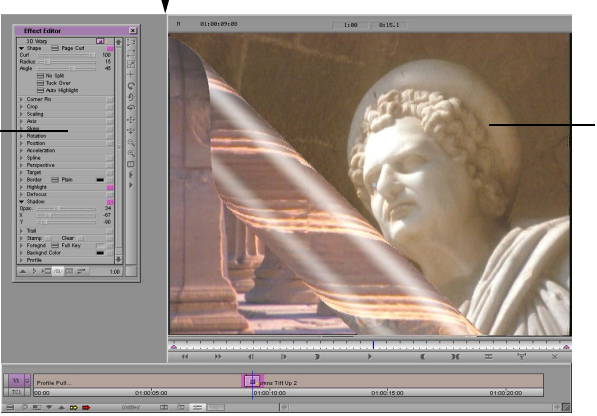
Title tool

Title and motion effects appear first as clips in the bin.

Effects editing:

Effects adjustment in Effect mode:

Effect Editor: Allows you to adjust effect parameters.



Effect Preview monitor: Allows you to preview an effect, manipulate keyframes, and manipulate wire-frame representations of the effect.

About Real-Time and Downstream Key Effects

Many effects are *real time*, which means you do not have to render them before you play them. You can preview effects that are not real time before rendering. In addition, titles and graphic elements imported with an alpha channel display as *downstream key* (DSK) effects.

- Playback Capabilities for Two-Stream Video
- Playback Capabilities for Single-Stream Uncompressed Video

About Downstream Key Effects

By default, all titles are created using your Avid editing system's DSK capabilities. Graphic elements imported with an alpha channel are also created as DSK clips.

Downstream keying allows you to add uncompressed titles or graphics over multiple streams of compressed media and continue to play the sequence in real time. The real benefits of downstream keying are seen during editing of Title Effect clips into sequences.

For information about editing with DSK titles, including descriptions of various restrictions and playback capabilities, see ***Chapter 7****.*

About Real-Time Effects

A *real-time effect* is an effect that you can apply to a sequence and play without having to render it first (rendering takes time and drive space). A real-time effect has a small orange dot within the effect icon in the Timeline. Effects that must be rendered have a small blue dot within the effect icon in the Timeline. Effects that might need to be rendered have a small green dot within the effect icon in the Timeline. For more information, see **"Understanding the Color Coding" on page 42**.

Your Avid editing system has a mix of real-time and non-real-time effects. For a complete list of effects and their real-time status, see the release notes for your system.

Playing Real-Time Effects

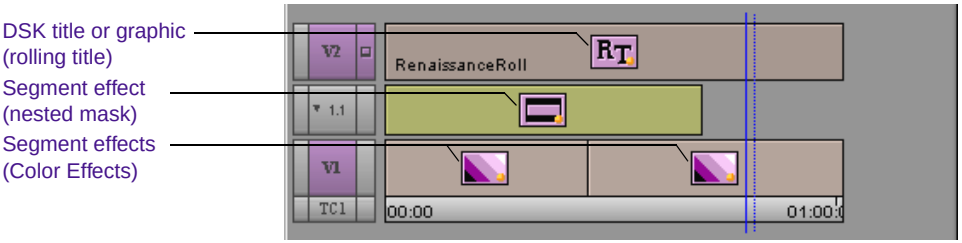
You can create a sequence that has any number of real-time and non-real-time effects. However, the maximum real-time playback capabilities of your Avid editing system depend on whether you are working with two streams of video (compressed resolutions or the two-stream uncompressed option) or with the single-stream uncompressed video option.

Playback Capabilities for Two-Stream Video

If you are working with compressed video resolutions or with the two-stream uncompressed option, your Avid editing system can play two video streams in real time. The following are the maximum real-time playback capabilities for two streams of video:

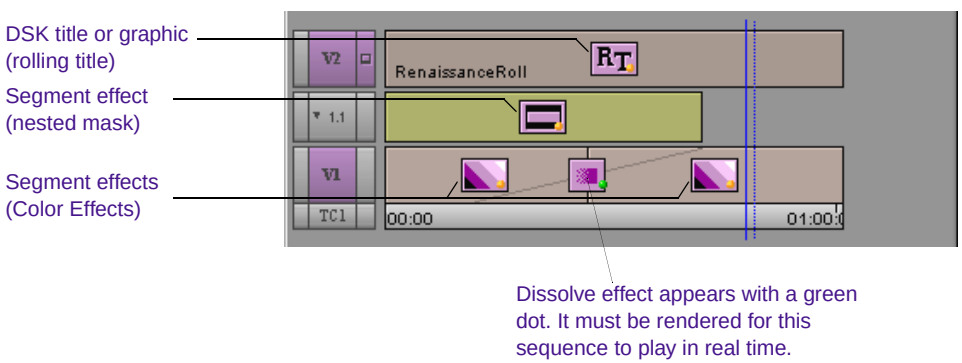
- You can play up to a maximum of two real-time segment effects at a time.
- You can add a maximum of one additional DSK title or graphic. The DSK Title effect can be either a rolling title, a static title, or a graphic.

  The following sequence shows one example of the maximum real-time playback capabilities of your Avid editing system. The system can successfully play the Color Effect, the Mask effect, and the DSK Title effect at the same time. At any point in the sequence, your Avid editing system is using one video stream for the Color Effect, a second video stream for the Mask effect, and is applying the DSK Title effect downstream.



- You can add a Dissolve effect between adjacent segments containing real-time segment effects, and the track will continue to play in real time. However, if another segment effect is on another track, your Avid editing system can no longer play the sequence in real time, since it cannot process three video streams simultaneously.

  In the following illustration, a Dissolve effect is placed between the two Color Effects on track V1. This prevents the sequence from playing in real time. Your Avid editing system would exceed its limits since it would require one video stream for the outgoing part of the Dissolve effect, a second stream for the incoming part of the Dissolve effect, and a third for the nested Mask effect. In this instance, the Dissolve effect appears with a green dot and must be rendered.



Playback Capabilities for Single-Stream Uncompressed Video

If your system includes the single-stream uncompressed (1:1) video option and you are working with uncompressed video, your system can play only one video stream in real time. The following are the maximum real-time playback capabilities for single-stream uncompressed video.

- You can play effects that use only one video stream, for example color effects or resizes. These effects will appear with an orange dot in the Timeline.
- You can add a DSK title or graphic to a sequence that plays in real time, and the sequence will continue to play in real time. For more information on the playback capabilities of titles and graphics when working with uncompressed video, see **Chapter 7**.
- You cannot play effects that require more than one video stream, for example, dissolves and Picture-in-Picture effects, in real time. This includes all transition effects and all multilayer segment effects. These effects will appear with a green dot in the Timeline.

Additional Suggestions for Playback

You can play back any number of effects beyond the real-time playback capabilities by using one or more of the following additional techniques:

- Render some or all of the effects. You can use ExpertRender™ to identify those effects in a sequence that must be rendered in order to achieve successful playback. For more information, see **"Rendering Effects" on page 140**.

In general, consider rendering transition effects such as the Dissolve effect or wipe effects first, because they take less time to render than titles or segment effects.

- Use the Submaster effect to reduce the amount of rendering. For more information, see **"Submaster Editing" on page 213**.

- Perform a mixdown of video tracks. For more information, see **"Performing a Video Mixdown" on page 218**.

Hardware Limitations for Real-Time Effects

If you have multiple short clips with multiple real-time effects or images with a high level of complexity, you may exceed the capacity of the hardware to play these in real time, resulting in Video Underrun error messages. In this case, render some of the intermediate effects before playing the sequence.

Combined Rendering of Real-Time and Non-Real-Time Effects

The combination of real-time and non-real-time effects on the same video track can show different results, depending on when you render the non-real-time effects:

- If you render non-real-time segment effects *after* you apply a real-time transition effect, the sequence will play in real time.
- If you render non-real-time segment effects and then apply a real-time transition effect, the transition effect will play as a cut.

Displaying Effects On-the-Fly

The Render On-the-Fly option allows you to play back real-time effects and preview non-real-time effects frame by frame, immediately after applying them.

To display effects immediately during effects editing:

- Choose Render On-the-Fly from the Special menu.

A separate setting for Render On-the-Fly exists for Trim mode. See ***"Adjusting Trim Settings for Effects" on page 59****.*

Interrupting Render On-the-Fly

Using Render On-the-Fly can slow down your editing of a sequence. If you are compositing and then change the frame you are monitoring, you must wait for the Avid system to render the single frame.

Instead of waiting for the Avid system to finish rendering, you can interrupt Render On-the-Fly. Interrupting Render On-the-Fly interrupts the rendering of only non-real-time effects.

To interrupt Render On-the-Fly do one of the following:

- Drag the position indicator in the Timeline.

  While you are dragging, the sequence appears in the Record monitor as it would if Render On-the-Fly were not selected in the Special menu.

- If you click in the Timeline and the Avid system begins to render, quickly move to another location in the Timeline. This cancels the rendering process.

About Effects in 24p or 25p Projects

Since effects in 24p or 25p projects are frame based rather than field based, their normal behavior is slightly different from effects in interlaced projects. In particular, temporal artifacts might appear in some effects under certain circumstances. This section explains when temporal artifacts might appear and suggests ways to create effects that do not show perceptible temporal artifacts.

Effects that do not involve any movement across the screen — for example, masks, Color Effects, and dissolves — look the same in 24p or 25p projects as in interlaced projects.

Effects that involve movement across the screen — for example, wipes, 3D shapes, or moving titles — might look different from their equivalents in interlaced projects for the following reasons:

- Since the effect is created using 24 or 25 progressive frames per second (24p or 25p), motion across the screen is interpolated in 24 or 25 increments per second. (Contrast the 50 increments per second for a PAL interlaced project or the 60 increments per second for an NTSC interlaced project.) For example, the edge of a one-second Horizontal Edge Wipe effect will appear in 24 or 25 different positions across the screen. For effects of short duration in particular, this difference might be perceptible to the viewer.
- When the 24p or 25p media is output (to the interlaced Client monitor or as a digital cut), it is re-interlaced and pulldown is inserted to achieve 60 fields per second (NTSC). Your Avid system inserts pulldown by duplicating some of the existing frames to create the correct number of fields per second. Temporal artifacts created by this duplication process might be perceptible to the viewer. This behavior is a normal result of the pulldown insertion process and is often perceptible in conventional transfers of films to video formats.

PAL output with pulldown also duplicates certain frames but is less likely to exhibit perceptible temporal artifacts since fewer frames require duplication.

Motion effects created in 24p or 25p projects, such as Variable Speed effects, might also look different from motion effects created in interlaced projects. For more information on 24p or 25p motion effects, see **"About Motion Effects in 24p or 25p Projects" on page 88**.

For more information on how your system handles 24p or 25p material, see the Avid *Media Composer and Film Composer* Input and Output Guide.

If an effect in a 24p or 25p project does not look completely smooth, do one or more of the following:

- Slow down the effect. For example, a two-second Horizontal Edge Wipe effect, while it is still performing at the same rate (24 increments per second), moves across the screen in 48 steps. These smaller movements make the wipe appear smoother to the viewer.
- Soften the edges of the effect. The more the edges of the effect are blurred, the less noticeable the movements between the increments of the effect will be.
- When working with moving titles, avoid small font sizes and sharp edges. In a moving title such as a roll, lines of small text might move less smoothly than lines of larger text.

Using the Effect Palette

The Effect Palette is a window that lists all the effects available on your Avid system. The effects that are available on your system depend on the model and options that you purchased and on what third-party plug-ins you might have installed. For the list of effects available for your model, see the release notes for your system.

You select transition and segment effects from the Effect Palette. The effects in the Effect Palette are grouped by category:

- Blend
- Box Wipe
- Conceal
- Edge Wipe
- Film
- Image
- Key
- L-Conceal

- Matrix Wipe
- Peel
- Push
- Sawtooth Wipe
- Shape Wipe
- Spin
- Squeeze
- Xpress 3D Effect

If you have effect templates saved in an open bin, or if you have third-party plug-in effects installed on your system, additional effect categories appear in the Effect Palette.

Each of these effect categories contains multiple effects. Use the following procedure to display the Effect Palette.

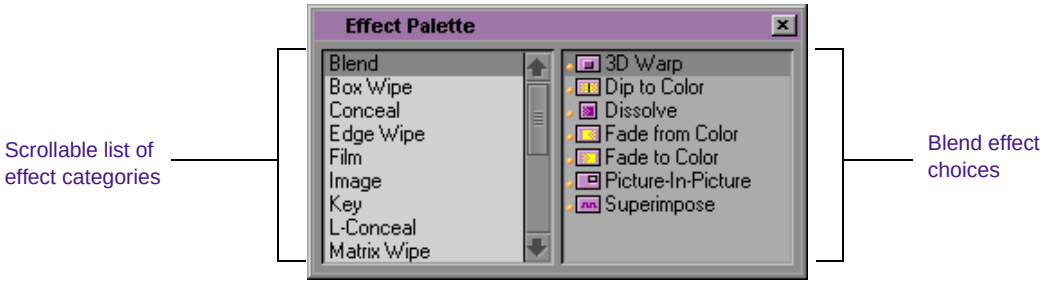
Displaying the Effect Palette

To display the Effect Palette:

1. Choose Effect Palette from the Tools menu.

   You can also display the Effect Palette by pressing Ctrl+8 (Windows) or ⌘+8 (Macintosh) on your keyboard.

   The Effect Palette appears.



The left side of the Effect Palette displays a scrollable list of effect categories. The right side shows the various effects that are available for the currently selected effect category.

2. Click an effect category to select it and display effects in the category.

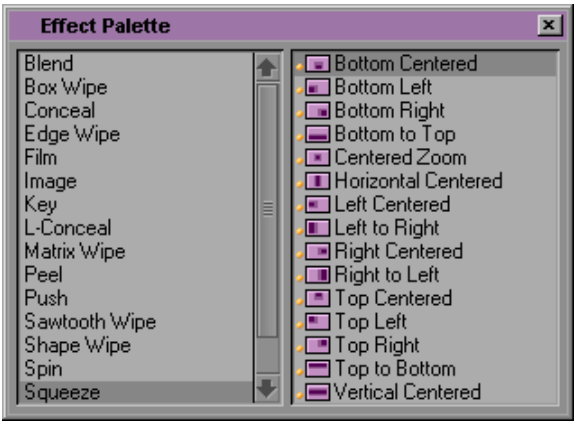
Some effects are available only on certain models. For example, the 3D Warp effect is available only on models equipped with 3D effects capability.

Resizing the Effect Palette

You can resize the Effect Palette to display more effects when a particular category includes a long list of icons.

To resize the Effect Palette:

- Click the lower right corner of the palette, drag the palette to the size you want, and release the mouse button.



Understanding the Color Coding

Effect icons in the Effect Palette and in the Timeline display color-coded dots to help you determine whether an effect is real-time or non-real-time. After opening the Effect Palette, you will notice that:

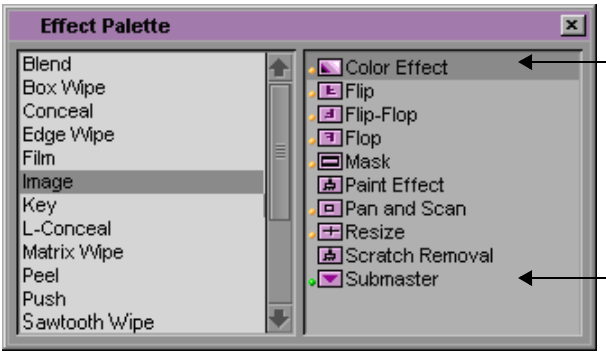
- Real-time effects are preceded by an *orange dot. These effects take advantage of fast rendering.*
- Real-time effects that *might* not be playable in real time due to their position in a sequence or the options available on your system are preceded by a *green dot*. These effects take advantage of fast rendering.

The Submaster effect has a green dot in the Effect Palette. Other effects might show a green dot in the Timeline, based on the complexity of the sequence.

- Non-real-time effects have *no dot* in the Effect Palette. In the Timeline, the effect icon contains a *blue dot* until the effect is rendered.

When you edit a non-real-time effect into a sequence, the effect icon appears with a blue dot in the Timeline, which indicates that you must render the effect to play it in real time. After you render the effect, the effect icon appears in the Timeline without a dot.

All color-coded dots disappear in the Timeline when you render effects.



No dot (as in Paint Effect above) indicates a non-real-time effect; in the Timeline, the effect icon contains a blue dot until the effect is rendered.

A real-time effect might not be playable in real time for a variety of reasons involving the complexity of the sequence and the real-time effects capabilities of the Avid editing system. For more information, see **"About Real-Time and Downstream Key Effects" on page 32**.

For a complete listing of all effects and their real-time playback capabilities, see the release notes for your system.

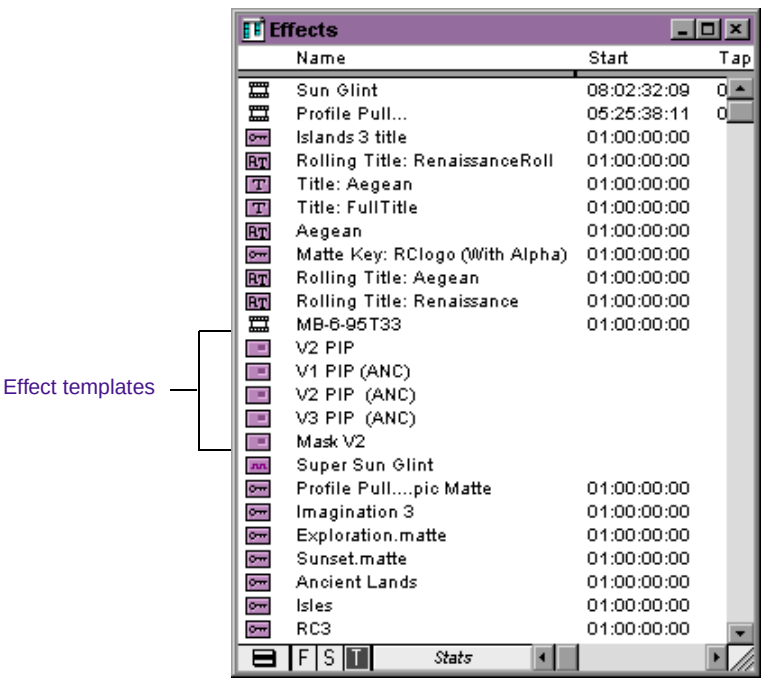
Displaying Effect Templates

Effect templates allow you to save the parameters of an effect to a bin and use them again to create or modify other effects. See **"Using an Effect Template" on page 136** to learn more about applying templates.

In addition to allowing you to view all the standard effects, the Effect Palette allows you to view and access effect templates that are stored in open bins. The names of open bins containing effects appear in a list below the effect categories.

To view the effect template:

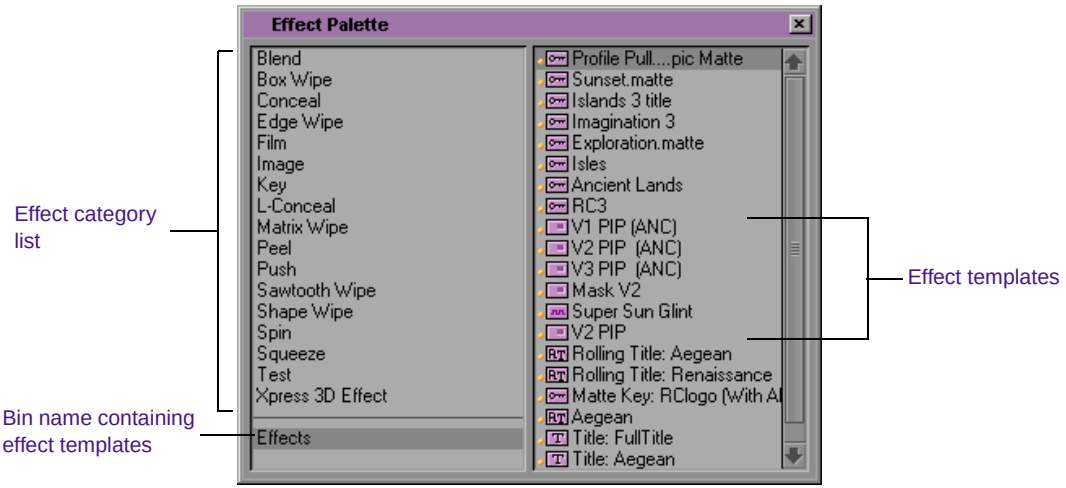
1. Open the bin containing the effect templates.



2. Choose Effect Palette from the Tools menu.

   The Effect Palette opens.

3. Click the bin name below the effect category list to view the effect templates in the bin.



   For example, in the illustration in step 1, the bin named Effects contains a series of effect templates using the Picture-in-Picture, Mask, and Superimpose effects.

In the previous illustration, notice that the Effect Palette also displays other effect files, such as titles and matte key clips.

Whenever you open or close a bin or drop an effect into a bin, your Avid system automatically updates both lists. Once a template appears on the right side of the Effect Palette, you can apply it as you would any other effect.

Using Third-Party Plug-in Effects

You can use third-party plug-in effects to add new effects to your Avid system or to update existing effects. Third-party plug-in effects are compatible with the Avid Visual Extensions (AVX™) standard. AVX is a cross-platform software architecture designed to allow software effect modules to be dynamically linked with a host application such as an Avid editing system.

You can purchase these plug-ins directly from a third-party vendor. Two of the current AVX plug-in vendors are:

- Ultimatte Corporation (Ultimatte®)

  www.ultimatte.com

- Artel Software (Boris FX™)

  www.borisfx.com or **www.artelsoft.com**

For a complete, up to date list of AVX plug-in vendors and other information on AVX, visit the AVX Web site:

www.avid.com/3rdparty/avx/index.html

After you install third-party plug-ins, the effects appear in the Effect Palette in their own category (usually the name of the plug-in vendor). Individual effects all have a plug icon. The plug icon also appears in the Timeline when you have applied a third-party plug-in effect. After you create an effect, you can save it as an effect template and reapply the template to other transitions or segments in your sequence. Effect templates also appear in a special section at the bottom of the Effect Palette.

Your Avid system also supports Digidesign® AudioSuite plug-ins. These plug-ins apply only to audio clips and do not appear in the Effect Palette. For more information, see the chapter "Working with Audio " in the Avid *Media Composer and Film Composer* Editing Guide.

If you are transferring from another system a project that includes sequences with AVX plug-in effects, you must install matching AVX plug-ins in order to see the effects.

AVX Plug-Ins and Memory Usage

Each time you apply an AVX plug-in to a sequence, your Avid system keeps the effect resident in memory. When you close the bin containing the sequence, the system also closes the AVX plug-ins, freeing the memory. If you have applied many plug-ins and you find your Avid system running out of memory, use the following procedure to free the memory being used by the plug-ins.

To close all the AVX plug-ins:

1. Choose Console from the Tools menu.
2. Type the command **`closeallavxplugins`** and press Enter (Windows) or Return (Macintosh).

   The Avid system closes all open AVX plug-ins. The AVX plug-ins will automatically open again as needed.

Installing Photoshop-Compatible Plug-in Effects (Macintosh)

Avid Media Composer and Film Composer for the Macintosh operating system can use many plug-in effects that are compatible with Adobe Photoshop Version 2.5. You purchase these plug-ins directly from a third-party vendor.

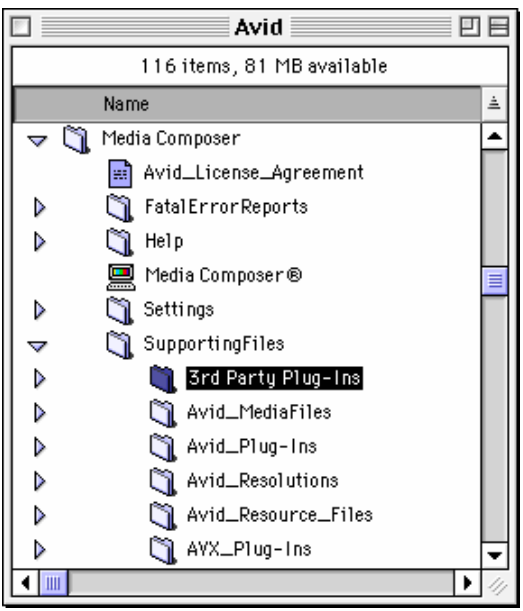
To install Photoshop-compatible plug-ins:

1. Exit the Avid application.

Do not add or remove plug-ins while the Avid application is running.

2. Copy the plug-in files from the software vendor's folder to the 3rd Party Plug-Ins folder located on your Avid drive.

   The following illustration shows the location of the 3rd Party Plug-Ins folder within the Avid file structure.



3. Restart the Avid application and open the Effect Palette. The plug-in effects will appear in the Effect Palette, usually in their own effect category.

You must place the plug-ins directly in the 3rd Party Plug-Ins folder. They cannot be inside another folder within this folder or elsewhere on the Avid system. If they are, the system will not recognize them.

Installing AVX Plug-Ins

AVX plug-ins usually come complete with any necessary documentation. This section describes how to install the plug-ins and how to access them from your Avid system.

Most AVX plug-ins have their own installation program. This program locates the AVX_Plug-Ins folder and installs the plug-ins automatically when you follow the installation instructions.

If an AVX plug-in has an installation program, you should always use the program to install the plug-ins. For more information, see the documentation for the plug-in.

Some AVX plug-ins do not have an installation program and must be installed manually.

To install AVX plug-ins manually:

1. Exit the Avid application.

Do not add or remove plug-ins while the Avid application is running.

2. Copy the plug-in files from the software vendor's folder to the AVX_Plug-Ins folder located on your Avid system.

You must place the plug-ins directly in the AVX_Plug-Ins folder. They cannot be inside another folder within this folder or elsewhere on the Avid system. If they are, the system will not recognize them.

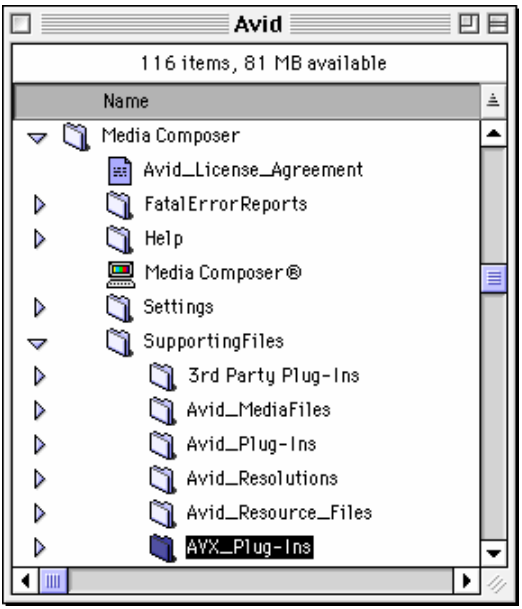
- (Windows) The default location for the AVX_Plug-Ins folder is:

  C:\Program Files\Avid\AVX_Plug-Ins

  However, the AVX_Plug-Ins folder might be in a different location on your system.

If the AVX_Plug-Ins folder does not appear in the default location and you do not know where it is located, you can locate the folder by using the Regedit application that comes with your Windows NT® system. For more information, see ***"Locating the AVX_Plug-Ins Folder (Windows)" on page 51***.

- (Macintosh) The following illustration shows the location of the AVX_Plug-Ins folder within the Avid file structure.



3. Restart the Avid application and open the Effect Palette.

   The AVX plug-in effects will appear in the Effect Palette, usually in their own category under the name of the vendor.

(Windows only) If the plug-in effects do not appear in the Effect Palette after installation, see ***"Troubleshooting AVX Plug-Ins" on page 56***.

Locating the AVX_Plug-Ins Folder (Windows)

When the Avid application is first installed, the system asks the administrator to choose a location for the AVX_Plug-Ins folder. The default path is:

C:\Program Files\Avid\AVX_Plug-Ins

If the administrator accepts the default location for the AVX_Plug-Ins folder, you can install AVX plug-ins here.

If the AVX_Plug-Ins folder is not in the default location, or if the effects are not appearing in the Effect Palette after you install them, you can use the Regedit application that comes with your Windows NT system to locate the AVX_Plug-Ins folder.

Use the following procedure only to obtain information on the location of the AVX_Plug-Ins folder. Do not change any of the information in the Windows® Registry. Changing values in the Windows Registry might affect the performance of your system.

To locate the AVX_Plug-Ins folder by using Regedit:

1. Click the Start button, and then click Run.
2. Type **`regedit`** in the command line and click OK.

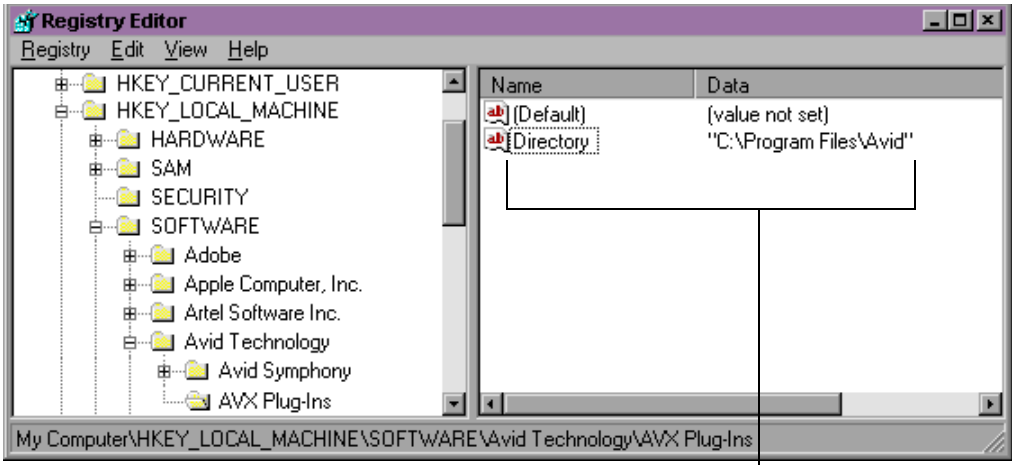
   The Registry Editor window opens.
3. In the left pane of the window, navigate to the following path:

HKEY_LOCAL_MACHINE\SOFTWARE\Avid Technology\AVX Plug-Ins

4. Click the AVX Plug-Ins folder in the left pane, and then check the entry for "Directory" in the right pane.

   The value of this entry is the path that contains the AVX_Plug-Ins folder. For example, if the AVX_Plug-Ins folder is in its default location, the Directory entry will be "C:\Program Files\Avid." If you navigate to C:\Program Files\Avid by using My Computer or

the Windows NT Explorer, you will find the AVX_Plug-Ins folder in that location.



Remember that AVX plug-ins must be installed in the AVX_Plug-Ins folder itself, not elsewhere in the path that contains that folder. If AVX plug-ins are not in the folder, the system will not recognize them.

Upgrading AVX Plug-ins and Effects

You can upgrade an AVX plug-in simply by de-installing the old version of the plug-in and installing the new version in your AVX_Plug-Ins folder.

Once you have installed a new version of an AVX plug-in, your Avid system upgrades existing effects in sequences to be compatible with the new version. The existing parameter values for the effect appear in the Effect Editor or in the plug-in's own user interface.

If the new version of the plug-in has new or redesigned parameter controls, your Avid system sets these controls to their default settings for existing effects. Controls that are unchanged from the older version of the plug-in retain the values previously set by the user when the system upgrades existing effects.

Once a plug-in effect or transition has been upgraded, you should not reinstall the older version of the plug-in. The Avid editing system cannot use an older version of a plug-in to process effects that have been created with a newer version. Similarly, if you transfer projects between systems, an effect created with a newer version of a plug-in will not work on a system that has an older version installed.

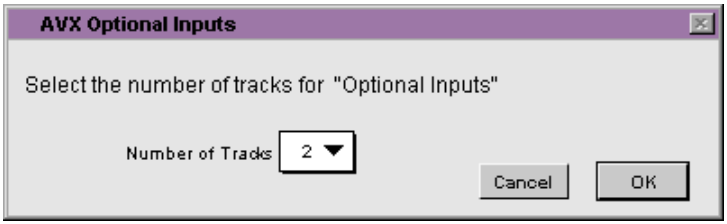
Assigning Multiple Tracks in Plug-in Effects

Some plug-in effects take an arbitrary number of tracks as input. Your system allows you to choose the number of video inputs from the AVX Optional Inputs dialog box.

For more information on the multiple track capabilities of a plug-in, see the documentation for that plug-in.

To assign multiple tracks to a plug-in effect by using the AVX Optional Inputs dialog box:

1. Drag the plug-in icon to the Timeline.
2. If the AVX Optional Inputs dialog box appears, select the number of video inputs you want from the Number of Tracks pop-up menu, and then click OK.



For more information on nested effects, see **"Nesting Effects" on page 206**.

Using AVX Plug-in Controls

This section provides general guidance for controlling and adjusting AVX plug-in effects. For more information on the adjustments available for a specific effect, see the documentation for the plug-in.

AVX plug-ins use a variety of interfaces that give you control over the effects. Plug-in vendors have the following styles for controls:

- The Avid system-style Effect Editor only. The Effect Editor for a specific plug-in might include only Avid standard buttons and parameter controls, or it might include additional custom controls.
- Custom dialog box only. In this case, when you click the Effect Mode button, the Effect Editor is empty except for the Other Options button in the upper left corner. Click the Other Options button to see the additional dialog box.
- Direct manipulation controls in the Effect Preview monitor. In this case, when you click the Outline/Path button in the Effect Editor, custom controls appear over the image in the monitor.

Accessing an AVX Custom Interface

If an AVX plug-in has a custom interface, you access that interface from the Effect Editor.

To access an AVX plug-in's custom interface:

- Click the Other Options button in the Effect Editor.

The AVX plug-in's custom interface appears.

Dialog boxes that appear as part of an AVX plug-in's custom interface are modal dialog boxes. If you move one of these dialog boxes, the screen behind the dialog box will not redraw. To restore your screen, close the dialog box.

Custom AVX Controls in the Effect Editor

This section introduces some of the custom controls that might appear in the Effect Editor for an AVX plug-in effect. For more information on using these controls, and other controls specific to individual effects, see the documentation for the plug-in.

Some plug-in effects allow you to adjust an image by using controls that appear as overlays, such as handles and wire frames, in the Effect Preview monitor. You access these overlays by clicking the Outline/Path button at the bottom of the Effect Editor. In some cases, you can then access further controls by clicking buttons on the right side of the Effect Editor that are similar to the buttons available in standard Avid 3D effects.

The following Effect Editor parameters, which are not available in standard Avid effects, are available to some AVX plug-in effects:

- The Treadmill is a slider that provides a window on a wide range of values and allows precise control over increments.

- The Angle allows you to manipulate an effect's angle or direction by dragging within a graphic representation of a circle to alter the angle or direction value. Values can be positive or negative and are not limited to a single 360º rotation.

Troubleshooting AVX Plug-Ins

This section describes problems that you may encounter with AVX plug-ins and suggests possible solutions or sources for more information.

Contact the plug-in vendor if a plug-in does not work as expected and these suggestions do not solve the problem.

- Plug-in does not appear in the Effect Palette

  AVX plug-ins have a plug icon in the Effect Palette and in the Timeline. If the plug icon does not appear in the Effect Palette after installation, the plug-in may be in the wrong folder. See **"Locating the AVX_Plug-Ins Folder (Windows)" on page 51** for help.

- Plug-in does not load

  AVX plug-ins might not load correctly for a variety of reasons. In particular, even though it is located correctly in the AVX_Plug-Ins folder, a plug-in might require supporting files — for example .dll files — that are missing from your system or are installed in the wrong location.

  If a correctly located plug-in does not load, check the plug-in documentation for information on required supporting files.

- The Avid system cannot render the plug-in

  If the Avid system cannot render the plug-in, the plug-in might have expired or the plug-in's system application key (dongle) might be missing or damaged.

  Check the Console window if you have problems rendering a plug-in effect. Some plug-ins write more information about the failure to the Console window. Also, some plug-ins might report the problem as a message in the Bin or Edit monitor.

- Blank effect icons in the Timeline

  AVX plug-ins have a plug icon in the Effect Palette and in the Timeline. If the effect icon in the Timeline is blank, the Avid system could not find the plug-in.

  To identify the plug-in that is missing or misplaced, open the Console window (choose Console from the Tools menu) and look for the message "Can't find effect." The message will identify the plug-in that cannot be located. You can then reinstall the plug-in in your AVX_Plug-Ins folder and restart the Avid application.

- Missing effect categories in the Effect Palette

  If plug-in effect categories are not visible in the Effect Palette, either they are not installed correctly or you might have an incorrect version of the AVXLibrary. Check the Console window for a message that states that AVX was disabled.

  - If AVX was not disabled, quit the Avid application, reinstall the plug-ins, and restart the application.

  - If AVX was disabled, call Avid Customer Support to determine whether you need a new version of the AVXLibrary.

- The Avid system is running out of free memory

  Each time you apply an AVX plug-in to a sequence, your Avid system keeps the effect resident in memory. When you close the bin containing the sequence, the system also closes the AVX plug-ins, freeing the memory. To close the AVX plug-ins, see **"AVX Plug-Ins and Memory Usage" on page 47**.

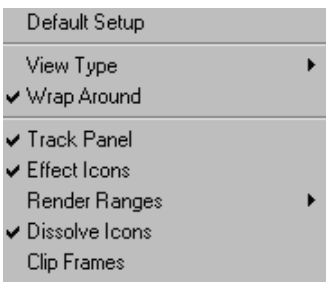
Changing Timeline View Settings for Effects

All effect icons are displayed in the Timeline by default. You can change the Timeline settings to display all effect icons, all effect icons except Dissolve Effect icons, or no effect icons. If you have changed the setting to display *no* effect icons, you have to reset it before you begin applying effects. The fewer effect icons you display, the faster your Avid system refreshes the screen.

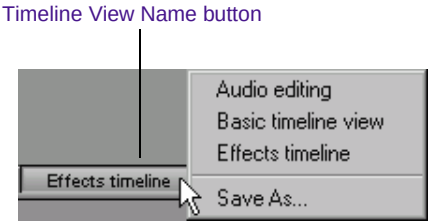
To change the Timeline settings:

- Click the Fast Menu button in the Timeline window.

  The Timeline Settings Fast menu appears.



  - To display all effect icons in the Timeline, choose Effect Icons.
  - To display all effect icons except Dissolve icons, choose Effect Icons and deselect Dissolve Icons.
  - To display no effect icons, deselect Effect Icons. Dissolve Icons appears dimmed and is now unavailable.
  - To save your Timeline settings, click the Timeline View Name button, select Save As, and type a view name.



Adjusting Trim Settings for Effects

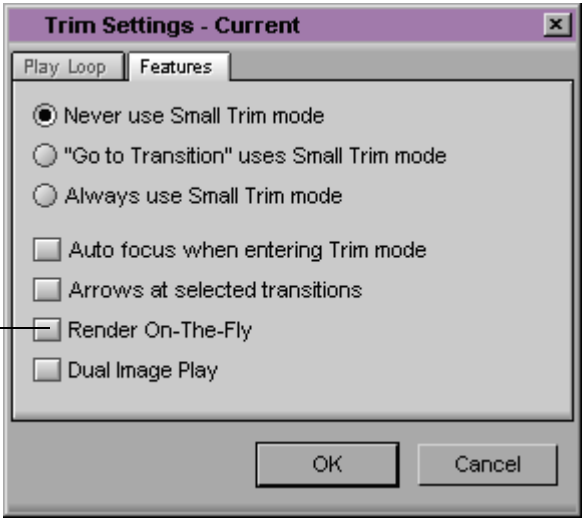
When you are in Trim mode, you can control whether or not the effects you apply are computed immediately on the screen (that is, on-the-fly) or appear later when you render them. For example, viewing transitions as cuts (*without* rendering on-the-fly) can facilitate the trimming process. This setting is defined in the Trim Settings dialog box.

To change the Trim settings for render on-the-fly:

1. Double-click Trim in the Settings scroll list of the Project window.

   The Trim Settings dialog box appears.

2. Click the Features tab, and then select or deselect Render On-The-Fly.



Use Render On-the-Fly to determine when the Avid system computes effects.

For information on changing the Trim settings, see "Working in Trim Mode" in the Avid *Media Composer and Film Composer* Editing Guide.

CHAPTER 2

Basics of Effects Editing

This chapter explains how to create basic transition and single-layer segment effects, including motion effects.

Deconstructing Effects

One good way to understand how effects are built in your Avid editing system is to break down existing effects into their basic elements. By learning how the various pieces fit together, and how the system allows you to manipulate them, you can begin to construct new effects from these building blocks.

The sequence depicted in the following screen image contains a series of effects that cover all the basic techniques — from simple dissolves to

3D nested layers — described throughout Chapters 2, 3, 4, and 5 of this guide.

You can double-click the image below to view the entire sequence in the .pdf version of this guide, available on the Avid *Media Composer and Film Composer* Online Publications *CD-ROM.*

The Timeline for this sequence, shown below, includes both transition and segment effects applied horizontally, vertically, and nested within video tracks. The callouts summarize deconstructed elements and list the sections of this guide that describe them in more detail.

Deconstructing an effects sequence

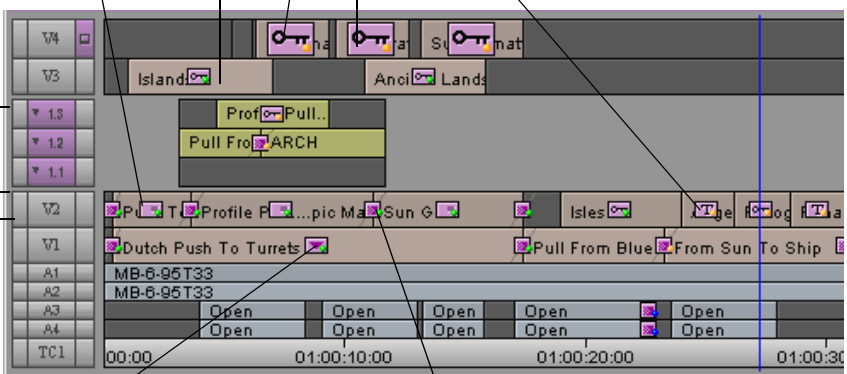
Imported graphic promoted to a 3D Slat Wipe:
See **“Using Matte Keys with 3D Effects” on page 225**.

Title graphics imported as Matte Key effects:
See **“Working with Imported Graphics and Anima·tion” on page 182**.

Keyed titles are faded in and out:
See **“Using the Fade Effect Button” on page 71**.

Effect template applied repeatedly to crop and position foreground images on V2:
See **“Creating a Cropped Foreground Effect” on page 247**.

Titles “stamped” in place with 3D Warp:
See **“Creating a Stamp” on page 253**.



Nested segments add more layers to the foreground track:
See **“Nesting Effects” on page 206**.

Submaster segment, created from collapsed layers, forms the background on V1:
See **“Submaster Editing” on page 213**.

Dissolve sequence forms the foreground on V2:
See **“Applying an Effect to Multiple Transitions” on page 66** and **“Working with Transition Effects” on page 72**.

Various effect parameters are adjusted throughout to soften, distort, or position images:
See **“Using the Effect Editor” on page 117**.

Applying Effects to a Sequence

This section explains how to apply an effect to a sequence in the Timeline. You can apply an effect to:

- One transition or segment on a single video layer
- Multiple transitions or segments on a single video layer
- Multiple transitions or segments on multiple video layers

The effect type (transition or segment) determines where you can place the effect in the sequence. For an explanation of the effect types, see **"About Effect Types" on page 29**.

After you apply an effect, the next step is to adjust the effect's parameters. To understand how to adjust the effect parameters, see **"Changing a Parameter" on page 123**.

Applying an Effect to a Single Transition or Segment

Use the following procedures to apply an effect to one transition or segment on a single video layer.

To apply an effect to a single transition or segment:

For information about editing a sequence, see the editing guide for your Avid system.

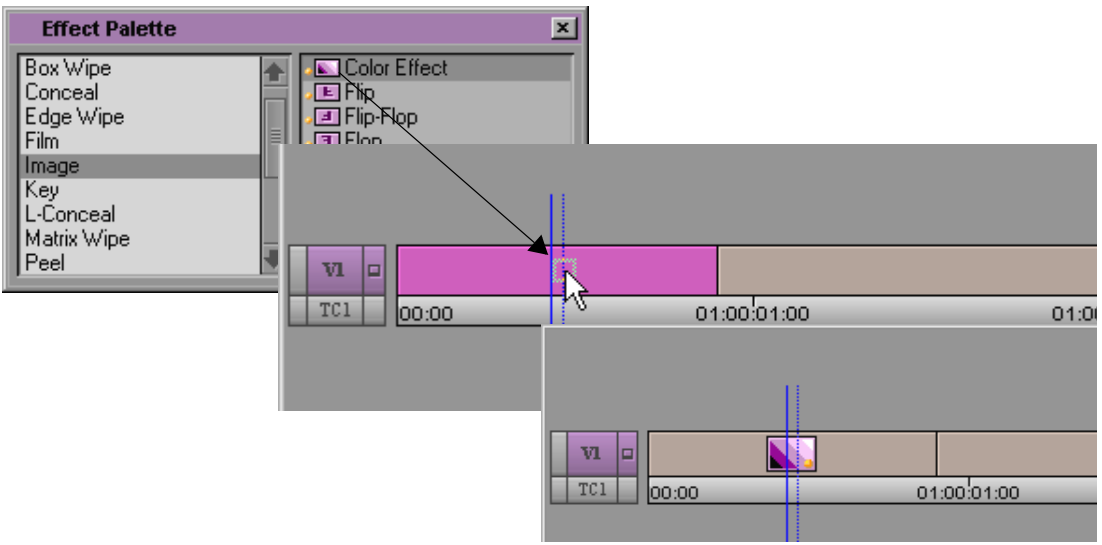
1. Create a sequence in the Record monitor by using standard Avid editing procedures.
2. Choose Effect Palette from the Tools menu.

   For an explanation of the Effect Palette, see **"About Effect Types" on page 29**.

3. To apply an effect, do one of the following:

   - Click the effect icon in the Effect Palette, drag it to the segment or transition in the Timeline, and release the mouse button.
   - In Effect mode, click the transition or segment in the Timeline where you want to apply the effect, and double-click the effect's icon in the Effect Palette.

   The effect icon appears in the Timeline, as shown in the following example.

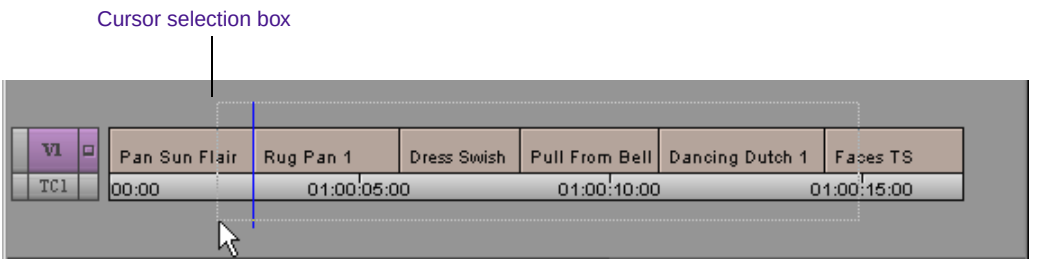


If the effect is a segment effect, one segment at a time is highlighted as you drag the effect within the Timeline. If the effect is a transition effect, one transition at a time is highlighted as you drag the effect within the Timeline. Some effects can be both a transition and a segment effect; when you drag an effect within the Timeline, both transitions and segments are highlighted.

Applying an Effect to Multiple Transitions

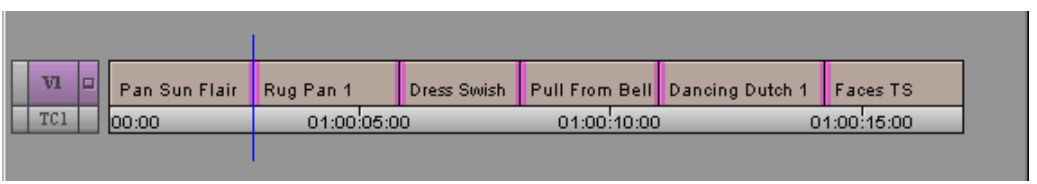
To apply an effect to multiple transitions:

1. Click the Effect Mode button to enter Effect mode.
2. Click the first or last transition to which you would like to apply the effect.
3. Click *above* the Timeline and begin dragging to activate a selection box. Continue to drag down and either to the left or right to include additional transitions in the selection.



4. Release the mouse button when you have lassoed all the transitions you want.

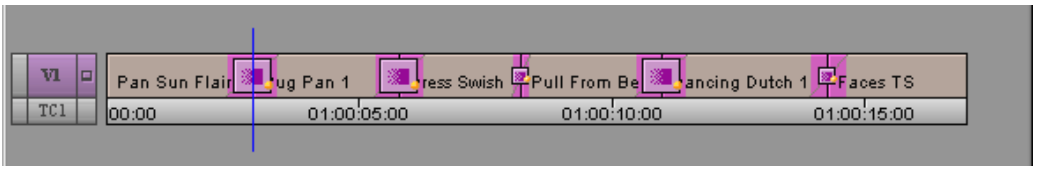
   The Avid system highlights the transitions that you selected, and the position indicator moves to the first transition.



5. If the transitions where you want to apply the effect are not contiguous, Shift+click any transition to deselect it.

6. Open the Effect Palette and double-click the effect's icon that you want to apply to the transitions.

   The Avid system applies the effect to the highlighted transitions in the Timeline.



If there is not enough incoming or outgoing media to apply the transition effect, a dialog box appears. For more information, see **"Sizing the Effect to Fit the Media" on page 81**.

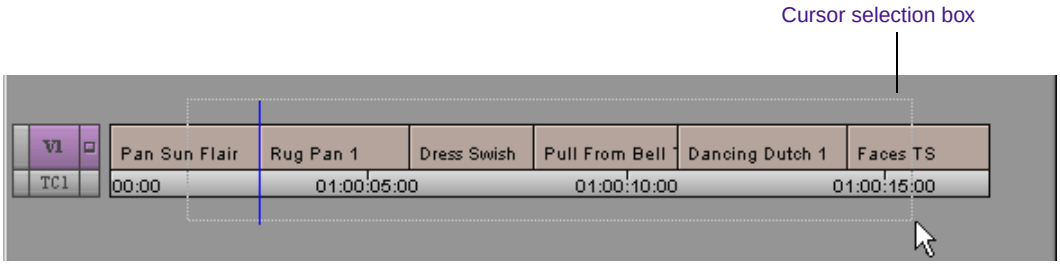
*You can also apply the effects available in the Quick Dissolve dialog box to multiple transitions by marking IN and OUT points. For more information, see **"Using the Add Dissolve Button to Apply Effects to Multiple Transitions" on page 78**.*

Applying an Effect to Multiple Segments

You can apply an effect to multiple segments on the same video layer or on multiple video layers in a single step. The following procedure describes selecting multiple segments in the same video layer. You can also use this procedure to select segments on multiple layers.

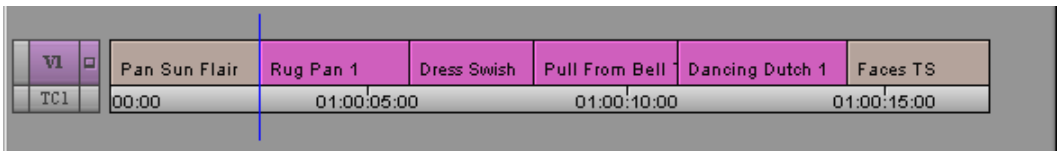
To apply an effect to multiple segments on the same video layer:

1. In Source/Record mode or Effect mode, click above the Timeline and to the left of the *leftmost* segment that you want to select and begin dragging to the *right* and *down* to activate a selection box.
2. Continue to drag the selection box to the *right* until you lasso the *rightmost* segment that you want to select.



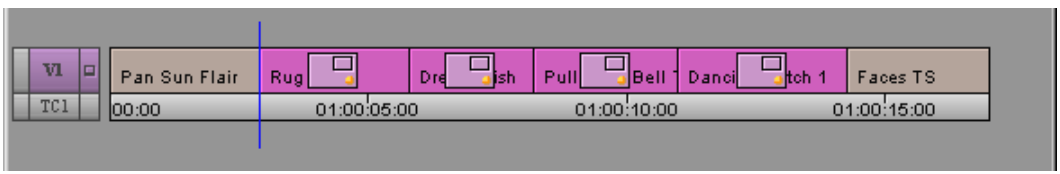
3. Release the mouse button.

   The segments that you selected are highlighted.



4. If the segments where you want to apply the effect are not contiguous, Shift+click a segment to deselect it.
5. Open the Effect Palette and double-click the effect's icon that you want to apply to the segments.

   The effect is applied to the highlighted segments in the Timeline.



About Deleting Effects in a Sequence

Transition effects can be deleted from a sequence in Source/Record mode, Trim mode, or Effect mode. Segment effects can be deleted in Source/Record mode or Effect mode. Use the following procedures to

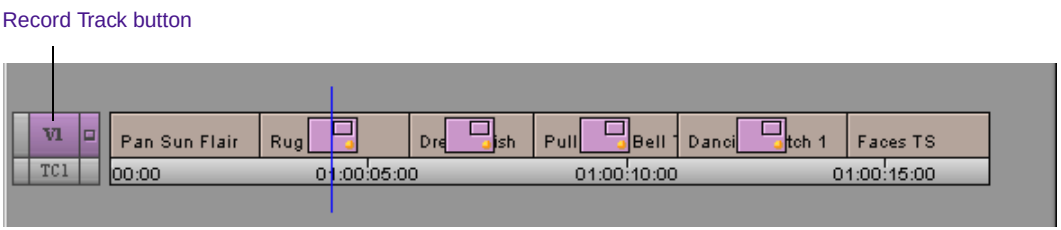
either delete a single effect from a sequence or delete effects in multiple segments.

Deleting a Single Effect

To delete a single effect:

1. Move the position indicator to the Timeline segment containing the effect's icon.
2. If there are multiple tracks that contain effects at the same position in the Timeline, select only the track where the effect to be deleted resides.

   In this example, only track V1 is selected.

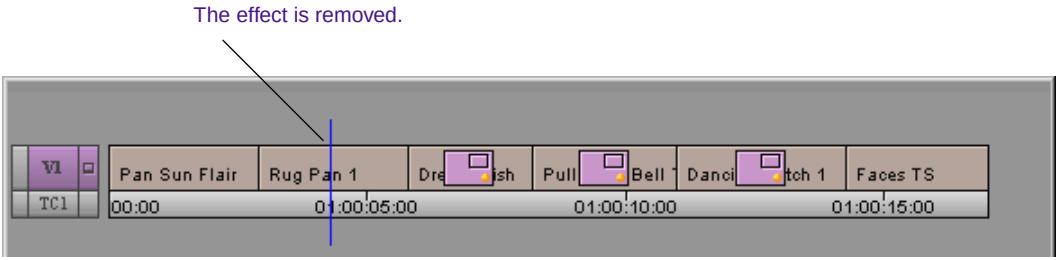


If you are deleting a segment effect and the segment contains a transition effect, the transition effect will be deleted also, because the transition effect resides "on top of" the segment effect. If necessary, you will have to reapply the transition effect.

3. Use one of the following methods to delete the effect:

   - If the Effect Editor is not active, click the Remove Effect button.
   - When the Effect Editor is active, select the effect and press the Delete key.
   - In Trim mode (for transition effects only), either press the Delete key or click the Remove Effect button.

When you delete an effect from a sequence, the associated media file is not *deleted. In order to delete the effect's media file, you must manually remove it from the drive. Your Avid editing system operates this way so that you will be able to undo the deletion of an effect or undo the change you made to an effect. To delete an effect's media file, see* ***"Managing Effect Media Files" on page 165****.*



Deleting Multiple Transition Effects

To delete multiple transition effects:

1. Shift+click each of the transition effects you want to delete.
2. Click the Remove Effect button, or press the Delete key.

Deleting Multiple Segment Effects

To delete multiple segment effects:

1. Click one of the Segment Mode buttons below the Timeline.
2. Shift+click each segment that contains a segment effect to be deleted.
3. Click the Remove Effect button, or press the Delete key.

Using the Fade Effect Button

You can use the Fade Effect button to fade segment effects quickly and easily. A dialog box appears that allows you to enter the number of frames to fade up and fade down.

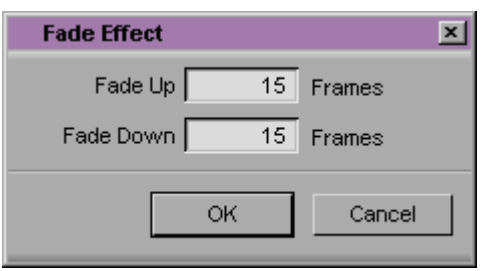
The Fade Effect feature automatically creates keyframes for the effect. You can access the keyframes in the Effect Editor.

To fade one or more segment effects in a sequence:

1. Select the segment effects in the Timeline:
   - To fade a single segment effect, move the position indicator to the segment.
   - To fade multiple segment effects, click either the Extract/Splice-in button or the Lift/Overwrite button below the Timeline; then Shift+click the segments.
2. Click the Fade Effect button.

You can map the Fade Effect button to the Record monitor, the Tool palette, or the keyboard. For more information on mapping buttons, see the Avid *Media Composer and Film Composer* Editing Guide.

3. In the Fade Effect dialog box, type the number of frames to fade up and fade down, and click OK.



You can immediately view the Fade effect by playing the segment or segments.

Working with Transition Effects

You apply a transition effect to the cut point between two clips on the same video track. You can adjust the alignment and duration of a transition effect. Depending on the specific effect, other effect parameters might also be available.

Types of Transition Effects

Transition effects are included in all effect categories on the Effect Palette, except the Image effect category. For an explanation of the transition effects in each effect category, see **Chapter 9**, "**2D Effects Reference**," and **Chapter 10**, "**3D Effects Reference**."

Applying a Dissolve Effect

One of the most common transition effects is a dissolve. Your Avid editing system has three methods you can use to apply the Dissolve effect:

- Select the Dissolve effect from the Effect Palette.
- Type a duration in the Transition parameters in Trim mode or in the Effect Editor.
- Click the Add Dissolve button.

The following sections describe each of these methods.

Using the Effect Palette

To apply a Dissolve effect by using the Effect Palette:

1. Create a sequence in the Record monitor by using the standard Avid editing procedures. For information about editing a sequence, see the *Avid Media Composer and Film Composer Editing Guide*.
2. Choose Effect Palette from the Tools menu.
3. Click the Blend category.

4. Drag the Dissolve Effect icon to the transition in the Timeline, and release the mouse button.

   The Dissolve Effect icon appears in the Timeline.

When there is not enough incoming or outgoing media to apply a transition effect, a dialog box appears. See **"Sizing the Effect to Fit the Media" on page 81**.

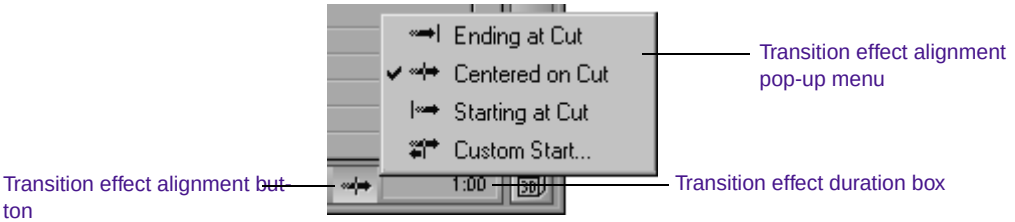
Using the Transition Parameters

You can create a Dissolve effect using the Transition parameters displayed in Trim mode and in the Effect Editor. Simply enter the duration for which the effect will play, and the system adds the Dissolve effect to the sequence.

To create a Dissolve effect by using the Transition parameters:

1. Click a transition in the Timeline while in Trim mode or Effect mode.
2. In the Transition Effect Duration box in the Effect Editor, type the dissolve's duration.

The duration format is determined by the Duration setting above the Record monitor — for example, seconds:frames.



The system adds the Dissolve effect at the transition, and a Dissolve Effect icon appears in the Timeline.

3. Click the Transition Effect Alignment button, and select the effect's position relative to the cut point from the pop-up menu.

   For an explanation of the Transition Effect Alignment menu selections, see **"Transition Parameters" on page 511**.

Using the Add Dissolve Button

Another way to create a transition effect is to click the Add Dissolve button. This button allows you to apply a Dissolve effect or any other transition effect listed below without having to access the Effect Palette:

- Dissolve
- Film Dissolve (optional on some models)
- Film Fade (optional on some models)
- Fade to Color
- Fade from Color
- Dip to Color

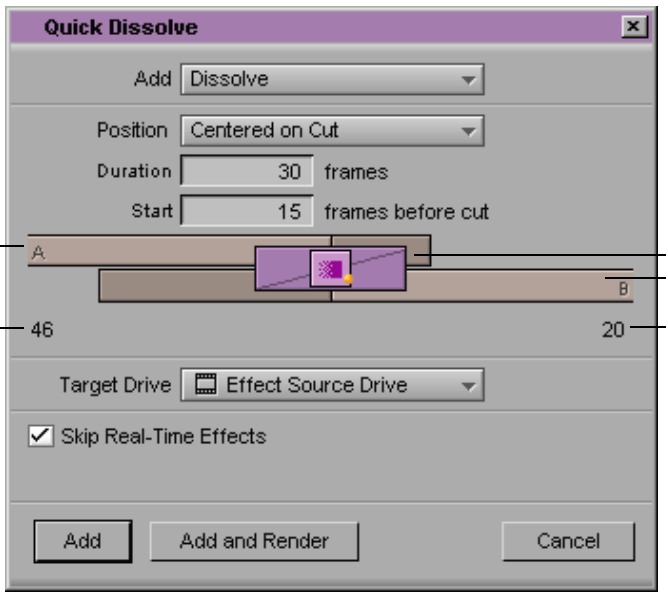
If you have IN and OUT points marked in your sequence, you can choose to add the same Dissolve effect to multiple transitions. When you click the Add Dissolve button, the Quick Dissolve dialog box will contain a check box for Apply to All Transitions (IN -> OUT). See ***"Using the Add Dissolve Button to Apply Effects to Multiple Transitions" on page 78***.

To create an effect by using the Add Dissolve button:

1. Move the position indicator to the transition in the Timeline.

2. Click the Add Dissolve button in the Tool palette.

   The Quick Dissolve dialog box appears.

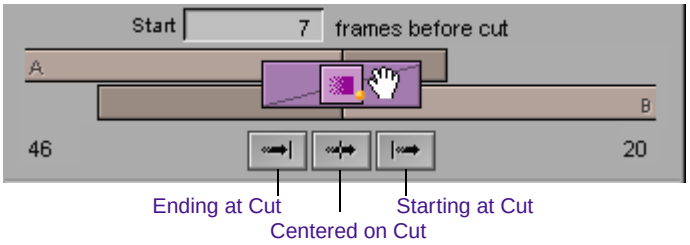


   The dialog box shows a graphic representation of the outgoing media (A) and incoming media (B), with the Dissolve Effect icon applied to the transition.

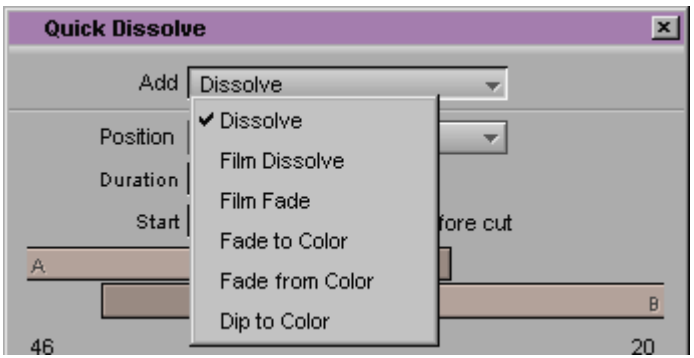
   The system scales the graphic to show the relative size of the Dissolve effect and the media available for the effect.

   Below the graphic on the left is the number of frames of incoming media (B) available before the cut, and on the right is the number of frames of outgoing media (A) available after the cut.

3. Customize the effect using either the menu choices or the graphic of the Dissolve Effect icon. When you click and drag on the Dissolve Effect icon, the cursor changes to a hand and three alignment buttons appear below the graphic.



4. Choose a transition effect from the Add pop-up menu.



For an explanation of individual effects shown in the menu, see **Chapter 9**, "**2D Effects Reference**."

When you save a Dissolve effect template into a bin named Quick Dissolves, the effect template appears on the Add pop-up menu. See ***"Using an Effect Template" on page 136****.*

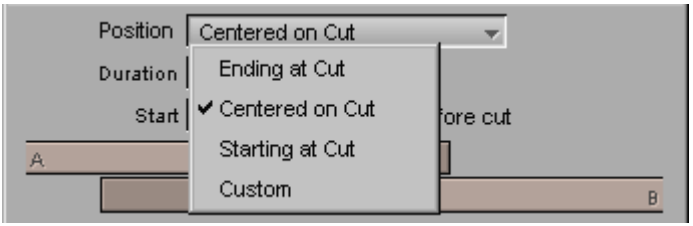
When you choose a color transition with Add Dissolve, the default color is black. You must enter Effect mode to choose another color. For more information, see ***"Using the Effect Editor" on page 117****.*

5. Select the transition duration by doing one of the following:
   - Type the duration in frames into the Duration text box.
   - Click and drag on either the left or right edge of the Dissolve Effect icon to change the duration.

The graphic changes — the size of the effect icon gets smaller or larger, and the numbers in the Duration and Start text boxes change — to reflect the new duration.

6. Choose the effect's alignment relative to the cut point in one of the following ways:

   - Choose an alignment from the Position pop-up menu.



   - Click and drag on the inside of the Dissolve Effect icon to position the effect with respect to the cut point.
   - Click one of the alignment buttons below the graphic.

   The system positions the effect.

   If you select an alignment for which there is not enough media, the system comes as close as it can to the alignment you requested.

7. If you click and drag on the Dissolve Effect icon, the Position pop-up menu changes to Custom. Indicate where the effect is to start — that is, how many frames before the cut you want to include in the Dissolve. Do one of the following:

   - Click near the middle of the Dissolve Effect icon and drag to dynamically change the number of frames.
   - Click one of the buttons below the graphic to specify the effect as ending at cut, centered on cut, or starting at cut.
   - Type the number of frames in the Start text box.

     The graphic changes to show the relative amount of media available and the relative position of the effect, and the new value appears in the Start text box.

8. Click Target Drive, and from the pop-up menu choose a drive on which to store the effect if you choose to render it.

   The *Effect Source Drive* is the drive where the media on the outgoing shot of a transition resides.

9. If you have IN and OUT points marked in your sequence, the Quick Dissolve dialog box contains a check box for Apply to All Transitions (IN -> OUT). Select this option to apply the same effect to all transitions between the IN and OUT points. Deselect this option to apply the effect only to the transition at which you have placed the position bar.

10. If the effect you selected is real-time, select Skip Real-time Effects to prevent real-time effects from being rendered.

11. Do one of the following:

    - To add the effect without rendering it, click Add.
    - To add the effect and render it, click Add and Render.

    Your Avid system adds the effect to the selected transition in the sequence, or, if you selected Apply to All Transitions (IN -> OUT), the system adds the effect to all transitions between the IN and OUT points.

Using the Add Dissolve Button to Apply Effects to Multiple Transitions

You can select multiple transitions by marking IN and OUT points. Then apply an effect from the Quick Dissolve dialog box to all the selected transitions at once.

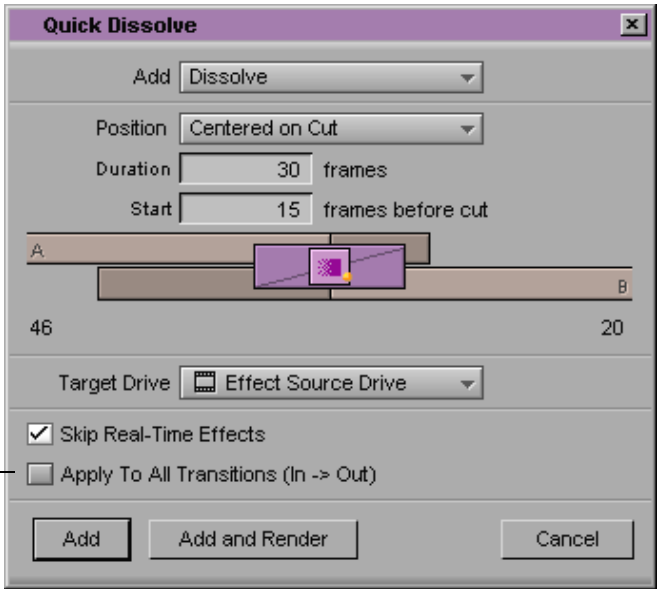
To apply an effect to multiple transitions by using the Add Dissolve button:

1. Mark IN and OUT points around the transitions to which you want to add the effect.

2. Make sure that the Record Track buttons in the Track Selector panel are selected for the tracks to which you want to add the effect.

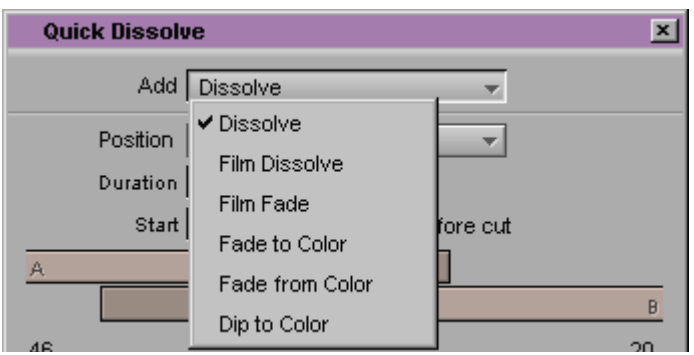
3. Click the Add Dissolve button.

   The Quick Dissolve dialog box appears.



Apply to All Transitions option

4. Choose a transition effect from the Add pop-up menu.



For an explanation of individual effects shown in the menu, see **Chapter 9**, "**2D Effects Reference**."

When you choose a color transition with Add Dissolve, the default color is black. You must enter Effect mode to choose another color. For more information, see ***"Using the Effect Editor" on page 117****.*

5. Type the duration of the transition effect in frames.
6. Choose the effect's alignment relative to the cut point from the Position pop-up menu.
7. If you select Custom Start, you must indicate where the effect should start — that is, how many frames before the cut. Type the number of frames in the Start text box.
8. Click Target Drive, and from the pop-menu choose a drive on which to store the effect if you choose to render it.

   The *Effect Source Drive* is the drive where the media on the outgoing shot of a transition resides.
9. If the effect you selected is real time, select Don't Render Real-time Effects to prevent real-time effects from being rendered.
10. Select Apply to All Transitions (IN -> OUT).
11. Do one of the following:

    - To add the effect without rendering it, click Add.
    - To add the effect and render it, click Add and Render.

    This adds the selected effect to all the transitions between the marked IN and OUT points on the selected tracks in the sequence.

If there is not enough incoming or outgoing media material to apply the effect to a transition, a dialog box appears. For more information, see **"Sizing the Effect to Fit the Media" on page 81**.

Sizing the Effect to Fit the Media

When you select a transition effect from the Effect Palette and there is not enough source media to apply the effect, a dialog box appears describing whether the source that has insufficient material is Media A (outgoing footage) or Media B (incoming footage).

To automatically size the effect to fit the media:

- Click Size To Fit in the dialog box.

  The system sets the duration of the effect to fit the available media. If you have selected an alignment, the system attempts to preserve it.

To change the alignment or duration of the transition effect, see **"Using the Transition Parameters" on page 73**.

Trimming a Transition Effect

You can trim a transition effect by using the standard transition trim procedures. For more information, see the chapter "Working in Trim Mode" of the *Avid Media Composer and Film Composer Editing Guide*.

Adjusting Transitions in the Timeline

You can change the duration of Dissolve effects just by dragging them in the Timeline. You bring up the Transition Corner Display in Trim mode to use this feature.

To adjust a transition using the Transition Corner Display:

1. Click the transition in the Timeline.
2. Enter Trim mode.

3. Click the Transition Corner Display button.

   The button changes to bright green, and the display is enabled. As you position the cursor over the transition, it changes to look like a film clip that has been cut for a splice.

4. Lengthen or shorten the transition effect by clicking and dragging to the length you want.

   - To shorten a transition, drag toward the transition point.
   - To lengthen a transition, drag away from the transition point.

   The cursor changes to a hand that moves as you drag. You can adjust either the outgoing or the incoming video.

5. To review your edit, click the Play Loop button.

To customize transition effect parameters, see ***"Transition Parameters" on page 511****.*

Creating Motion Effects

A motion effect, applied to a clip in the Source monitor, allows you to alter the playback characteristics of the clip. Motion effects include Freeze Frame, Variable Speed (such as slow motion or fast motion), and Strobe Motion effects. You can also combine Variable Speed and Strobe Motion effects in a single clip.

Your Avid editing system creates a motion effect by creating a new clip in a bin. You then edit the clip into your sequence by using standard editing techniques.

Playing and Rendering Motion Effects

Some motion effect clips play in real time when edited into a sequence; others must be rendered before they can be played.

Playback capabilities for motion effects depend on the type of effect, the options you choose when creating the effect, and how you work with the effect after you first create it.

Rendering Considerations When Creating Motion Effects

Motion effects divide into two basic types -- those that play in real time and those that require rendering before they will play. When you first create a motion effect that requires rendering, you can render it immediately or create an unrendered version that you can render later in your workflow.

The Avid system creates motion effects using one of four different *types* -- Duplicated Field, Both Fields, Interpolated Field, and VTR-Style. Some of these types enable some motion effects to play in real time, while other types always require rendering. You choose motion effect types based on the quality you need for the final motion effect, the rendering time that each type requires, and the media with which you are working (some types are useful only when you are working with two-field media).

For more information on motion effect types, including their relative quality and their compatibility with different types of media, see ***"Motion Effect Parameters" on page 499****.*

The system allows you to preview some kinds of unrendered motion effects in real time even if they require rendering for final playback. The system cannot preview other kinds of unrendered motion effects; these effects will play as filler until they are rendered.**Table 2-1** provides a summary of playback capabilities for motion effects.

Table 2-1 Playback Capabilities of Motion Effects

Effect	Playback Capability	Preview Capability
Freeze Frame (all types)	Real-time	Real-time
Variable Speed effects — forward slow motion — created by using the Duplicate Field or Both Fields type. (Use a value between 0 and 100 in the % speed text box of the Motion Effects dialog box.)	Real-time	Real-time
Variable Speed effects — forward slow motion — created by using the Interpolated Field or VTR-Style type. (Use a value between 0 and 100 in the % speed text box of the Motion Effects dialog box.)	Non-real-time	Play in real time as Duplicate Field motion effects until rendered
Variable Speed effects — fast motion and reverse motion (all types). (Use a value over 100 or a negative value in the % speed text box of the Motion Effects dialog box.)	Non-real-time	Play back as filler (black image) until rendered
Strobe Motion effects (all types)	Non-real-time	Play back as filler (black image) until rendered
Strobe Motion effects combined with Variable Speed effects (all types)	Non-real-time	Play back as filler (black image) until rendered

Rendering and Rerendering Existing Motion Effects

In certain situations, you might need to render or rerender existing motion effects. To do this, follow one of the procedures described in **"Rendering Effects" on page 140**.

Information about the type and render status of motion effects appears in the Timeline in the same form as that used for other effects. Each motion effect type has a distinct effect icon, as shown in the following table.

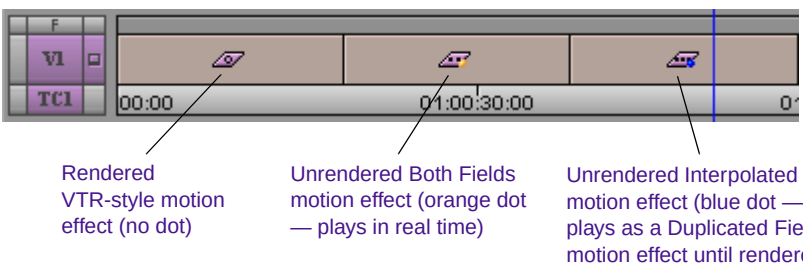

Duplicated Field Motion Effect icon


Both Fields Motion Effect icon


Interpolated Field Motion Effect icon


VTR-Style Motion Effect icon

Color-coded dots appear on Motion Effect icons to indicate whether they require rendering. The following illustration shows several typical examples of Motion Effect icons in the Timeline.



On systems that include the ExpertRender™ feature, ExpertRender correctly identifies motion effects that require rendering.

When you render existing motion effects, The Avid system checks the Motion Effects Render Using option in the active Render setting. If the Motion Effects Render Using option is set to Original Preference (the default setting), the system makes no change to the type of motion effects when it renders them. If the Motion Effects Render Using option is set to a specific motion effect type, the system changes all motion effects to that type when it renders them. This option is particularly important for controlling the look of motion effects when you are working with two-field media.

Whenever the system changes the motion effect type during a rendering operation, a message appears in the Console, providing information about the change. For more information, see **"Creating a New Render Setting" on page 142** and **"Understanding Motion Effect Type Changes" on page 87**.

The following is a list of the circumstances in which you might need to render or rerender motion effects.

- You need to render any motion effect that requires rendering for successful playback if you did not render that effect at the time you created it. This kind of effect appears with a blue dot in the Timeline until it is rendered.
- You might need to render a motion effect so that it will play successfully in a complex sequence even if that effect would not normally require rendering. (Motion effects that display a green dot in the Timeline might not play back in real time under some circumstances.) For more information on the overall real-time playback capabilities of your system, see **"About Real-Time and Downstream Key Effects" on page 32**.
- You might need to render or rerender motion effects when you edit them into a sequence and perform trims or apply transition effects. If an effect that was previously rendered (no colored dot in the Timeline) or that previously played in real time (orange dot in the Timeline) changes in such a way that it requires rendering, it will appear with a blue dot in the Timeline. On systems that include the Partial Render feature, only those parts of the Motion Effect clip that have been changed by your editing require rendering. You can see which parts of the motion effect require rendering by using the Render Ranges command in the Timeline Fast menu. For more information, see **"Some Considerations When Using ExpertRender" on page 158**.
- You need to rerender motion effects when you redigitize media at a different resolution. For example, if you edit a sequence by using a single-field resolution and then redigitize at a two-field resolution, you will need to rerender all motion effects before they will play back correctly. In this circumstance, it is important to

manage the quality of the finished effects by using the most appropriate Render Settings options. For more information, see **"Creating and Using Render Settings" on page 142** and **"Understanding Motion Effect Type Changes" on page 87**

Understanding Motion Effect Type Changes

Whenever motion effects in the Timeline are rendered or rerendered, the system uses the Motion Effects Render Using option in the active Render setting to define the motion effect type for the new versions of the motion effects. For example, you might start a project using single-field media and the Duplicated Field type for motion effects. Later, you might redigitize the media at a two-field resolution, set the Motion Effects Render Using option in the active Render setting to VTR-Style, and submit the whole sequence for rendering. By doing this, you create new motion effects that are higher quality and that can play with the two-field media.

Changes to motion effect types are permanent changes to both the Motion Effect clip and its associated media. You can only return to the old motion effect type only by rerendering. To avoid unnecessary rerendering, make sure that the Motion Effects Render Using option in the active Render setting is set to the motion effect type you need.

The system writes a message in the Console whenever it changes the type of a motion effect during rendering. You can check these messages to verify the changes that the system has made to your motion effects. Motion Effect icons in the Timeline also change to reflect the new motion effect type.

To display Console information about motion effect type changes in the Console:

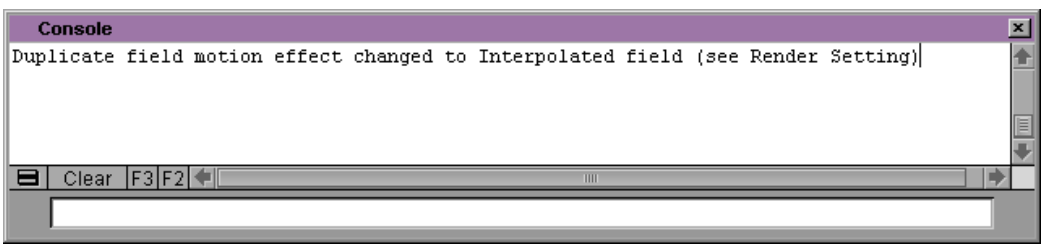
1. Choose Console from the Tools menu.

   The Console opens.

2. Render one or more motion effects by using one of the procedures described in **"Rendering Effects" on page 140**.

   For each motion effect whose type is changed by rendering, a message appears in the Console.

   The following illustration shows a typical message. In this example, the Motion Effects Render Using option in the active Render settings is set to Interpolated Field.



3. (Option) If the new motion effect type is not the one you want, change the Motion Effects Render Using option in the active Render settings, and then rerender the motion effects.

About Motion Effects in 24p or 25p Projects

Motion effects created in 24p or 25p projects behave somewhat differently from the same effects created in interlaced projects. You should be aware of the following issues when you are working with motion effects in 24p or 25p projects.

- The system always uses complete progressive frames to create 24p or 25p motion effects since there are no fields in 24p or 25p material. There are no two-field rendering options available in the

Motion Effect dialog box when you are working in a 24p or 25p project.

- The system creates motion effects by duplicating or eliminating frames to speed up or slow down the motion. Since 24p or 25p motion effects use only 24 frames per second, minor stuttering might be noticeable if you use speed ratios that are not integer values (because unusual patterns of duplication will occur). Choose simple ratios such as 2:1 (50%), 3:1 (33%), or 4:1 (25%).
- 24p or 25p motion effects might look slightly different from interlaced motion effects because of the way your system handles 24p or 25p material. For more information, see **"About Effects in 24p or 25p Projects" on page 37**.

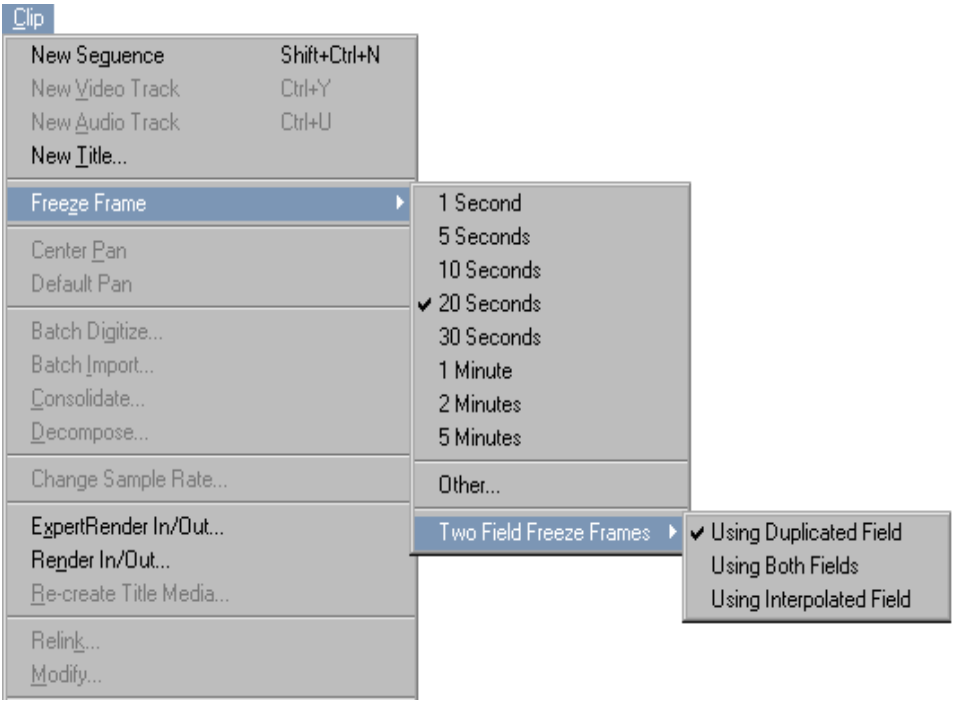
Creating a Freeze Frame

A Freeze Frame effect is a still image, based on a chosen frame from a clip, that continues to display for the duration that you choose. When combined with the original clip, the footage plays and then "freezes" and holds on the frame that you specified.

To create a Freeze Frame effect:

1. Load a clip into the Source monitor.
2. Cue the clip to the frame that you want to freeze.
3. Choose Freeze Frame from the Clip menu.

   A pop-up menu appears.



4. If you are using two-field or uncompressed media, choose Freeze Frame from the Clip menu and choose an option from the Two Field Freeze Frames pop-up menu:

   - Using Duplicated Field — The Avid system creates the effect using a single field. While this reduces reduces the vertical resolution of the image by one-half, it is often the best option if the source footage contains rapid motion.
   - Using Both Fields — The Avid system uses both fields to create the effect. This option is especially useful when there is little or no motion in the footage since it preserves all vertical resolution.
   - Using Interpolated Field — The Avid system creates a second field for the effect by combining scan line pairs from the first field in the original media. This might result in a slightly softer look to the freeze frame.

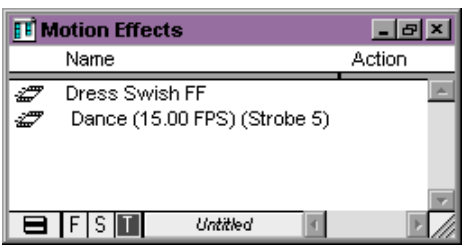
*For more information on these options, see "**Motion Effect Parameters" on page 499**.*

The chosen option becomes the default until you choose another option.

5. Choose Freeze Frame from the Clip menu and choose a duration:
   - Choose a preconfigured duration from the list.
   - Choose Other and type a custom duration in the dialog box; then click OK to enter the new duration.

   A dialog box appears, prompting you to choose a target drive for the freeze frame media.
6. Choose a drive from the pop-up menu and click OK.

   A new clip appears in the Source monitor and in the current bin preceded by a Motion Effect icon. The new clip has the original clip name followed by the letters FF.



Creating a Rolling Clip That Freezes

One common use for freeze frames is to create a segment that plays normally and then freezes, either to superimpose text information or to add emphasis to the end of a sequence before fading.

To create a rolling clip that freezes:

1. Edit the clip into the sequence.
2. Mark an IN point in the sequence at the frame where you want the freeze frame to occur.
3.  Click the Match Frame button to load and cue the source clip to the matching frame.
4. Create the Freeze Frame effect from the source footage as described in **"Creating a Freeze Frame" on page 89**.
5. Click the Splice-in or Overwrite button to edit the freeze frame into the sequence at the previously marked IN point.

When you play the sequence, the footage plays full-motion and then freezes at the chosen frame.

Creating a Variable Speed Effect

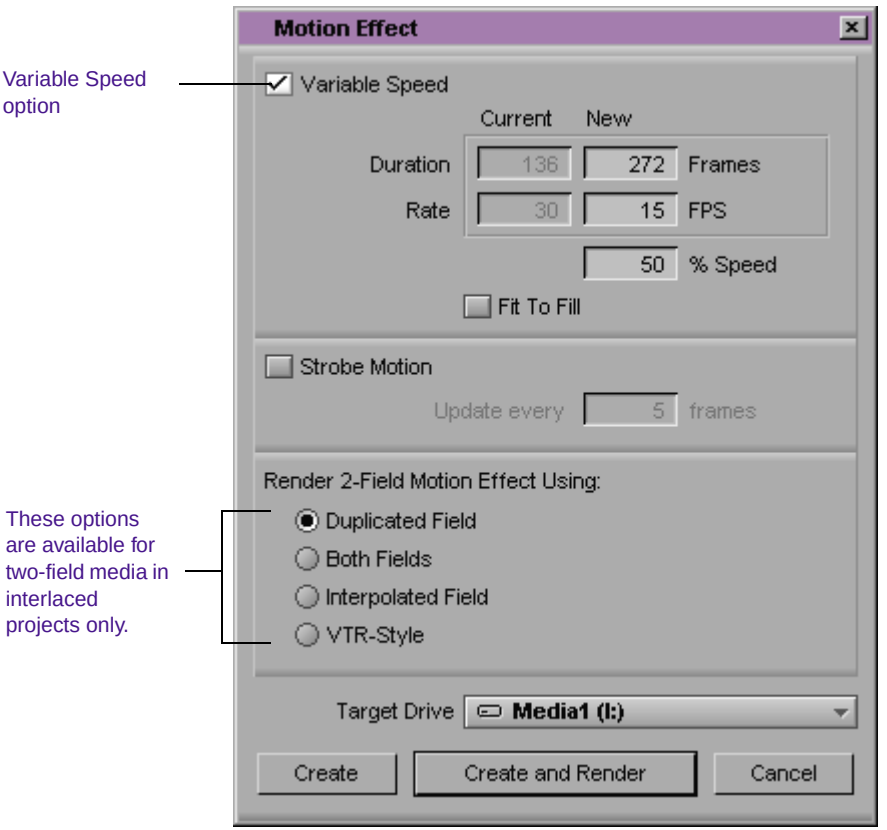
Variable Speed effects involve changing the rate of playback to achieve fast-motion or slow-motion effects. The Avid system creates slow-motion effects by duplicating frames in the original media. It creates fast-motion effects by eliminating frames from the original media.

To create a Variable Speed effect:

1. (Option) If you require a fixed duration for the clip based on a segment in the sequence, mark the segment in the Timeline with IN and OUT points.
2. (Option) If you want to use only part of the source clip for the motion effect, mark IN and OUT points in the Source monitor.
3.  Click the Motion Effect button.

The Motion Effect button does not appear on the interface by default. You can map the Motion Effect Button from the Command palette to the button palettes on the interface or to the keyboard. For more information, see the Avid *Media Composer and Film Composer* Editing Guide.

The Motion Effect dialog box appears.



4. Select the Variable Speed option.

5. Specify the play speed for the Variable Speed motion effect in one of the following ways:

   - Type a number of frames in the frames text box.
   - Type a frame rate in the FPS text box. To indicate reverse motion, enter a negative number for the play rate.
   - Type a percentage of the current play rate in the % speed text box. To indicate reverse motion, enter a negative number for the percentage.
   - Select the Fit To Fill option to automatically set the Variable Speed parameters so that the duration of the motion effect will match the IN to OUT duration marked in the Record monitor.

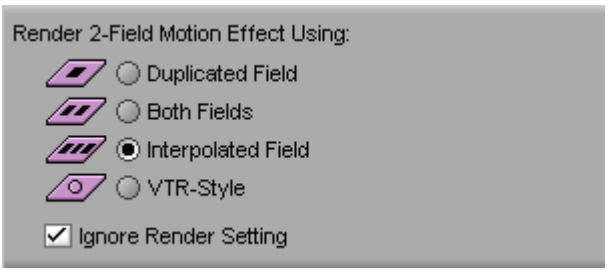
   When one of these is set, all values change to reflect the specified play rate.

6. (Option) If you are using two-field or uncompressed interlaced media, select one of the Render 2-Field Motion Effect options:

   - Duplicated Field — A single field is displayed in the effect.
   - Both Fields — Both fields are displayed in the effect.
   - Interpolated Field — A second field is created for the effect by combining scan line pairs from the first field in the original media. The interpolation causes a slight softening of the final image.
   - VTR-Style — The Avid system creates a second field for the effect by shifting selected video fields of the original media by a full scan line. This technique is similar to that used by high-quality professional video decks when playing footage at less than normal speed.

*For more information on these options, see **"Motion Effect Parameters" on page 499**.*

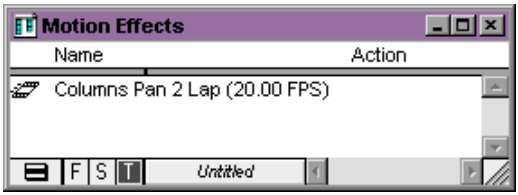
7. (Option) If you are using two-field media, and a specific motion effect type is set as the Motion Effects Render Using option in the active Render setting, the system automatically selects that type in the Motion Effect dialog box, makes all other types unavailable, and displays the Ignore Render Setting checkbox. If you want to override the Render setting, click the Ignore Render Setting checkbox, and then select one of the four options described in step 6.



8. Complete the effect by doing one of the following:
   - Click Create to create the new clip and close the dialog box. Another dialog box asks you to choose the target bin for the effect.
   - Click Create and Render to render the clip — creating new media files — and close the dialog box. Another dialog box asks you to choose the target bin for the effect.

If the effect must be rendered, the Create button is unavailable. Click the Create and Render button to create and render the effect.

A new clip is created in the Source monitor and in the current bin. The clip has the original clip name followed by the frame rate in parentheses. You can then edit this clip into your sequence as you would any other clip.



Creating a Strobe Motion Effect

Strobe motion results in a stuttering effect during playback of a clip. You determine the degree of the "stutter" or strobe when you create the effect.

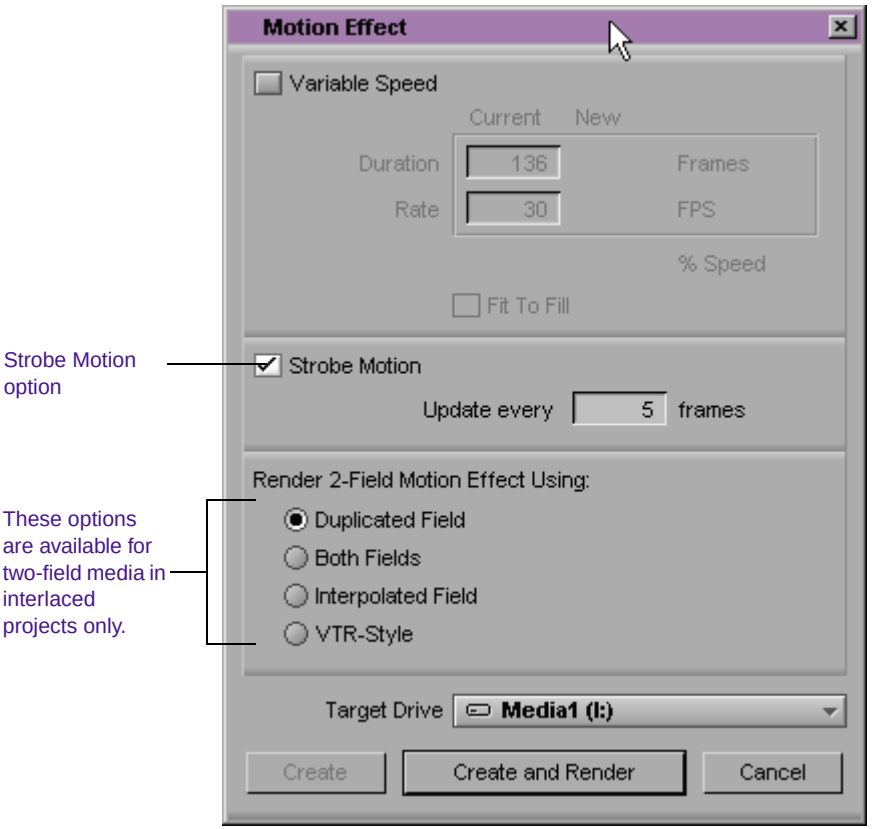
You can also combine the Strobe Motion effect with the Variable Speed effect. For more information on the Variable Speed effect, see ***"Creating a Variable Speed Effect" on page 92****.*

To create a Strobe Motion effect:

1. (Option) If you want to use only part of the source clip for the effect, mark IN and OUT points in the Source monitor.
2. Click the Motion Effect button.

The Motion Effect button does not appear on the interface by default. You can map the Motion Effect button from the Command palette to the button palettes on the interface or to the keyboard. For more information, see the Avid *Media Composer and Film Composer* Editing Guide*.*

The Motion Effect dialog box appears.



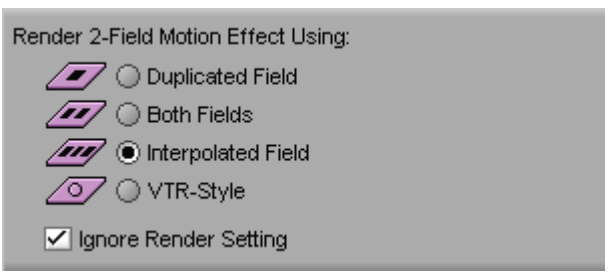
3. Select the Strobe Motion option.
4. Specify the update rate in frames for the Strobe Motion effect. For example, a rate of 5 causes every fifth frame to be held for five frames before updating in the Strobe Motion effect.
5. (Option) If you are using two-field or uncompressed interlaced media, select one of the Render 2-Field Motion Effect options:
   - Duplicated Field — A single field is displayed in the effect.
   - Both Fields — Both fields are displayed in the effect.
   - Interpolated Field — A second field is created for the effect by combining scan line pairs from the first field in the original

media. The interpolation causes a slight softening of the final image.

- VTR-Style — The Avid system creates a second field for the effect by shifting selected video fields of the original media by a full scan line. This technique is similar to that used by high-quality professional video decks when playing footage at less than normal speed.

For more information on these options, see ***"Motion Effect Parameters" on page 499****.*

6. (Option) If you are using two-field media, and a specific motion effect type is set as the Motion Effects Render Using option in the active Render setting, the system automatically selects that type in the Motion Effect dialog box, makes all other types unavailable, and displays the Ignore Render Setting checkbox. If you want to override the Render setting, click the Ignore Render Setting checkbox, and then select one of the four options described in step 5.

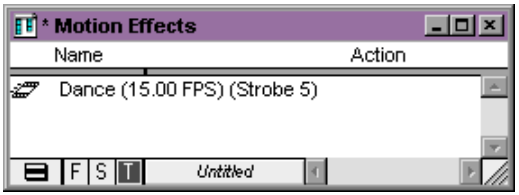


7. Click Create and Render to render the clip and close the dialog box.

You must render a Strobe Motion effect in order to play it back in real time.

A new clip appears in the Source monitor and in the current bin preceded by a Motion Effect icon. The new clip has the original

clip name followed by the word Strobe and the number of update frames in parentheses.



CHAPTER 3

Customizing Effects in Effect Mode

After you have created an effect and applied it to a transition or segment in your sequence, you can adjust its appearance and operation by changing its effect parameters in Effect mode. This chapter explains how to use the Effect Preview monitor and the Effect Editor to adjust effect parameters.

- ExpertRender
- Managing Effect Media Files

Entering Effect Mode

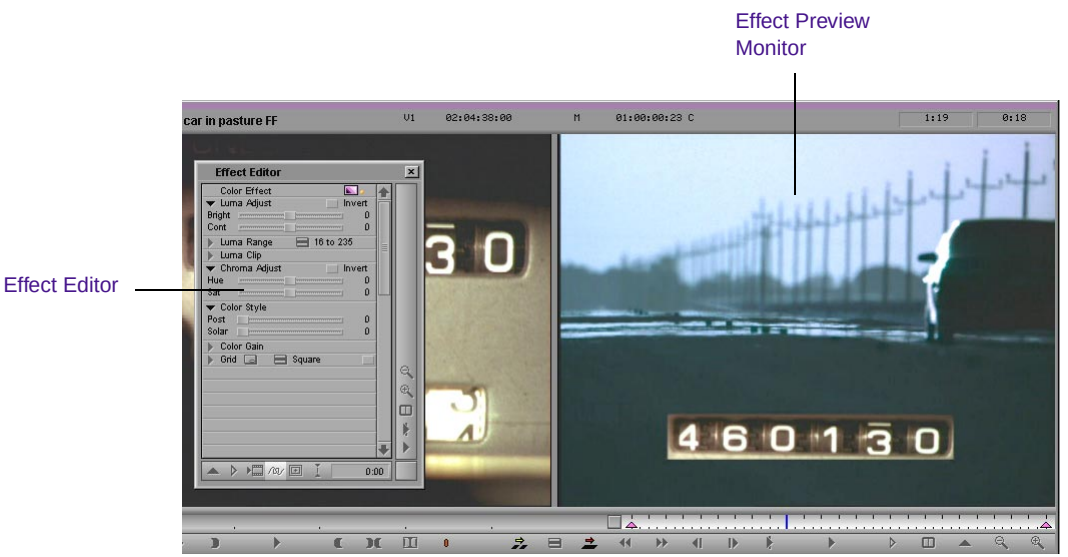
After you add an effect to a sequence, you must enter Effect mode to change the parameters of the effect. Entering Effect mode transforms the Record monitor into the Effect Preview monitor and opens the Effect Editor.

To enter Effect mode:

1. Move the position indicator to the effect's icon in the Timeline.
2. Click the Effect Mode button.

   The Record monitor is transformed into the Effect Preview monitor, and the Effect Editor opens.

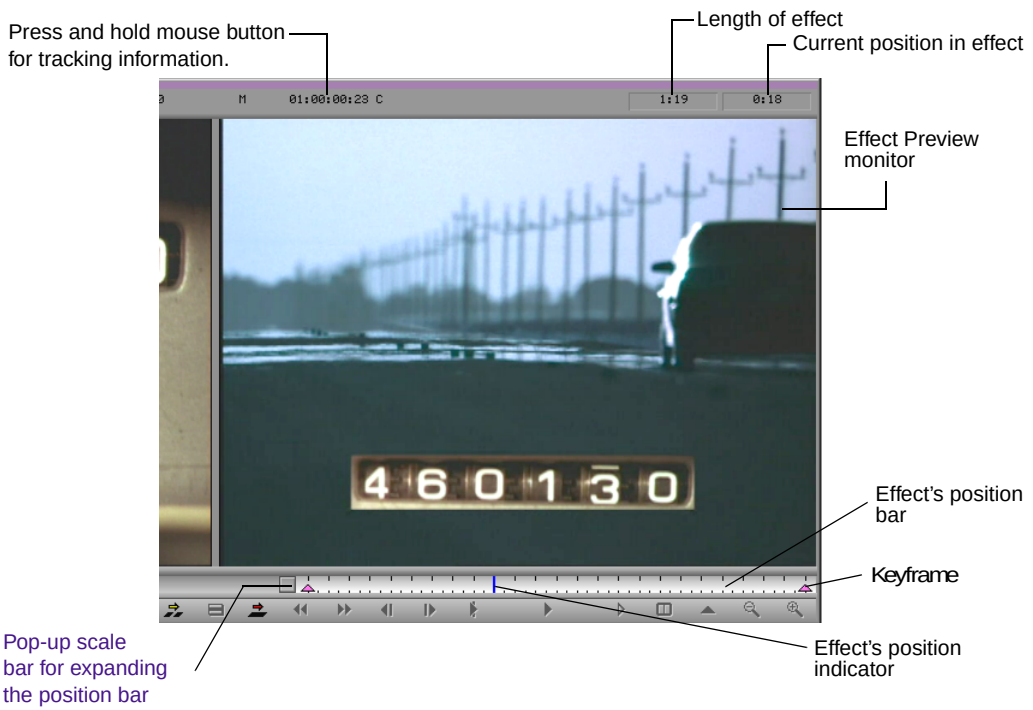


Customizing the Effect Mode Display

You can adjust the appearance and functionality of various aspects of Effect mode by resizing windows, mapping buttons, displaying tracking information, or displaying a variety of grids to provide guidelines, as described in this section.

Understanding the Effect Preview Monitor

The Effect Preview monitor displays the selected effect in the sequence where the position indicator is located in the Timeline. The effect's position bar, located directly below the Effect Preview monitor, represents only the selected effect, not the entire sequence.



If the effect you expect does not appear in the Effect Preview monitor, make sure that you have selected the Record Track Monitor button in the Track Selector panel. If a black frame appears in the Effect Preview monitor, the position indicator might be at a location in the Timeline where an effect has not been applied to the sequence.

About Big Effect Mode (Windows)

Big Effect mode lets you work on an enlarged Effect Preview Monitor.

 Effect Mode button

To leave Big Effect Mode, click the Effect Mode button, located at the bottom of the timeline.

Using Big Effect Mode (Windows)

Once you choose the Effect Editor, if you have a high-resolution monitor, you can click the Effect Mode button again to bring up Big Effect mode, which offers you a larger Effect Preview monitor.

Big Effect mode provides an enlarged window that makes working with effects easier. The Source monitor disappears, and the Effect Preview monitor transforms into a larger working space that makes it easier to create effects and make changes to them.

You must be using a high-resolution monitor (a monitor capable of 1024 x 768 pixel display or greater) as the Edit monitor to enter Big Effect mode.

To enable Big Effect mode:

1. In Source/Record mode, click the Source/Record window and drag it so that it fills the width of your high-resolution Edit monitor.

2. Enter Effect mode by clicking the Effect Mode button.
3. Click the Effect Mode button again.

   The Avid system enables Big Effect mode. You can click the Effect Editor and drag it to the left of the enlarged Effect Preview monitor.
4. To return to normal Effect mode, click the Effect Mode button again.

If you do not return to normal Effect mode, Big Effect mode remains the default state when you enter Effect mode in the future.

Mapping User-Selectable Buttons in Effect Mode

You can customize the buttons that are available in Effect mode by mapping user-selectable buttons directly from the Command palette to the Tool palette or to the area below the Effect Preview monitor.

When you customize the display of buttons in Effect mode, the new configuration appears in Effect mode only. The default editing mode buttons reappear when you exit Effect mode.

To remap user-selectable buttons, enter Effect mode and use the procedure for mapping buttons from the Command palette described in the *Avid Media Composer and Film Composer Editing Guide*.

Understanding the Tracking Information

The two boxes above the Effect Preview monitor display the length of the effect in seconds and frames and the current position in the effect's position bar.

If you are working with two-field media, the current position display indicates the field that appears in the monitor. The current position display ends with .1 for the first field of a frame and with .2 for the second field. These boxes replace the name of the sequence that appears in this position in the Record monitor.

If the position information boxes do not appear above the Effect Preview monitor, increase the size of the window.

Displaying the Safe Title and Safe Action Guidelines

Many effects can utilize the outer edges of the viewing screen area. If you are editing material that will be viewed on screens with more limited viewing areas, such as standard televisions, you can use the Safe Title and Safe Action options to provide visual guidelines in the Effect Preview monitor that replicate the actual viewable area on a standard television screen.

For example, you can use the Safe Title option as a template for the area in which you want the effect to operate. In this way, you can avoid the appearance of the effect floating off into a nonviewable area of a standard television screen.

To display the Safe Title and Safe Action guidelines in Source/Record mode or Effect mode:

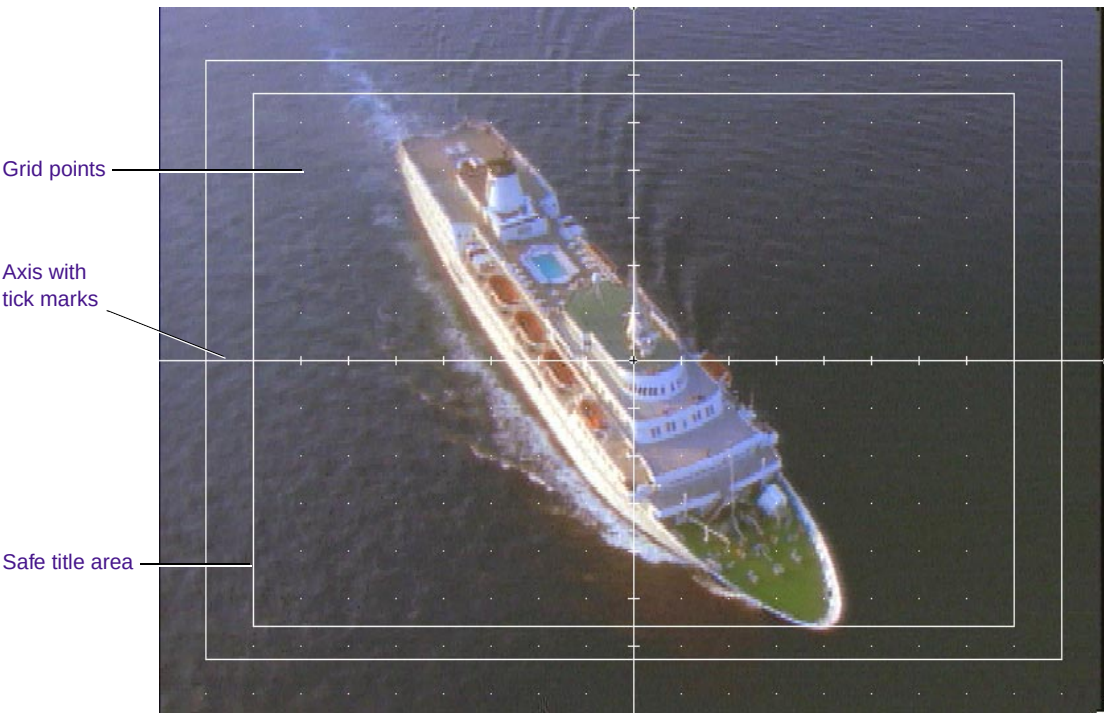
- Click the Grid button in the Tool palette or in the Effect Editor.

You can customize the type of grid displayed by the Grid button. For more information, see ***"Working with the Effect Grid" on page 107****.*

Two outlined boxes appear in the Effect Preview monitor. The inner box is the safe title area. All text and objects should remain within the inner box. The outer box is the safe action area for video display.

Working with the Effect Grid

The Effect Grid provides a variety of ways for you to position effects with accuracy and previsualize them in the Effect Preview monitor. The grid coordinates can be expressed in traditional fields or X–Y pixels in any resolution. The following illustration shows a 12-field grid displayed in a video project.



You can use the Effect Grid to:

- Display the aspect ratios for film categories such as standard film, Academy, Super 35 mm, and Anamorphic, as well as the 4:3 safety area for the 16:9 aspect ratio.

- Show coordinate information to track the exact location of an effect in the frame.
- Use the snap-to-grid feature to easily position effects.

In film projects, you can also use the Effect Grid to:

- Create position information for the following effects: Paint, AniMatte, Blowup. You can include this information in an optical list created by using Avid FilmScribe™.
- Create position information for an effect you previsualize by using the Previsualization Marker tool. You can include this information in an optical list created by using Avid FilmScribe. For more information, see **"Previsualization Marker Tool for Film Projects" on page 408**.

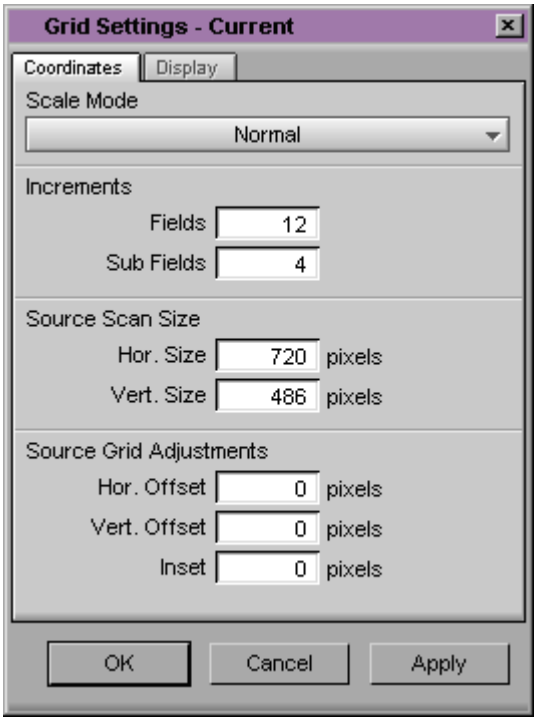
Setting the Effect Grid Options

The Grid Settings dialog box allows you to define the grid to use when you create effects.

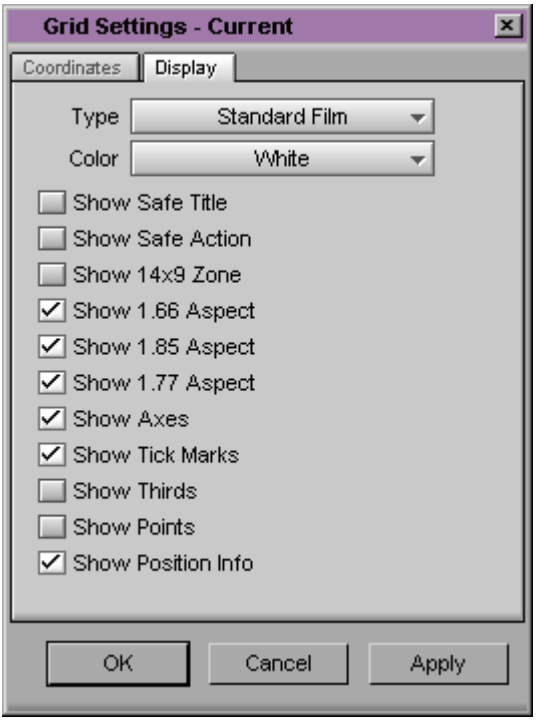
To set the default grid values for your system, do one of the following:

- In the Settings scroll list of the Project window, double-click Grid.
- In the Grid parameter category in the Effect Editor, click the Other Options button.

  The Grid Settings dialog box appears. The following illustration shows the two tabs of the Grid Settings dialog box.



Grid Settings dialog box — Coordinates tab



Grid Settings dialog box — Display tab

Table 3-1 describes the Grid settings.

Table 3-1 Grid Settings Options

Option	Tab	Description
Scale Mode	**Coordinates**	This setting allows you to work with a grid that indicates boundaries for a format other than the one in which you are working. This is useful when you are creating graphics (like titles) that must remain safe in other formats. Choose the appropriate option for the current and target formats you need. When you do not specifically need a grid that represents another format, use the Normal option, which is the default.
Increments:	**Coordinates**	This option determines the number of tick marks along the grid axes as well as the number of visible grid points. The default value is 12.
Fields		
Sub Fields	**Coordinates**	This option determines the snap-to-grid feature between visible grid points. The value determines how many jumps are in between each visible point. A value of 1 snaps only to visible points. A value of 2 splits provides 1/2 field jumps. A value of 4 (the default value) provides 1/4 field jumps, and so on. A value of 0 turns off the snap-to-grid feature.
Source Scan Size (Hor. Size, Vert. Size)	**Coordinates**	For film projects, where an optical house scans film for the addition of visual effects. The default values are 720 x 486 pixels.
Source Grid Adjustments (Hor. Offest, Vert. Offset)	**Coordinates**	This setting moves the grid on the image. These values are intended mainly for film projects.
Inset	**Coordinates**	This setting shrinks the grid proportionally.
Type	**Display**	This option selects a different grid for each of the standard film types. For video projects, use the Square grid type. The grid for the Academy option includes a safety margin on the left that is used for adding the optical soundtrack.
Color	**Display**	Choose a color for the grid axes and the grid points.

Table 3-1 Grid Settings Options (Continued)

Option	Tab	Description
Show Safe Title	**Display**	When this option is selected, the system displays the safe title area. Create video titles within this area to ensure that they are viewable on a regular television screen.
Show Safe Action	**Display**	When this option is selected, the system displays the safe action area for video display. This box is self-adjusting for PAL and NTSC projects.
Show 14x9 Zone **Show 1.66 Aspect** **Show 1.85 Aspect** **Show 1.77 Aspect**	**Display**	Choose one or more of these options to display the grid you want.
Show Axes	**Display**	When this option is selected, the system displays the grid axes.
Show Tick Marks	**Display**	When this option is selected, the system shows tick marks along the axes. Use the Fields parameter to set the number of tick marks.
Show Thirds	**Display**	When this option is selected, the system divides the screen into three sections. This is especially useful if you are creating titles for the lower third of the screen.
Show Points	**Display**	When this option is selected, the system shows the grid points. Use the Fields parameter to set the number of grid points.

Table 3-1 Grid Settings Options (Continued)

Option	Tab	Description
Show Position Info	**Display**	When this option is selected, the system displays the coordinates of any point in the Effect Preview or Record monitor. The Avid system uses compass coordinates and X, Y coordinates. For compass coordinates, the point (0, 0) is the center of the axes. For X, Y coordinates, the point (0, 0) is the top left corner of the monitor. X values increase to the right, and Y values increase as you move down. To display the coordinates in Source/Record mode, move the pointer to the Record monitor, press and hold the mouse button, and move the mouse. To display the coordinates in Effect mode: 1. Deselect all tools in the Grid parameter category (including the Arrow tool). 2. Move the pointer to the Effect Preview monitor. 3. Press and hold the mouse button, and move the mouse.

Displaying the Effect Grid in Effect Mode

As with the Safe Title/Safe Action guidelines, you use the Grid button in the Effect Editor to display the Effect Grid.

To display the Effect Grid rather than the Safe Title/Safe Action guidelines:

- Press the Alt key (Windows) or Option key (Macintosh) and click the Grid button.

To switch between the Effect Grid and the Safe Title/Safe Action guidelines:

- Press the Alt key (Windows) or Option key (Macintosh) and click the Grid button until the appropriate grid is displayed.

To remove the display of either the Effect Grid or the Safe Title/Safe Action guidelines:

- Click the Grid button without pressing the Alt key (Windows) or Option key (Macintosh).

Displaying Position Coordinates

Your Avid editing system uses compass coordinates and X, Y coordinates to describe the position of an effect. To view the coordinates, you must select the option Show Position Info in the Grid Settings dialog box and enable the Effect Grid. For compass coordinates, the point (0, 0) is the center of the axes. For X, Y coordinates, the point (0, 0) is the upper left corner of the monitor. X values increase to the right, and Y values increase as you move down.

The compass coordinates describe the effect's position in terms of film optical house standards. Each compass coordinate begins with a direction (N, S, E, or W, the abbreviations for North, South, East, or West) followed by a numerical value. This numerical component reflects the Fields and Sub Fields parameters you choose in the Grid Settings dialog box or the Grid parameter category.

The X, Y coordinates describe position in terms of the Source Scan Size parameters you choose in the Grid Settings dialog box or the Grid parameter category.

To display position coordinates:

- Move the pointer to the Record monitor, press and hold the mouse button, and move the mouse.

To display position coordinates in Effect mode:

1. Deselect all tools in the Effect Editor (including the Outline/Path button and the Selection tool for Intraframe effects).
2. Press and hold the mouse button, and drag the cursor in the Effect Preview monitor.

Using Local Grid Parameters

The Grid parameter category in the Effect Editor allows you to customize the grid display for an individual effect. The Grid parameter category appears in the Pan and Scan effect for all projects and in other effects for film and 24p or 25p projects. Grid parameters set in the Effect Editor apply only to that effect and temporarily override the current settings in the Grid Settings dialog box. For more information on the parameters available in the Grid parameter category, see **"Grid" on page 490**.

Obtaining Position Information in a Film Project

You can use the Effect Grid to include position information in a cut list for the Paint and AniMatte effects on a keyframe-by-keyframe basis. Additionally, you can display the position information for the *first* keyframe of a Blowup effect in a cut list.

You generate film cut lists and change lists with Avid FilmScribe. For general information on using Avid FilmScribe, see the Avid FilmScribe User's Guide.

You can also generate effect information in a cut list by using the Previsualization Marker Tool in the Paint Effect. For more information, see ***"Previsualization Marker Tool for Film Projects" on page 408***.

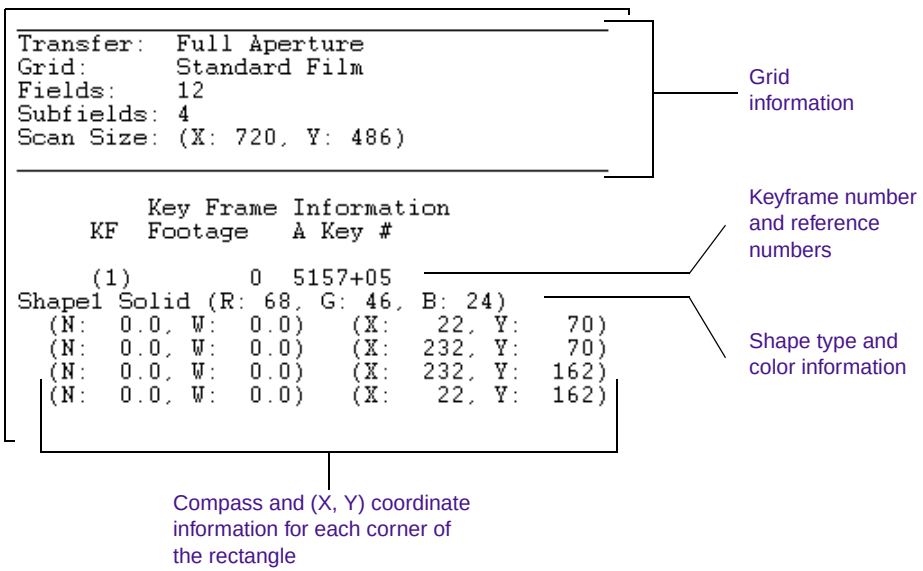
Position Information for the Paint and AniMatte Effects

Your system can include both compass coordinate and X, Y coordinate information in a cut list for each corner of a Paint or AniMatte effect. For example, a rectangle you create with the Paint Effect shows four compass and four X, Y coordinates for each keyframe.

To include coordinate information in a cut list:

1. Enable the Effect Grid before you generate the list.
2. In the Cut List tool within Avid FilmScribe, select the Key Frames check box in the Options pane for the optical list.

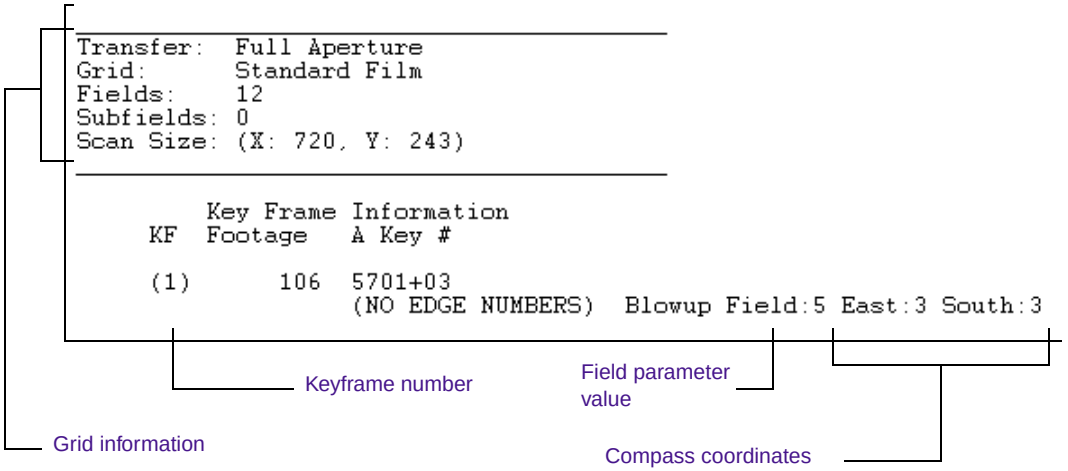
The following illustration shows the presentation of Paint Effect information for a rectangular object in a cut list.



Position Information for the Blowup Effect

The event section of the cut list displays the compass coordinates of the effect at the first keyframe in the segment and the Fields parameter you have chosen for the effect. You must enable the Effect Grid before you generate the cut list to display this information in the list.

The following illustration shows the presentation of Blowup effect information in a cut list.



Navigating in Effect Mode

The following sections describe helpful techniques for moving through footage in Effect mode.

Changing Position

You can change your position in an effect either by dragging the position indicator in the effect's position bar or by typing and entering the timecode in the numeric keypad for a location, just as you do in Source/Record mode. The type of timecode you enter (master timecode or absolute timecode) depends on the top row of tracking information you are displaying.

The position information boxes above the Effect Preview monitor update as you change position. For more information on entering timecode to change the current position, see the "Viewing and

Marking Footage" chapter in the *Avid Media Composer and Film Composer Editing Guide.*

Using Single-Field Step

When stepping through two-field media such as 2:1 or uncompressed, the system displays field 1 of each frame by default. Single-field step enables you to view field 1 and field 2 of each frame of video. This feature is especially useful when you require field-by-field control during Intraframe editing.

For more information on Intraframe editing, see ***Chapter 8****.*

To step through the footage one field at a time:

- Click the Step Forward One Field button or the Step Backward One Field button.

The Step Forward One Field and Step Backward One Field buttons can be mapped from the Command palette to the keyboard or the Composer window.

As you step, the number "2" appears in the upper-right corner of the Record monitor whenever field 2 of the media is displayed. The number disappears during the display of field 1 (the default display for the system).

Using the Effect Editor

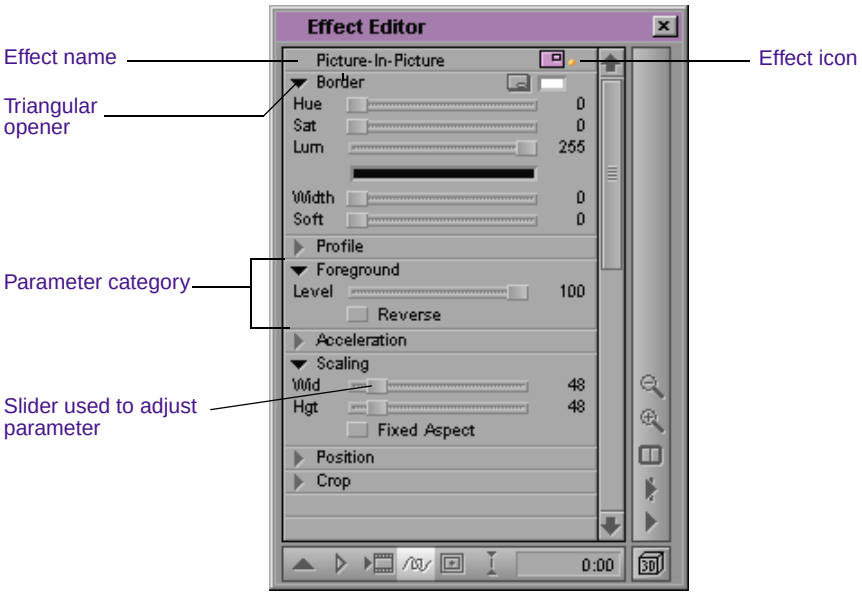
Use the Effect Editor to adjust the parameters for an effect.

To display an effect's parameters in the Effect Editor window:

1. Move the position indicator to the effect's icon in the Timeline.
2. Click the Effect Mode button.

If the Effect Editor window is already open and active, you can just select the segment or transition effect to display the effect's parameters in the Effect Editor window.

The Effect Editor window opens.



This example shows the Picture-in-Picture effect parameters.

Not all effect parameters apply to all effects. Parameters that do not apply to an effect do not appear in the Effect Editor for that effect. To determine which parameters pertain to an effect, refer to the effect's description in **Chapter 9**, "**2D Effects Reference**," and **Chapter 10**, "**3D Effects Reference**."

If the position indicator is not on an effect's icon in the Timeline, or if the track that contains the effect is not selected, then the Effect Editor is blank.

A number of parameters are common to many effects, such as parameters affecting size, position, or foreground level (transparency).

You can adjust these parameters once for the entire effect, or you can use the Effect Editor along with keyframes to change the effect parameter over time. Other parameters can be adjusted only once for the entire effect, regardless of keyframe selection.

For reference information on all effect parameters, see ***"2D Effects Parameters" on page 456*** *and* ***"3D Effects Parameters" on page 636****.*

Effect Editor Buttons

This section describes the buttons in the Effect Editor, starting from the top left button in the window. Not all buttons apply to each effect. If a button is not applicable, it does not appear in the Effect Editor for that effect.

Additional buttons appear in the Effect Editor, depending on which effect you are using. For example, if you are working with a 3D effect, a set of 3D-specific buttons appears along the right side of the Effect Editor.

Button	Description
Other Options 	Click to access additional parameters for Matrix effects, Sawtooth Wipe effects, third-party plug-in effects, and the Title tool.
Triangular opener 	Click to display or hide the parameter category. A downward-pointing triangle displays the parameter category; a right-pointing triangle displays only the parameter name.

The following buttons appear along the right side of the Effect Editor.

Button		Description
Reduce		Reduces the image in the Effect Preview monitor.
Enlarge		Enlarges the image in the Effect Preview monitor.
Dual Split		Splits the Effect Preview monitor in half to show the image with and without effects applied to it.
Play Loop		Plays back a transition or segment effect in a loop.
Play		Plays the effect from the current position in the effect's position bar for most 2D and 3D effects.

The following buttons appear at the bottom of the Effect Editor.

Button		Description
Add Keyframe		Creates a keyframe at the frame in the effect's position bar where you place the position indicator. Alt+click (Windows) or Option+click (Macintosh) this button to delete a keyframe. The Add Keyframe button on the Command palette is mapped to the double quote key (") on the keyboard. You can map the button from the Command palette to another key, or you can map the button to an existing button in the Source/Record monitor.
Play Preview		Plays back a wire-frame preview of an unrendered effect.
Render Effect		Renders the effect.
Outline/Path		Displays a wire-frame path to illustrate the movement of an effect from the first keyframe through the last keyframe.
Grid		Displays the Safe Title and Safe Action guidelines and enables the Effect Grid for precise placement of effects.

Button	Description
Transition Effect Alignment menu 	Use this menu button to select the alignment of a transition effect relative to the cut point.
Transition Effect Duration box 	Click in this display to type a duration for the transition effect other than the duration displayed.
3D Promote 	Appears when you use a 2D effect on systems with 3D effects options. Click the button to promote the 2D effect to a 3D effect. For example, you can promote a 2D Picture-in-Picture effect to a 3D effect and make use of the 3D effects parameters. Before you promote the effect to 3D, save a 2D copy as a template so you can go back to it later. For more information, see **"Promoting 2D Effects to 3D Effects" on page 225**.

For a detailed explanation of the Transition Effect Alignment Menu and the Transition Effect Duration box, see **"Using the Transition Parameters" on page 73**.

Moving an Enlarged Image in Effect Mode

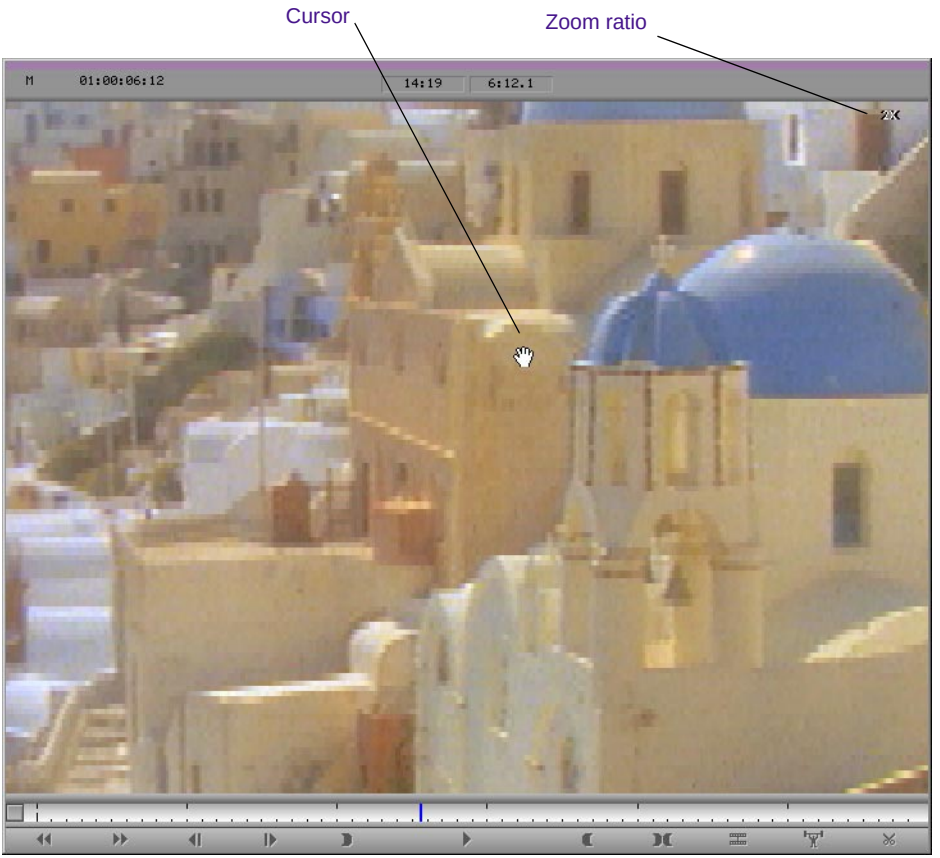
When you use the Enlarge button to increase the size of the image in the Effect Preview monitor, you cannot view the entire frame all at once. When you are creating an effect that requires great detail, you can reposition the enlarged frame in the monitor to view the sections that need your attention.

This feature applies only to an enlarged image in the Effect Preview monitor, not to a standard-sized or reduced image.

To move the image within the Effect Preview monitor:

1. Click within the boundaries of the Effect Preview monitor.
2. Press and hold Ctrl+Alt (Windows) or ⌘+Option (Macintosh).

   The cursor changes to a hand.

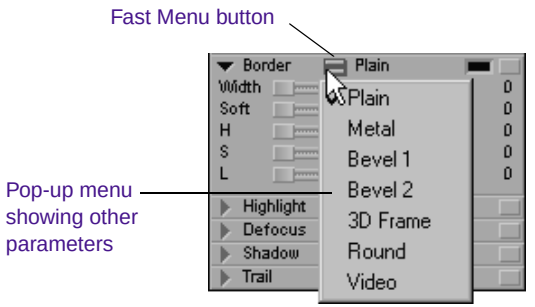


3. Drag the hand in any direction to reposition the image within the Effect Preview monitor.

Similarly, you can enlarge the frame in the Source monitor when you are working in Source/Record mode and move the frame around by pressing and holding Ctrl+Alt (Windows) or ⌘+Option (Macintosh). To access the Enlarge and Reduce buttons in Source/Record mode, you must map the buttons to your keyboard or to the user-selectable palettes. You can also use Ctrl+L (Windows) or ⌘+L (Macintosh) to enlarge the frame, and Ctrl+K (Windows) or ⌘+K (Macintosh) to reduce the frame.

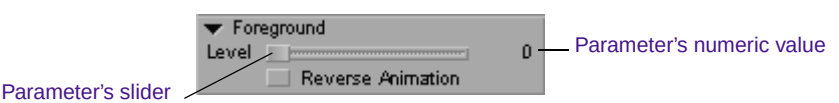
Selecting a Parameter

Some effects have additional parameters that you select from the current parameter's Fast menu. For example, border types for 3D effects are on the same Fast menu.



Changing a Parameter

To change a parameter that has a slider, you must click its slider. When a slider is activated, it turns pink. Use the Tab key to move from one slider to the next slider.



To change the value of a parameter that has a slider, use any of the following methods:

- Move the slider with the mouse.
- Type a new value using the numeric keypad, and, if you entered fewer than three digits, press Enter.
- Use the Left Arrow or Right Arrow key to change the value by –1 or +1.
- Press the Shift key and use the Left Arrow or Right Arrow key to change the value by –10 or +10.

Accessing an Effect's Additional Parameters

Some effects have additional parameters that control their operation. For example, the Grid effect has additional parameters in which you set the number of columns and rows in the wipe. When an effect has additional parameters, the Other Options button appears next to the effect name in the Effect Editor. The Other Options button also appears in a parameter category in the Effect Editor if the category can access additional parameters.

To access an effect's additional parameters

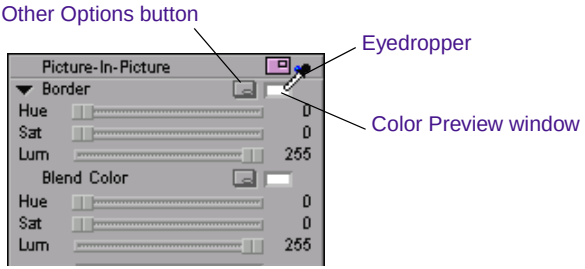
- Click the Other Options button next to the effect name or in a parameter category.

A dialog box appears in which you set the additional parameters.

You also use the Other Options button to access the parameters for third-party plug-in effects and for the Windows Color dialog box or Macintosh Color Picker in the Title tool and other effects that allow you to change color parameters.

Adjusting a Color Parameter

You can change a color parameter or select a key color using the eyedropper or the Windows Color dialog box or Macintosh Color Picker instead of the Hue, Sat (saturation), and Lum (luminance) sliders.



Using the Eyedropper

To select a color by using the eyedropper:

1. Position the cursor over the Color Preview window to activate the eyedropper.
2. Click the eyedropper, drag it to the Effect Preview monitor, and release the mouse button on the color you want to select from the video image.

   The parameter's numeric values are updated, and the selected color appears in the Color Preview window.

Using the Windows Color Dialog Box

The Windows Color dialog box is a standard service that ships with the Windows NT operating system.

To open the Windows Color dialog box:

- Click the Other Options button next to a color parameter.

The Windows Color dialog box appears.

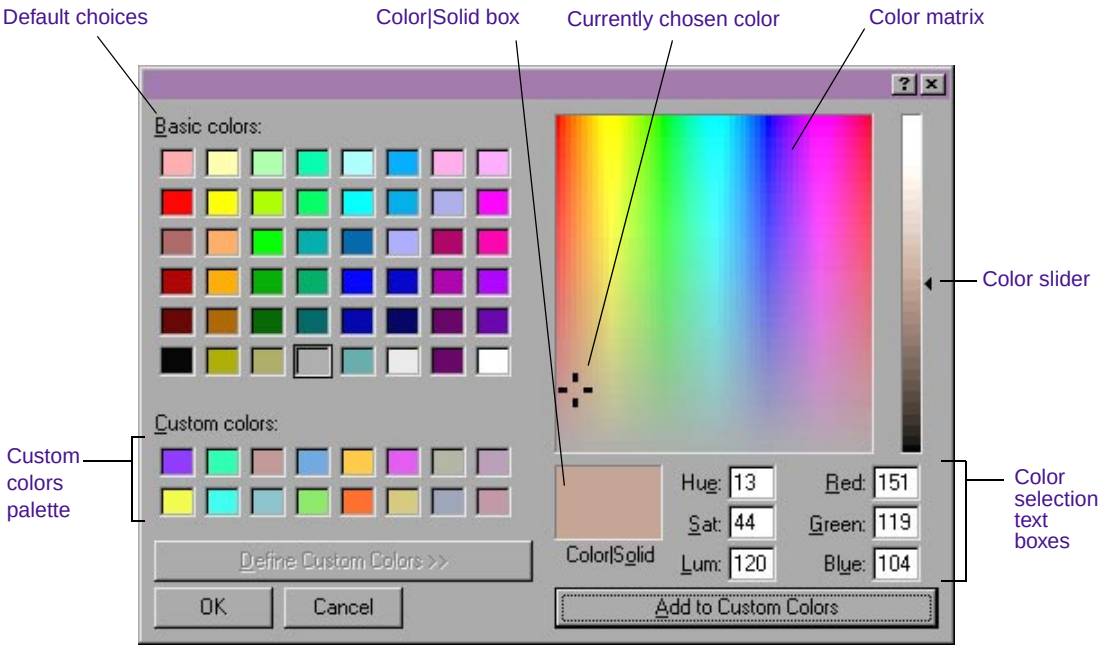


Figure 3-1 Windows Color Dialog Box

To use the Windows Color dialog box:

1. To choose a color from the Basic colors palette, click the color you want.
2. To specify a custom color, do one of the following:
   - Click in the color matrix to choose a color, and then drag the color slider to adjust the amount of white and black in the color.
   - Type numerical values for each color component in the color selection text boxes.

   The new color is displayed on the left side of the Color | Solid box. The right side of this box displays the solid color closest to the

color you have specified. You can choose the displayed solid color by double-clicking the right side of the box.

3. When you are satisfied with the color, click Add to Custom Colors to add it to the Custom colors palette.
4. To choose a custom color from the Windows Color dialog box, click the color you want.
5. Click OK.

   The Windows Color dialog box closes, and the Avid editing system applies the color to the parameter in the Effect Editor.

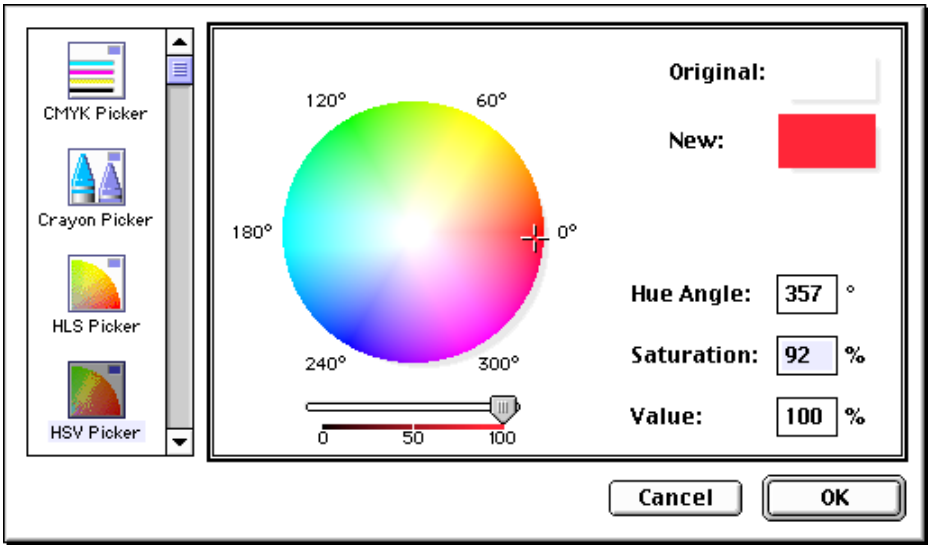
Using the Macintosh Color Picker

The Macintosh Color Picker is a standard application that ships with Macintosh systems. Its appearance varies, depending on the current release of the Macintosh operating system. You can access the Macintosh Color Picker through the Other Options button.

To open the Macintosh Color Picker dialog box:

- Click the Other Options button next to a color parameter.

  The Macintosh Color Picker dialog box appears.



The Macintosh Color Picker displays the HSV (hue, saturation, value) color wheel by default for Macintosh operating system Version 8.5, as shown in the illustration above. You can also select an RGB (red, green, blue) slider interface or an HLS (hue, luminance, saturation) interface by selecting the appropriate icon on the left side of the Color Picker window. For a complete description of how to use the other Macintosh Color Picker interfaces, see the documentation that ships with your Macintosh.

To use the HSV color wheel:

1. Drag the color selector to select a color.
2. Drag the Value slider to make colors brighter or darker.

You can also enter color values by using the color selection text boxes on the right side of the dialog box. The color selector automatically changes position in the color wheel as you change values.

Replacing an Effect with the Effect Editor

While in Effect mode, you can replace an existing effect.

To add a replacement effect:

1. Choose Effect Palette from the Tools menu.
2. Choose an effect category.
3. Use one of the following methods to replace the effect:
   - Drag the new effect's icon to the Timeline. To replace an existing effect, move the new effect's icon on top of the existing effect's icon.
   - Drag the new effect's icon to the Effect Preview monitor.
   - Select the effect in the Timeline, and double-click the new effect's icon in the Effect Palette.
4. Set the applicable effect parameters in the Effect Editor.

Some effects cannot replace other effects. For example, some segment effects, such as the Mask effect, cannot replace transition effects. In addition, two-track effects, such as wipes, cannot replace three-track effects, such as matte keys.

Using Keyframes

A *keyframe* is a point in the effect at which you can set parameters. Modifying an effect's parameters at various points causes the effect's appearance to vary as it plays. For example, you can add keyframes to a Picture-in-Picture effect and change the position parameters for each keyframe to add movement to the effect.

Keyframe indicators appear as triangles in the position bar of the Effect Preview monitor when an effect is selected and the Effect Editor is active. You adjust keyframe parameters by using the Effect Editor.

By default, your Avid editing system always provides the starting and ending keyframes of an effect. These keyframes are selected by default, and thus any parameter changes are constant throughout the effect. By using techniques for adding, deleting, moving, selecting, and deselecting keyframes, you can begin to change the appearance and operation of the effect over time by applying parameter changes to specific keyframes.

Adding a Keyframe

You can create a keyframe at any point in the effect's position bar.

To create a keyframe:

1. Click the position in the effect's position bar below the Effect Preview monitor where you want to add the keyframe. The position indicator moves to that frame.
2. Do one of the following to add a keyframe:

- Click the Add Keyframe button.
- Manually adjust a parameter in the Effect Preview monitor (segment effects only). For example, when you click a handle on an effect outline and drag to resize or reposition it, a new keyframe is created.

Selecting a Keyframe

You can select a keyframe or multiple keyframes by using the following procedures. A keyframe changes to pink when selected.

To select one keyframe:

- Click the keyframe indicator in the effect's position bar.

To select multiple keyframes:

- Press and hold the Shift key and click the keyframe indicators that you want in the effect's position bar.

To select all keyframes in the effect's position bar:

- (Windows) Press Ctrl+A, or press and hold Ctrl+Alt and click one keyframe indicator.
- (Macintosh) Press ⌘+A, or press and hold the ⌘ key and click one keyframe indicator.

For a quick way to jump to the previous or next keyframe, you can map the Fast Forward and Rewind buttons from the Command palette to your keyboard.

Moving a Keyframe

After you have created a keyframe, you can move it to another position in the effect's position bar.

The starting and ending keyframes cannot be moved.

To move a keyframe:

- Press and hold the Alt key (Windows) or Option key (Macintosh), click the keyframe, and drag it to its new position.

Alternatively, you can select a keyframe and click the Trim Left 1 Frame and Trim Right 1 Frame buttons or the Trim Left 10 Frames and Trim Right 10 Frames buttons.

Changing a Keyframe's Parameters

With certain parameter categories, such as Foreground and Acceleration, you adjust parameters globally (over all keyframes in the effect). You can also change many parameters for individual keyframes.

To change a keyframe's parameters:

1. Click the keyframe indicator in the effect's position bar. The keyframe indicator changes to pink when selected.
2. Adjust any of the applicable parameters in the Effect Editor.

Copying and Pasting Keyframe Parameters

You can copy and paste parameters from one keyframe and apply them to another keyframe. You can also copy keyframe parameters from one effect to another effect.

To copy and paste keyframe parameters:

1. Click one keyframe indicator in the effect's position bar whose parameters you want to copy.
2. Choose Copy from the Edit menu.
3. Select one or more keyframes:
   - To copy the parameters to one keyframe, click the keyframe.
   - To copy the parameters to multiple frames, Ctrl+click (Windows) or Shift+click (Macintosh) multiple keyframes.
   - To copy the parameters to all keyframes, choose Select All from the Edit menu.
4. Choose Paste from the Edit menu.

   The parameters that you copied from one keyframe are pasted to the keyframe, or frames, you selected.

Deleting a Keyframe

You can delete any keyframe you create. You cannot delete the starting and ending keyframes the system creates.

To delete a keyframe:

1. Click the keyframe indicator in the effect's position bar.

   The keyframe indicator changes to pink when selected.

2. Press the Delete key.

Alternatively, you can Alt+click (Windows) or Option+click (Macintosh) the Add Keyframe button to delete a keyframe.

Defining a Motion Path

You can define how the foreground image of a multilayer effect will move across the background video by building a *motion path*, or string of keyframes. You can define a motion path on multilayer video effects such as Picture-in-Picture effects. Use the wire-frame preview feature when you want to see the path an image takes on the screen.

When you are creating a motion path that moves beyond the viewing screen, you can use the Reduce button to view an outline of the image at a reduced scale. The reduced scale view shows the area outside the background image and allows you to extend the motion path into that area. The Enlarge button returns the screen to full view.

To define a motion path for the foreground image, use one of the following methods:

- Move the image directly and automatically add keyframes.
- Add keyframes and adjust the parameter sliders.

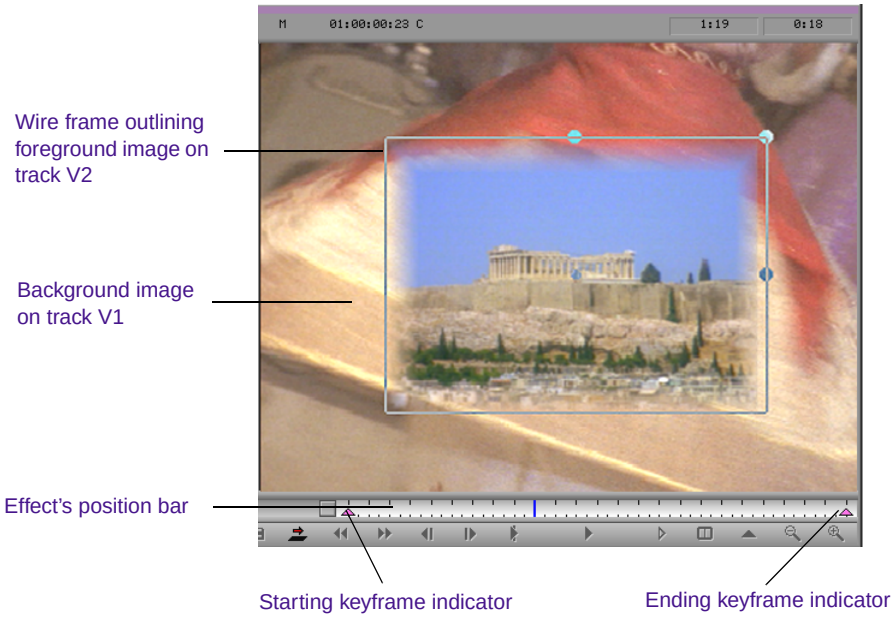
Moving the Image Directly

You can add a motion path to a multilayer effect using the wire-frame feature and keyframes. The Outline/Path button on the Effect Editor window places a wire frame around the foreground image in the Effect Preview monitor. You can then drag the wire frame to new locations and add keyframes at each location to add movement to the effect.

You can also resize the foreground image by clicking the wire-frame handles and dragging them to a new location. The top center handle adjusts the image's height and the right center handle adjusts the image's width. You can use the top right corner handle to equally change the image's height and width.

To add a motion path to the foreground image by using the wire frame and keyframes:

1. Create a sequence with two video layers (foreground video on track V2, background video on track V1). For information about creating a sequence, see the *Avid Media Composer and Film Composer Editing Guide*.
2. Apply a multilayer effect to the foreground segment on track V2.
3. Select the foreground effect segment on track V2.
4. Open the Effect Editor window. By default, the wire frame is active. The foreground image is outlined, and both the starting and ending keyframe indicators are highlighted (pink) in the effect's position bar.

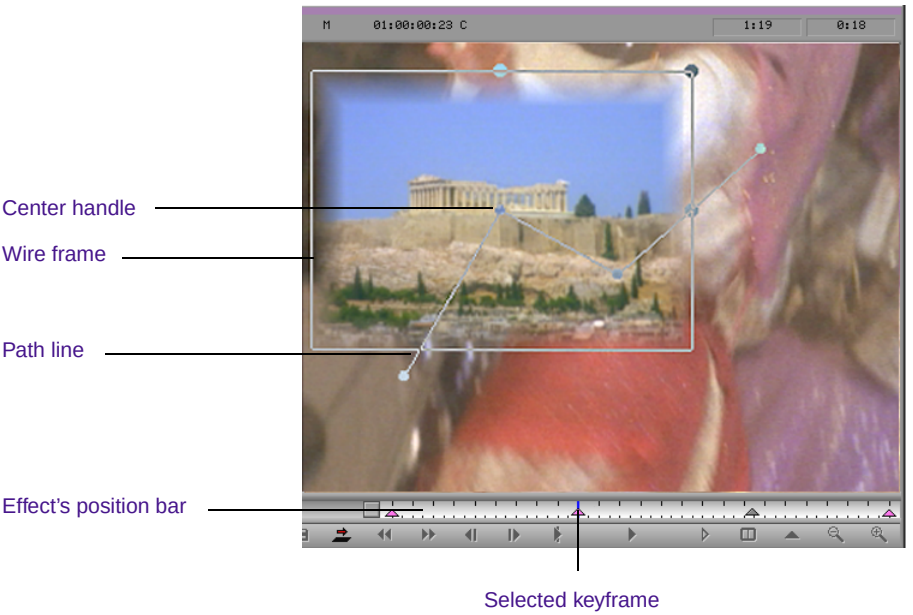


If the wire frame is not displayed, click the Outline/Path button in the Effect Editor window to activate the wire frame.

5. Drag the wire frame to the start point of the motion path you are creating. The starting keyframe indicator represents the start point.
6. Click the ending keyframe indicator to select it. Make sure the ending keyframe indicator is the only indicator selected (pink).
7. Drag the wire frame to the end point of the motion path. A path line from the center of the starting position to the center of the ending position appears.
8. Drag the position indicator in the effect's position bar to a new location. The wire frame moves with the position indicator; notice the path line does not change.
9. Click inside the wire frame and drag or stretch the wire frame to add a keyframe at the new location. A handle appears in the

center of the wire frame, indicating the path position of the new keyframe.

10. Drag the wire frame to change the effect's path.



11. Repeat the last three steps to add more variation to the path.

Using an Effect Template

The parameters for an effect are called the effect template. You can reuse an effect template in multiple places in a sequence by saving the template in a bin and later applying the template to other effects or video clips in the sequence.

Saving an Effect Template

You can save the parameters from an effect in the Effect Editor and reuse them for another effect.

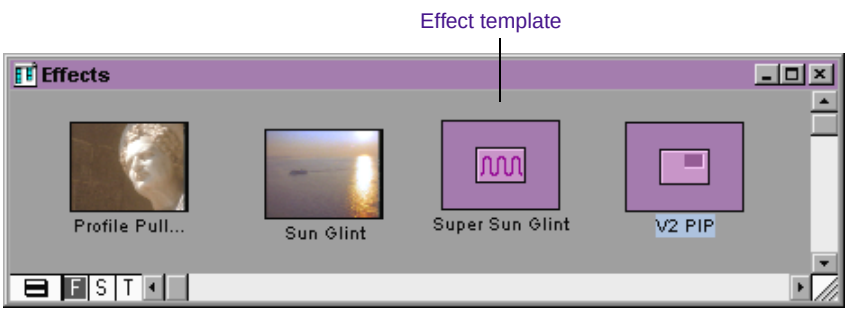
To save an effect template:

1. Drag the effect icon from the Effect Editor to a bin.

This creates a new effect template in the bin, containing the parameter setting information for the effect. The new effect template is identified in the bin by its effect icon.

Effect icons for open bins are also displayed in the Effect Palette.

You can save a segment effect with its source media, which is useful when you want to save an imported PICT file or Matte Key clip for future editing into a sequence. Press and hold the Alt key (Windows) or Option key (Macintosh) while you drag the effect icon from the Effect Editor to a bin.



2. To rename the template, click the template name below the icon and type a new name.

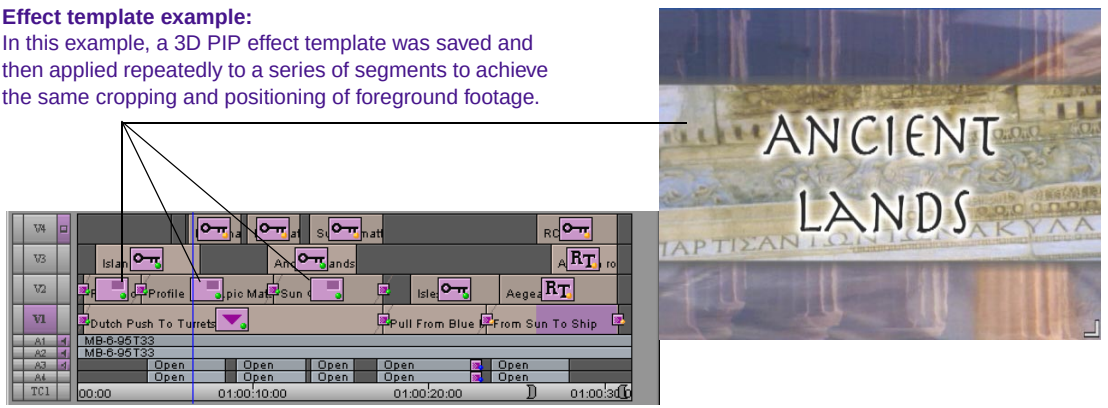
Title effects are saved with source by default. If you press and hold the Alt key (Windows) or Option key (Macintosh) while dragging the icon, you will get a keyframe only template. This template will retain the movement of the title without the source.

Applying an Effect Template

You can take an effect template that has been saved in a bin and apply the template and its parameters to other transitions or segments in your sequence.

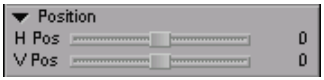
You can apply an effect template with all its parameters directly to segments or transitions as you would any other effect. You can also apply specific parameters from the template.

Effect template example:
In this example, a 3D PIP effect template was saved and then applied repeatedly to a series of segments to achieve the same cropping and positioning of foreground footage.



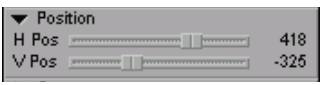
To apply a specific parameter from an effect template:

1. Select an effect transition or segment in the Timeline.
2. Choose Effect Editor from the Tools menu.
3. Open the parameter category you want to change. For example, the following illustration shows the Position parameter category.



4. Click the effect template icon in the bin or in the Effect Palette, and drag it to the specific parameter category in the Effect Editor.

   The effect template is applied only to the effect parameter category you selected.



Do not drag the effect template through the Timeline because this deselects the effect.

Playing an Effect

You can play back an effect in a variety of ways, described in this section. Depending on the capabilities of your system, various effects might require rendering before you can play them back in real time. For more information, see **"About Real-Time and Downstream Key Effects" on page 32**.

Basic Playback

To play an effect:

1. Drag the position indicator to the effect you want to play in the Timeline.

2. Click the Play button.
3. To stop playing an effect, click the Play button, or press the space bar.

Playing an Effect in a Continuous Loop

To play the effect in a continuous loop while in Effect mode:

1. Drag the position indicator to the effect you want to play in the Timeline.

2. Click the Play Loop button.
3. To stop playing an effect, click the Play Loop button, or press the space bar.

Playing a Preview of an Effect

You might want to play an effect or its outline to check its appearance and operation. An effect's *outline* is a wire-frame representation of the effect's position, scale, and path of motion.

To play an effect's outline:

1. Click the Play Preview button.

   The effect's outline plays from the current position.

2. Do one of the following to stop playing the effect preview:
   - Click the mouse button.
   - Press the space bar.
   - Click the Play Preview button a second time.

Rendering Effects

You must render a non-real-time effect (an effect whose icon displays a blue dot) before it can be played. In addition, you must render some or all effects that exceed the real-time playback capabilities of the system in order to view them during playback. Occasionally, you might also

need to render an effect that displays a green dot in the Timeline, depending on the complexity of the sequence.

For more information on the real-time effects playback capabilities of the system, see ***"Playing Real-Time Effects" on page 33****.*

When your Avid system renders an effect, the system stores the effect and its media file as a precomputed master clip (often referred to as a precompute). The system uses the precompute the next time to play the effect at its normal speed.

If IN and OUT points are not marked in the Timeline, the Render at Position command is available for rendering a single effect or for rendering multiple effects at the same position in the Timeline. If IN and OUT points are marked in the Timeline, the Render IN to OUT command is available for rendering all effects on selected tracks between the marked IN and OUT points.

You can also click the Render Effect button in the Tool palette to render effects at position. The Render Effect button ignores any marked IN and OUT points and allows you to render the effects at the current position in the Timeline.

You can also use ExpertRender to have your system determine which effects need to be rendered. If IN and OUT points are not marked in the Timeline, the ExpertRender at Position command is available for determining which effects at the current position in the Timeline require rendering. If IN and OUT points are marked in the Timeline, the ExpertRender IN to OUT command is available for determining which effects on the selected tracks between the marked IN and OUT points require rendering. For more information, see **"ExpertRender" on page 154**.

The key to rendering quickly is to render only those effects that require it. With vertical and nested effects, for example, you do not have to render every layer to play the effect in real time. If the top track covers the entire duration of the tracks below, the system renders the composite result of all tracks into the top track.

Two useful ways to minimize rendering time are:

- Use the ExpertRender feature to determine which effects to render for successful playback. See **"ExpertRender" on page 154**.
- Use the Submaster effect by applying it to a track above layered effects and rendering only the Submaster effect. See **"Submaster Editing" on page 213**.

Creating and Using Render Settings

You can create one or more sets of render parameters and save them as a custom Render setting. For example, you can create one setting especially for rendering single-field motion effects and another for rendering two-field or uncompressed motion effects. You can then activate the setting that you need at each stage of your project.

Creating a New Render Setting

To create a new Render setting:

1. Click the Settings button in the Project window.

   The Settings scroll list appears.

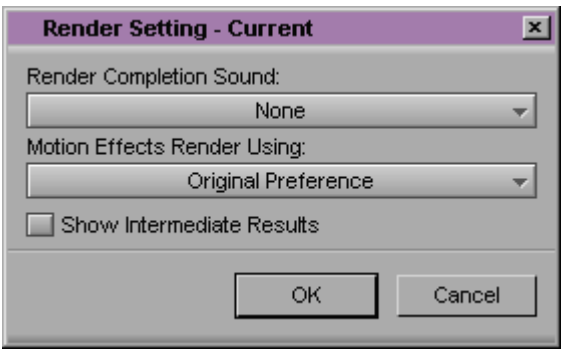
2. Click Render.
3. Choose Duplicate from the Edit menu.
4. Name the setting by clicking the custom name column (in between the setting name and the setting type identifier), typing a name, and pressing Enter (Windows) or Return (Macintosh).
5. Adjust the options for the setting as described in the following procedure

Adjusting Render Settings Parameters

To adjust the parameters in the Render Setting dialog box:

1. Double-click a Render setting in the Settings scroll list of the Project window.

   The Render Setting dialog box appears.



2. Select the appropriate options based on the descriptions in Table 3-2.
3. Click OK to apply the Render settings.

Table 3-2 Render Setting Options

Option	Suboption	Description
Render Completion Sound		Sets a sound for the system to activate once the rendering process is complete. This is useful when you are rendering multiple effects.
	None	Disables the rendering completion sound. This is the default.
	System Beep	Sets the rendering completion sound to match the sound set for your operating system.
	Avid Sound	Sets the rendering completion sound to a customized Avid sound.

Table 3-2 Render Setting Options (Continued)

Option	Suboption	Description
Motion Effects Render Using		Use these render effect parameters to determine the processing method when *existing* motion effects are rendered or rerendered.
	Original Preference	Will cause effects to be rendered as whatever type they were when originally created.
	Duplicated Field	A single field is displayed in the effect. For two-field media, this reduces the information stored by half because it drops one field of the image, resulting in a lower quality image. For single-field media, this is usually the best choice because of its speed. (The other options do not improve effect quality for single-field media.) The effects render in the shortest amount of time using this option.
	Both Fields	Both fields are displayed in the effect. For example, the first two frames of a half-speed (50%) slow motion effect repeat the original Frame 1 (both fields) twice. This option is good for shots without inter-field motion, NTSC or PAL film-to-tape transfers, and still shots. With footage that includes inter-field motion, this method might result in minor shifting or bumping of the image because it disturbs the original order of fields: a Field 1 will appear both before *and* after the corresponding Field 2. The effect renders relatively quickly. For best results, you should use evenly divisible frame rates with this option.
	Interpolated Field	A second field is created for the effect by combining scan line pairs from the first field in the original media. This option calculates the motion effect at the field level rather than the frame level. Because the system considers all fields and does not disturb the original order of fields, the smoothest effect results. This method is best for video-originated material or film-originated material transferred at 24 fps. Effects created using this option take the longest amount of time to render.

Table 3-2 Render Setting Options (Continued)

Option	Suboption	Description
	VTR-Style	A second field is created for the effect by shifting selected video fields of the original media by a full scan line. This option also creates the motion effect at the field level rather than the frame level, but because pixels are not filtered, the final image is sharper than that created by the Interpolated Field option. The image might display some slight jitter at certain speeds. This technique is similar to that used by high-quality professional video decks when playing footage at less than normal speed. The time needed to render effects created using this option is longer than for effects created using either Duplicated Field or Both Fields, but similar to the time needed for Interpolated Field.
Show Intermediate Results		Displays the progress of the rendering process on the system monitor.

Activating a Render Setting

To activate a Render setting:

- Click in the column to the left of the setting name in the Settings scroll list of the Project window.

  A check mark appears beside the setting that is currently active.

Rendering a Single Effect

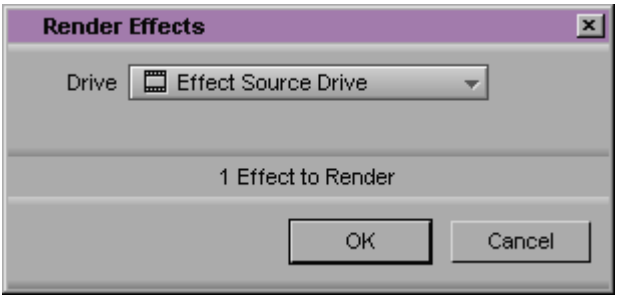
After you have adjusted an effect's parameters, you can render the effect.

To render a single effect:

1. Move the position indicator to the effect in the Timeline. Make sure the track containing the effect is selected.

2. Click the Render Effect button in the Tool palette, or choose Render at Position from the Clip menu.

The RenderEffects dialog box appears.



To prevent this dialog box from displaying, press and hold the Alt key (Windows) or Option key (Macintosh) when you click the Render Effect button. The system will use the last drive selected.

3. Select a drive for the rendered media from the pop-up menu.

   The *Effect Source Drive* is the drive where the media on the outgoing shot of a transition resides.

4. Click OK.

   If there is not enough room on the drive, the system displays a message box that gives you the following choices:

   - Stop — Stop the rendering process and return to the Render Effects dialog box, and then choose another target drive before continuing.
   - Continue — Attempt to render the effect anyway, in case there might be enough room on the drive.

   The effect is rendered, and a precompute master clip is stored on the drive you selected.

To display the estimated render time during rendering, press the T key on the keyboard. Press the T key again to clear the display. Press the P key to view percent rendered.

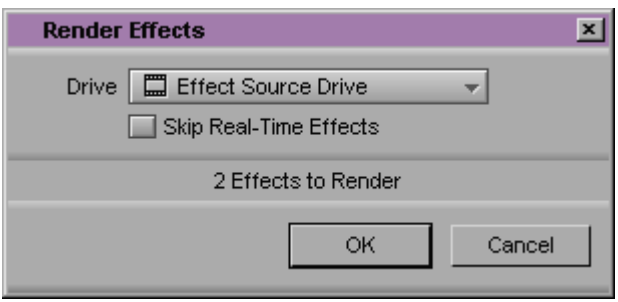
Rendering Effects at Position

When you have more than one effect at a particular point in the Timeline (for example, effects on several stacked video tracks), you can render them as a group.

To render multiple effects at position:

1. Move the position indicator to the effects in the Timeline.
2. Select all tracks that contain effects you want to render.
3. Choose Render at Position from the Clip menu.

   The Render Effects dialog box appears.



To prevent this dialog box from appearing, press and hold the Alt key (Windows) or Option key (Macintosh) when you click the Render Effect button. The system will use the last drive selected.

4. Select a drive for the rendered media from the pop-up menu.

   The *Effect Source Drive* is the drive where the media on the outgoing shot of a transition resides.

5. (Option) If you do not want to render the real-time effects in the selected group of effects, select the option Skip Real-Time Effects.
6. Click OK.

   If there is not enough room on the drive, the system displays a message box that gives you the following choices::

You have two choices:

- Stop — Stop the rendering process and return to the Render Effects dialog box, and then choose another target drive before continuing.
- Continue — Attempt to render the effect anyway, in case there might be enough room on the drive.

The Avid system renders all effects at the position in the Timeline.

To display the estimated render time during rendering, press the T key on the keyboard. Press the T key again to clear the display. Press the P key to view percent rendered.

Rendering Effects Between IN and OUT Points

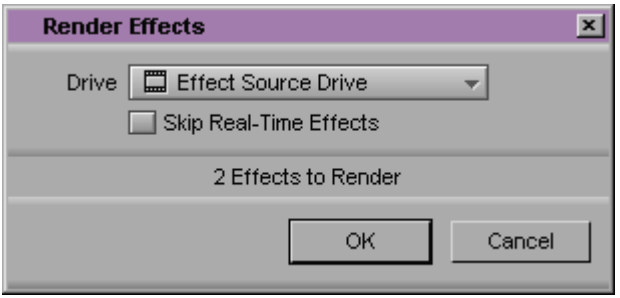
When you have multiple effects to render for a whole sequence or a portion of a sequence, you can render them as a group by marking IN and OUT points.

Save your sequence before you use this feature. Depending on the number, type, and complexity of the effects, the batch process can take a long time.

To render multiple effects by using IN and OUT points:

1. Select all tracks that contain effects you want to render.
2. Mark an IN point before the start of the first effect to be rendered in your sequence; mark an OUT point after the last effect to be rendered.
3. Choose Render In/Out from the Clip menu.

   The Render Effects dialog box appears.



4. Select a drive for the rendered media from the pop-up menu.

   The *Effect Source Drive* is the drive where the media on the outgoing shot of a transition resides.

5. (Option) If you do not want to render the real-time effects in the selected group of effects, select the option Skip Real-Time Effects.

6. Click OK.

   If there is not enough room on the drive, the system displays a message box that gives you the following choices::

   You have two choices:

   - Stop — Stop the rendering process and return to the Render Effects dialog box, and then choose another target drive before continuing.
   - Continue — Attempt to render the effect anyway, in case there might be enough room on the drive.

   The Avid system renders all effects between the IN and OUT points.

To display the estimated render time during rendering, press the T key on the keyboard. Press the T key again to clear the display. Press the P key to view percent rendered.

Another way to speed up rendering is to use the Submaster effect. See ***"Submaster Editing" on page 213****.*

Saving a Partially Completed Render

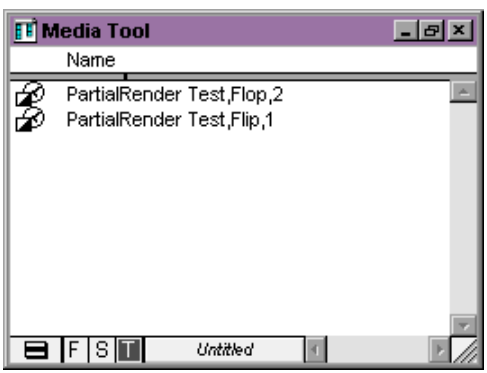
If you interrupt a render that is not complete, the system allows you to save the part of the render that has been completed when you interrupt. You can then finish the render later by resubmitting the effect for rendering. The system will then render only the part of the effect that has not been rendered previously and will save that part as a separate precompute. This feature is especially useful if you have to interrupt a long render of a single effect, such as a Submaster effect.

You can also use the Render Ranges command in the Timeline Fast menu to customize the Timeline so that it indicates which parts of an effect have been rendered.

Partially Completed Render Example

The following example describes a typical interrupted render process for a group of five effects.

The five effects are submitted for rendering, and the rendering process is interrupted while rendering the second effect. Precomputes are saved for the fully rendered first effect and for the part of the second effect that has been rendered.

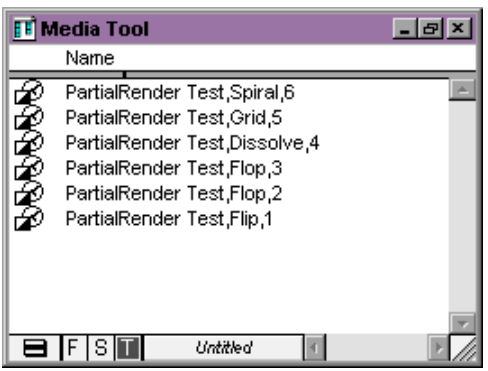


Precomputes saved when initial render is interrupted. The precompute for the Flop represents the part of that effect that had been rendered when the operation was interrupted.

When the same group of effects is submitted for rendering again, the system:

- Does not rerender the fully rendered first effect
- Renders only that portion of the second effect that has not been rendered previously
- Renders the remaining three effects

The result is six precompute files for five effects, since the second effect was rendered in two parts at two different times.



Final set of precomputes after the second rendering operation. The Flop effect has two precomputes: one for the partial render from the first operation and a second for the remainder of the effect as rendered in the second operation.

Interrupting a Render

To interrupt a render:

1. Press Ctrl+period (Windows) or ⌘+period (Macintosh) to interrupt the render.

   A message box appears.

2. Do one of the following:
   - Click Keep to save the material already rendered.
   - Click Discard to end the render without saving the material already rendered.

Customizing Render Range Display

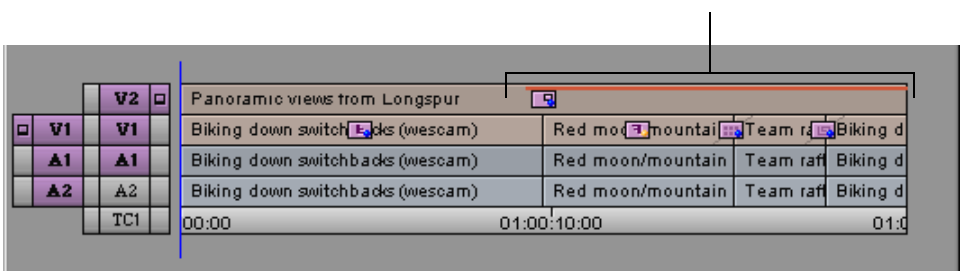
To customize the display of render ranges in the Timeline:

1. In the Timeline Fast menu, choose Render Ranges.
2. Choose one of the following:
   - None — Turns off the display of render ranges
   - Partial Only — Displays a red line on the portion of any partially rendered effect that is currently unrendered (but does not mark completely unrendered effects)
   - All — Displays a red line on the portion of any partially rendered effect that is currently unrendered and on all completely unrendered effects

The following illustrations show how the Timeline displays render range information. The Picture-in-Picture effect on track V2 has been partially rendered; effects on track V1 are not rendered.

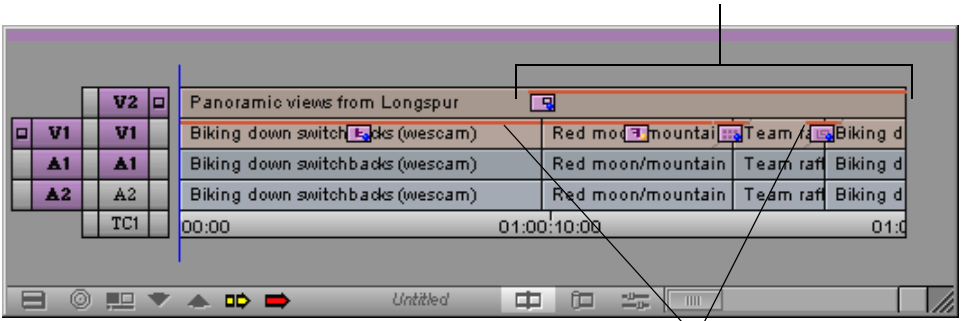
Timeline with Render Ranges set to Partial Only

Unrendered portion of effect on track V2 is marked with a red line.



Timeline with Render Ranges set to All

Unrendered portion of effect on track V2 is marked with a red line.



All unrendered effects on track V1 are marked with a red line.

Render Ranges indicator lines do not display if Show Effect Contents is selected in the Timeline Settings dialog box.

The red line indicator used by the Render Ranges command is very similar to that used by the Dupe Detection command. To avoid confusion, do not use Dupe Detection and Render Ranges in the Timeline at the same time.

The All option of the Render Ranges display provides a simple visual indication of which effects are unrendered. It is not an indication of which effects might need to be rendered to achieve successful playback.

In Effect mode, the playback behavior of a partially rendered effect depends on the frame at which playback begins. If playback begins at a rendered frame, the system attempts to play the entire effect in real time. You see the rendered portion in real time but cannot see the unrendered portion. If playback begins at a non-rendered frame, the system plays the entire effect using render on-the-fly.

ExpertRender

When you render effects by using Render at Position or Render In/Out, the system renders *all* effects in the selected material — all effects on the enabled tracks at the position or all effects on the enabled tracks between the marked IN and OUT points. In most cases, some effects are rendered that do not require rendering for successful playback, resulting in a longer render time than necessary and the creation of more precomputes than necessary.

The ExpertRender option helps to solve this problem by analyzing all the effects in selected material and determining which ones need to be rendered to achieve successful playback. You can then choose to render the effects identified by the system or to modify the system's selections before submitting them for rendering.

ExpertRender attempts to generate a minimum set of effects to render for successful playback. If you render the effects recommended by ExpertRender, your material will always play successfully in real time.

In most circumstances, ExpertRender enables you to render material quickly, easily, and with a high degree of storage efficiency. However, experienced Avid users might achieve an even quicker render of a complex sequence than that offered by ExpertRender — for example, by using Submaster editing. For more information, see **"Examples of ExpertRender Behavior" on page 159** and **"Submaster Editing" on page 213**.

Rendering Effects by Using ExpertRender

To render effects by using ExpertRender:

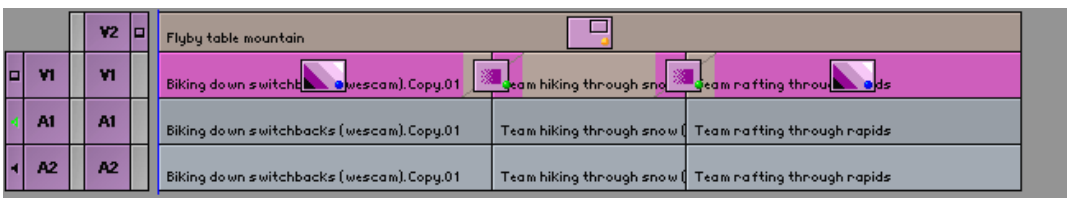
1. Select all tracks in the Timeline that contain effects you want ExpertRender to analyze.

2. Do one of the following:

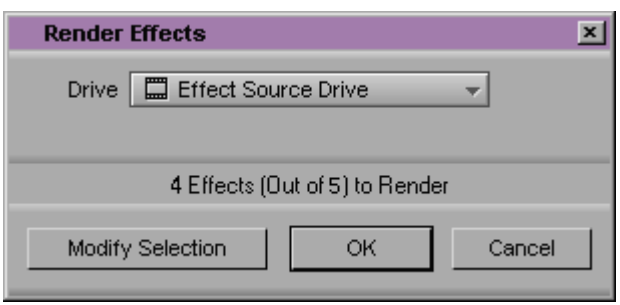
   - To render at position, move the position indicator to the effects in the Timeline.
   - To render between IN and OUT points, mark IN and OUT points around the effects.

3. Choose ExpertRender at Position or ExpertRender In/Out from the Clip menu.

   ExpertRender analyzes the selected effects and highlights the effects that require rendering in the Timeline. The following illustration, in which four effects are selected for rendering, shows how the system highlights both transition and segment effects.



The Render Effects dialog box appears and indicates how many of the effects submitted to ExpertRender require rendering.



4. Do one of the following:

   - Click Cancel.

     The system removes all ExpertRender highlighting and cancels the ExpertRender process without rendering any effects.

   - Click Modify Selection.

     The effects identified for rendering remain highlighted, and you can modify the set of effects to render. For more information, see **"Modifying ExpertRender Results" on page 156**.

   - Click OK.

   If there is not enough room on the drive, the system displays a message box that gives you the following choices:

   - Stop — Stop the rendering process and return to the Render Effects dialog box, and then choose another drive before continuing.
   - Continue — Attempt to render the effects anyway, in case there might be enough room on the drive.

   The system renders the highlighted effects.

To display the estimated render time during rendering, press the T key on the keyboard. Press the T key again to clear the display. Press the P key to view percent rendered.

Modifying ExpertRender Results

To modify the results of an ExpertRender analysis:

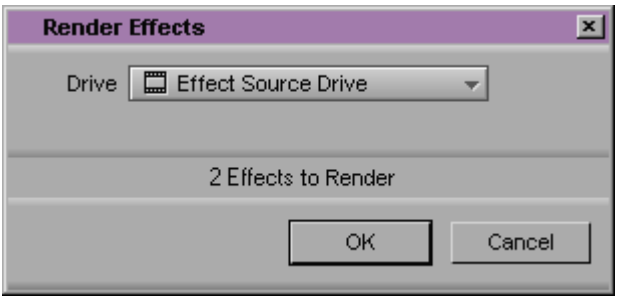
1. Perform an ExpertRender by following steps 1 to 3 in **"Rendering Effects by Using ExpertRender" on page 154**.
2. In the Render Effects dialog box, click Modify Selection.

3. Shift+click effects in the Timeline to add them or remove them from the set of effects to render.

   Effects currently selected are highlighted.

4. When you are satisfied with your selections, click the Render Effect button on the Tool palette.

   The Render Effects dialog box appears.



To prevent this dialog box from appearing, press and hold the Alt key (Windows) or Option key (Macintosh) when you click the Render Effect button. The system will use the last drive selected.

5. Select a drive for the rendered media from the pop-up menu.

   The *Effect Source Drive* is the drive where the media on the outgoing shot of a transition resides.

6. Click OK.

   If there is not enough room on the drive, the system displays a message box that gives you the following choices:

   - Stop — Stop the rendering process and return to the Render Effects dialog box, and then choose another drive before continuing.
   - Continue — Attempt to render the effects anyway, in case there might be enough room on the drive.

   The system renders the selected effects.

To display the estimated render time during rendering, press the T key on the keyboard. Press the T key again to clear the display. Press the P key to view percent rendered.

To cancel ExpertRender during the modification process, do one of the following:

- Click in the Timecode track to move the position indicator.
- Double-click one of the Segment Mode buttons below the Timeline.
- Choose an ExpertRender command from the Clip menu, and then click Cancel in the Render Effect dialog box.

  The system removes all ExpertRender highlighting and cancels the ExpertRender process without rendering any effects.

Some Considerations When Using ExpertRender

When you work with ExpertRender, you should be aware of the following aspects of its operation:

- ExpertRender operates on all selected tracks in the Timeline, including any enabled tracks that might be above the currently monitored track. To view the material that you are submitting to ExpertRender accurately in the Record monitor, make sure that you are monitoring the topmost selected track in the sequence.
- ExpertRender takes account of *all* tracks at or below the topmost selected track when determining what to render on the *selected* tracks to achieve successful playback. For example, if you have a sequence with tracks V1 to V4, and select tracks V3 and V4 when using ExpertRender, the system considers tracks V1 and V2 when determining playback possibilities but highlights effects to render only from tracks V3 and V4.
- If the material you submit to ExpertRender includes an effect in a segment that also contains nested effects, ExpertRender always renders the effect on the top (outside) track rather than the effect

inside the nest. In certain circumstances, this might limit your workflow flexibility. For example, you might anticipate the need to readjust the parameters of the effect outside the nest and the effect would then require rerendering. You can use the procedure described in **"Modifying ExpertRender Results" on page 156** to select the effect within the nest for rendering and deselect the effect outside the nest.

Examples of ExpertRender Behavior

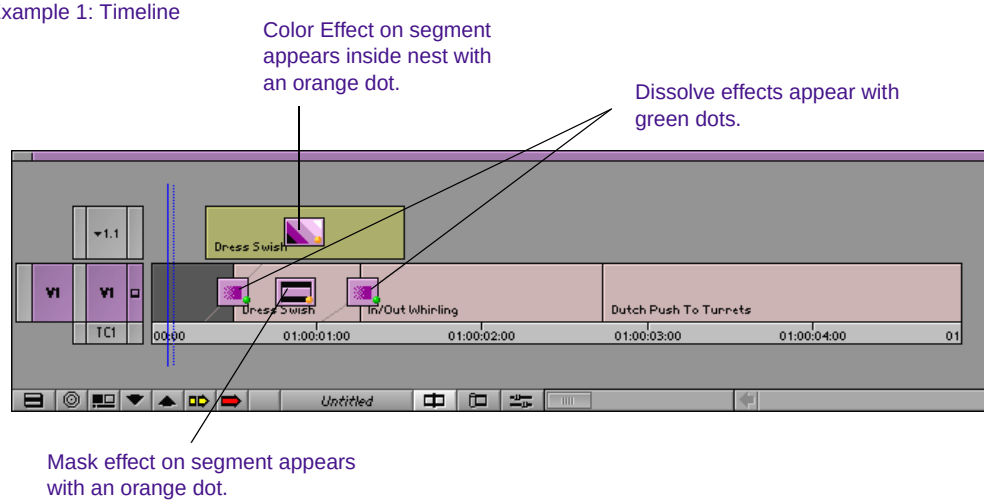
The following examples illustrate how ExpertRender behaves in a variety of circumstances. The examples will help you to understand the value of ExpertRender and alert you to certain situations in which you might want to modify the results of an ExpertRender analysis before you render a sequence.

The ExpertRender results in these examples reflect the use of compressed video resolutions or uncompressed video resolutions on a two-stream uncompressed system. Results will be different when you are working with single-stream uncompressed media since real-time playback capabilities are different for one stream of video. For more information, see ***"Playback Capabilities for Single-Stream Uncompressed Video" on page 35****.*

Example 1: Nested Effect with Dissolves

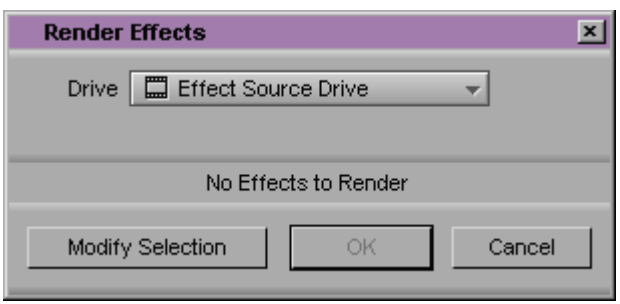
In this example, two segment effects are applied to a segment by nesting the effects, and Dissolve effects are applied to the beginning and end of the segment. In the Timeline, the Dissolve effects appear with green dots.

Example 1: Timeline



Although the Dissolve effects have green dots to indicate that they might need to be rendered under some circumstances, this example will play successfully in real time without rendering. When the sequence is submitted to ExpertRender, the system correctly indicates that no effects require rendering.

Example 1: ExpertRender Result in the Render Effect Dialog Box

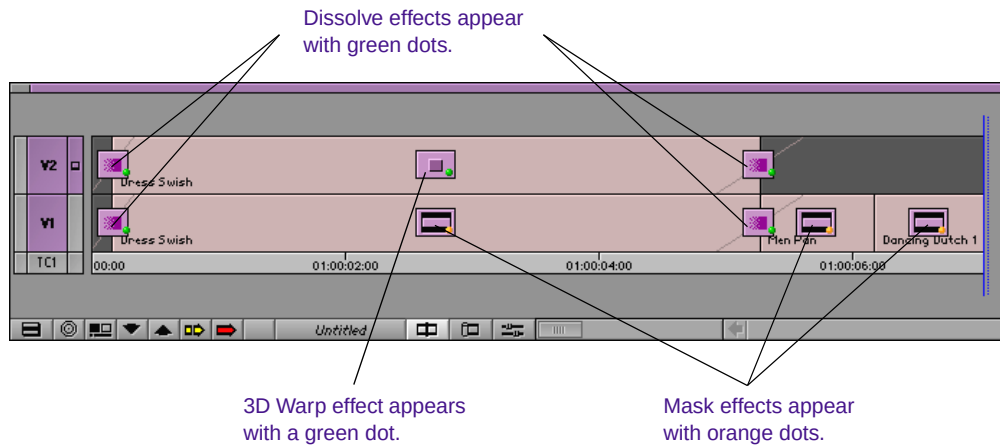


In this example, ExpertRender saves time for the editor who might assume that the sequence cannot play in real time without rendering at least the Dissolve effects.

Example 2: Multilayer Sequence with a 3D Effect

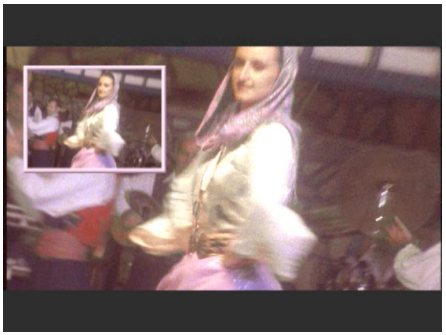
In this example, a Mask effect is applied to the segment on track V1, and a 3D Picture-in-Picture effect is created by applying the 3D Warp effect to the segment on track V2. Dissolves are applied to the beginning and end of the segments on both tracks. The final effect has masked video in the background and a 3D Picture-in-Picture effect using the same footage in the foreground. Additional segments containing Mask effects follow the first segment on track V1. The sequence has eight effects in all.

Example 2: Timeline Before Rendering



In the Timeline, the 3D segment effect and all four transition effects appear with a green dot.

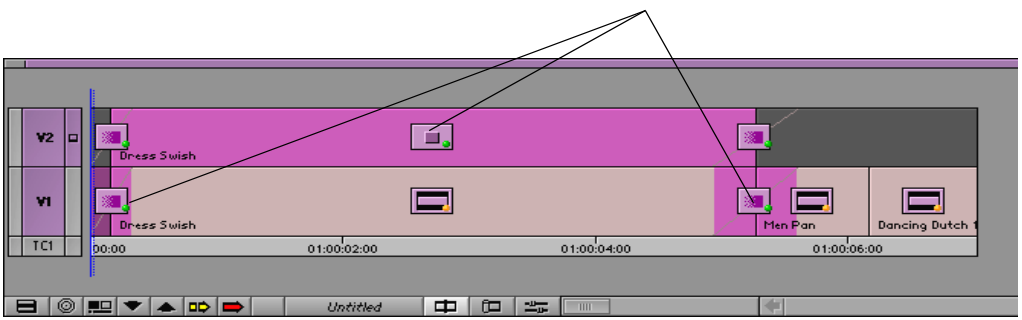
Example 2: Sample Frame from Sequence



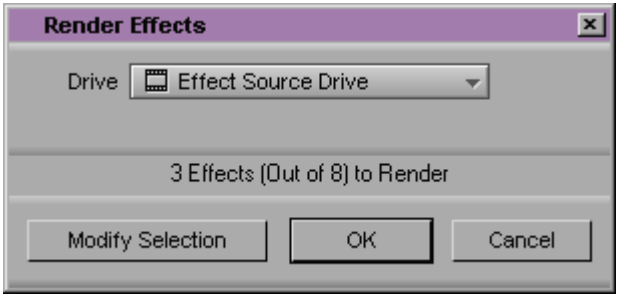
When this sequence is submitted to ExpertRender, only three effects are recommended for rendering — the 3D effect on track V2 and the two dissolves on track V1. After you render these three effects, the sequence plays successfully in real time.

Example 2: ExpertRender Results Highlighted in Timeline

The 3D segment effect and two Dissolve effects are recommended for rendering.



Example 2: ExpertRender Results in the Render Effect Dialog Box



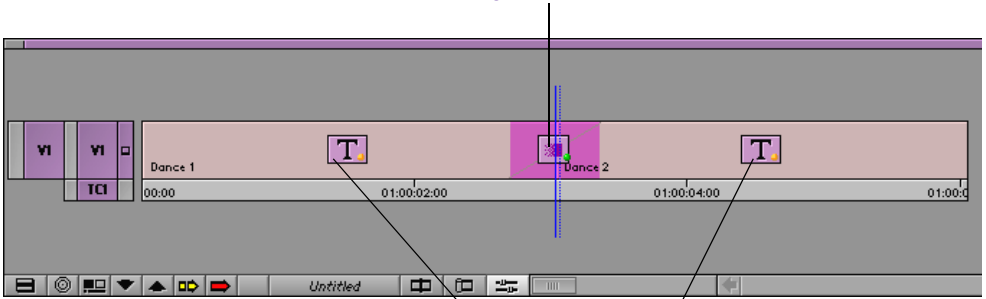
In this case, ExpertRender saves time for the editor who might assume that the sequence cannot play in real time without rendering all five green dot effects or even all the effects in the sequence.

Example 3: Titles with a Dissolve Effect

In this example of a situation that is common when working with titles, a Dissolve effect is applied between two Title Effect clips. In the Timeline, the Dissolve effect appears with a green dot.

Example 3: Timeline Before Rendering

Dissolve effect appears with a green dot.

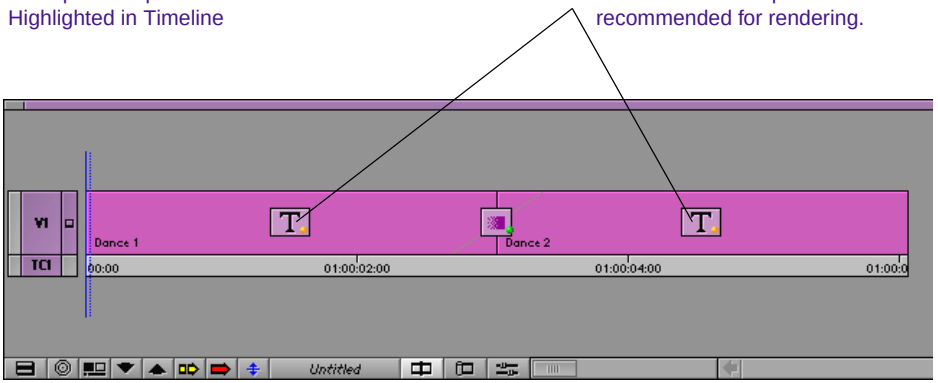


Title Effect clips appear with an orange dot.

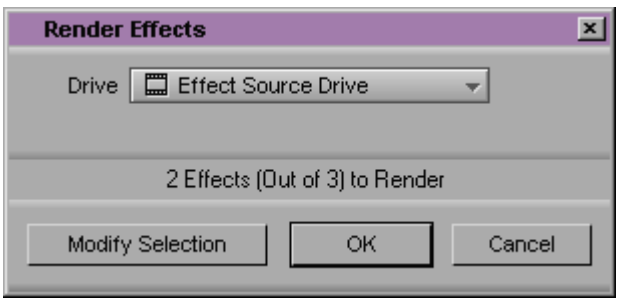
When this sequence is submitted to ExpertRender, the system recommends the two Title Effect clips for rendering.

Example 3: ExpertRender Results Highlighted in Timeline

Both Title Effect clips are recommended for rendering.



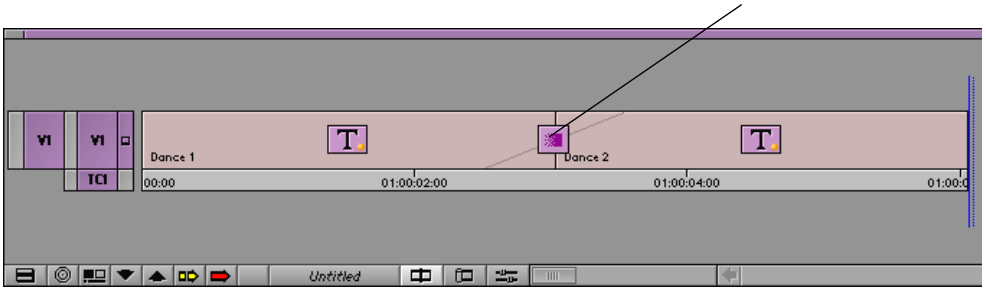
Example 3: ExpertRender Results in the Render Effect Dialog Box



In this case, ExpertRender makes a recommendation for rendering that is not ideal. This sequence will play back successfully if the Dissolve effect alone is rendered. If you render the two Title Effect clips, they will no longer be DSK and the rendering process will take longer than the process for rendering the Dissolve effect alone.

Example 3: Timeline After Rendering of Dissolve Effect

Sequence plays successfully after the Dissolve effect is rendered.



This example shows that ExpertRender sometimes recommends the rendering of longer segment effects (including Title Effect clips) when a quicker render of transition effects is sufficient to enable successful playback. You should check for these kinds of recommendations and consider modifying them by using the procedures described in ***"Modifying ExpertRender Results" on page 156****. Accepting these recommendations might slow down your workflow or result in the loss of DSK title capability.*

Managing Effect Media Files

Your Avid system allows you to view effect media files and select them for deletion. You can quickly find or delete an effect media file from a bin, or you can use the Media tool to view all the files that relate to your project and select those you want to delete.

For complete information on media management features and on the use of the Media tool, see the chapter "Managing Media Files" in the editing guide.

If you are using your Avid editing system in an Avid Unity™ workgroup environment, you can use Avid MediaManager to manage your media. For information on using the Avid MediaManager application, see the Avid MediaManager User's Guide.

Understanding Effect Media Files

When you render an effect, your Avid system creates two elements: a rendered effect clip (also known as a precompute clip). and an associated media file. When you create a title or an imported matte key clip, your system creates several elements: an effect clip, a precompute clip, and associated media files.

Your system overwrites or automatically deletes a media file from your drive only if you do both of the following:

- Render an effect two or more times with the Render Effect button
- Close the project before either an Auto Save or a manual save occurs

  In this case, the system automatically saves the last-rendered effect and deletes the earlier, unreferenced versions. This autodeletion applies only to effects rendered since the last save or project close.

This prevents you from deleting media that may be necessary to play other versions of the sequence. If you want to remove media files from your drive to save space, you will have to manually delete the files.

Revealing Effect Media Files

You can reveal the media files that are associated with effect clips (titles and matte keys), rendered effect clips (precompute clips), and motion effects so that they are visible in their folders on the desktop. You can then verify information about the media files, delete them directly from the folder, or perform other standard file management operations.

To reveal effect clip, rendered effect clip, or motion effect media (Windows):

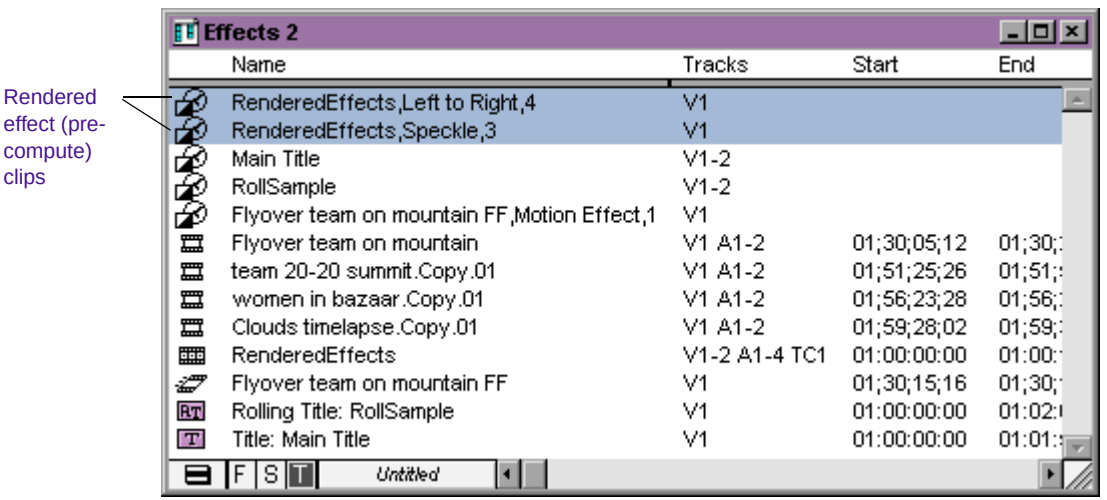
1. (Option) If you want to reveal effect media for rendered effect clips (precompute clips), display those clips in the bin by doing the following:

   a. Choose Set Bin Display from the Bin menu.

      The Set Bin Display dialog box appears.

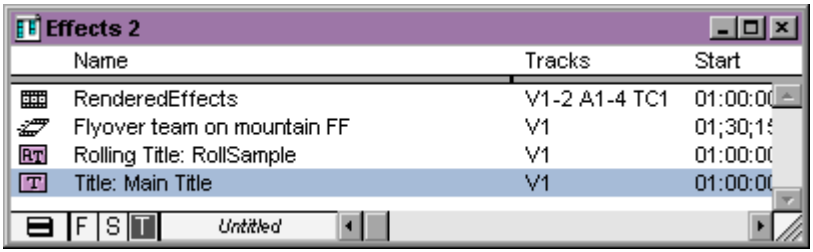
   b. Select Rendered Effects and "Show reference clips," and then click OK.

      Any rendered effect clips appear in the bin.



2. Select an effect item in the bin.

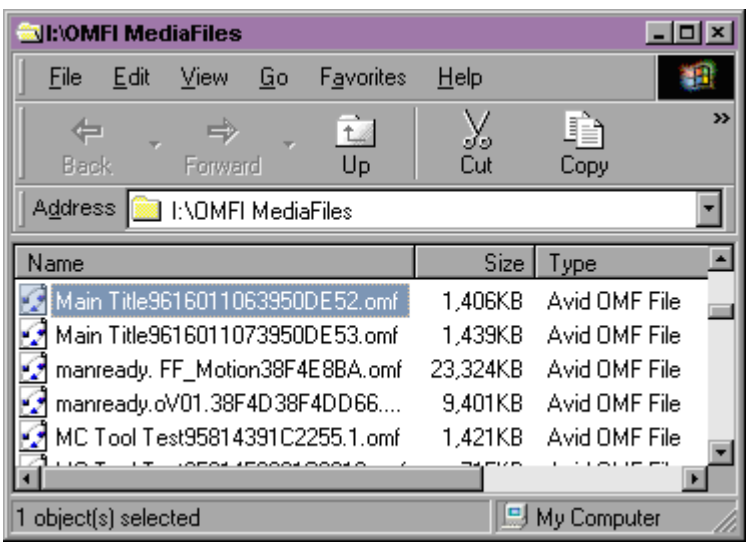
   In this example, a Title Effect clip is selected.



You can reveal media files for only one item in a bin at a time.

3. Choose Reveal File from the File menu.

   The system searches all available drives, opens the folder in Windows Explorer, and highlights a related media file.



4. (Option) If more than one media file is associated with the clip, the system displays a message box prompting you to reveal the next file. Do one of the following:

   - Click OK to reveal the next file.

If the Explorer window disappears from view, bring it forward by pressing and holding the Alt key and pressing the Tab key until you select the Explorer window containing the OMFI MediaFiles folder information.

- Click Cancel to end the Reveal File operation.

To reveal effect clip, rendered effect clip, or motion effect media (Macintosh):

1. (Option) If you want to reveal effect media for rendered effect clips (precompute clips), display those clips in the bin by doing the following:

   a. Choose Set Bin Display from the Bin menu.

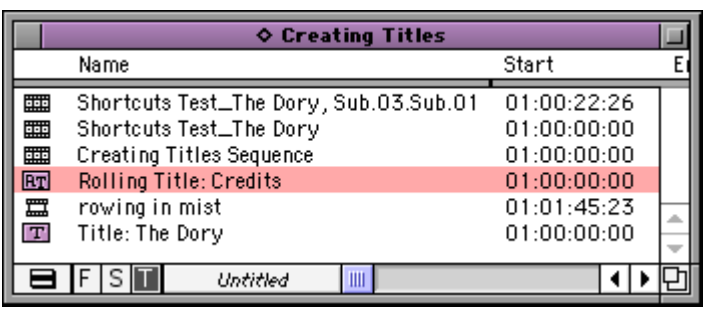
      The Set Bin Display dialog box appears.

   b. Select Rendered Effects and "Show reference clips," and then click OK.

      Any rendered effect clips appear in the bin.

2. Select an effect item in the bin.

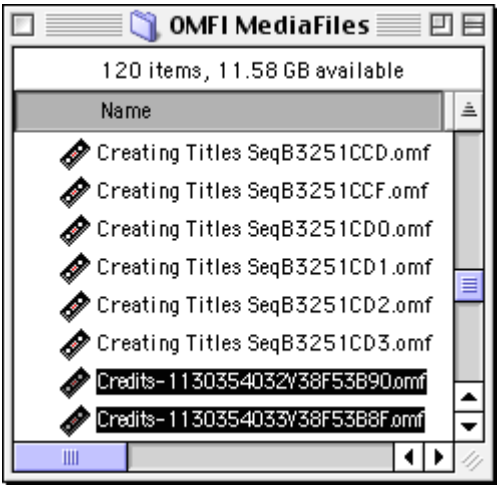
   In this example, a Title Effect clip is selected.



You can reveal media files for only one item in a bin at a time.

3. Choose Reveal File from the File menu.

   The system searches all available drives, opens the folder, and highlights related media files.



Deleting Effect Media Files from a Bin

You can delete effect media files (for titles, matte key clips, and rendered effects) and motion effect media from a bin by using the Delete dialog box.

To delete effect media files and motion effect media:

1. (Option) If you want to delete effect media for rendered effect clips (precompute clips), display those clips in the bin by doing the following:

   a. Choose Set Bin Display from the Bin menu.

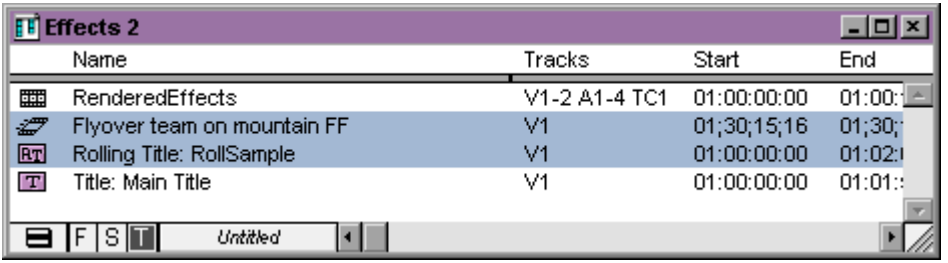
      The Set Bin Display dialog box appears.

   b. Select Rendered Effects and “Show reference clips,” and then click OK.

      Any rendered effect clips appear in the bin.

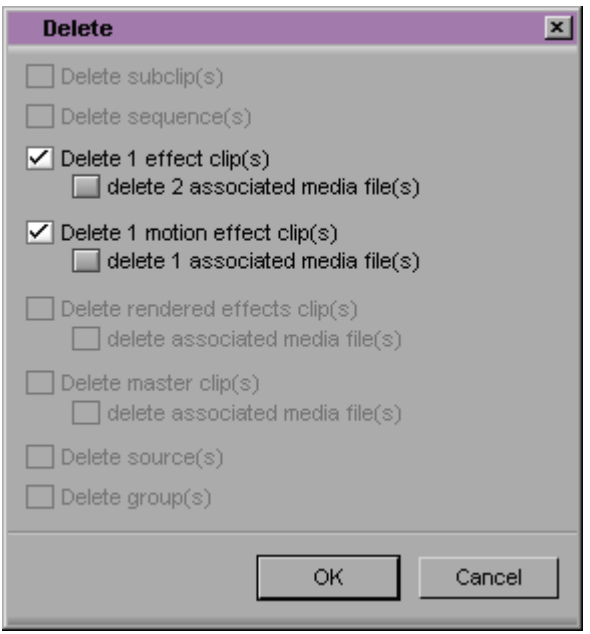
2. In the bin, select the clip or clips whose media you want to delete.

   In this example, two items are selected: a motion effect and a rolling title.



3. Press the Delete key.

   The Delete dialog box appears.



4. Select the appropriate check boxes for the material you want to delete, and then click OK.

   For example, to delete only effect media files, select "delete *n* associated media file(s)" beneath each of the appropriate effect clip types and deselect all other check boxes. Make sure that you select only those file types you want to delete.

CHAPTER 4

Creating Layered and Nested Effects

This chapter describes how to apply multilayer effects to your sequence. Layered effects consist of two or more layers of video built up vertically in the Timeline that play back simultaneously with effects such as Picture-in-Picture, Superimpose, or Submaster applied to the tracks. Nested effects consist of one or more effect layers that are contained within another effect on the *same* video layer.

This chapter also explains how to work with the Reformat effects, including Pan and Scan, which are applied to a separate layer in the Timeline and which allow you to reformat media to different aspect ratios.

The methods and concepts for creating multilayer effects — described in the following sections — build on the procedures for creating single-layer effects described in **Chapter 2**.

- **Creating Key Effects**
- **Working with Imported Graphics and Animation**
- **Using the Reformat Effects and the Pan and Scan Effect**
- **Nesting Effects**
- **Submaster Editing**

- **Performing a Video Mixdown**

Creating Key Effects

Your Avid editing system supports the following key effects:

- Chroma Key — Replaces one part of the video image with another video image based on color
- Luma Key — Replaces one part of the video image with another video image based on luminance (brightness)
- Matte Key — Replaces one part of the video image with another video image or graphic based on the location of a high-contrast image known as a matte

Using the Chroma Key Effect and the RGB Keyer

The Chroma Key effectand the RGB Keyer are used most frequently with a foreground image shot in front of a highly saturated color screen that is keyed against a background image. The following sections describe the process of creating these effects.

Chroma Key Effect

The Chroma Key effect includes several standard digital video effect (DVE) parameters such as scaling, position, and crop in addition to key control parameters. If your system includes 3D effects capability, you can also promote the Chroma Key effect to 3D for additional adjustments to various 3D DVE parameters such as skew, perspective, and spline-based motion.

Use the Chroma Key effect when you want to work in real time, or when you need to adjust various DVE parameters of the foreground chroma key footage.

Chroma Key effect example

This shows a Chroma Key effect that has been promoted to 3D and then repositioned with defocus applied to enhance the effect of perspective between foreground and background.

Before

After

RGB Keyer

The RGB Keyer is a non-real-time plug-in effect that includes additional parameters for fine-tuning the edges of the key and applying *post-key color correction* (correction applied to the foreground image without affecting the key itself) to the foreground elements. You cannot promote the RGB Keyer effect to 3D.

Use the RGB Keyer when working with full-screen chroma key footage that does not require DVE parameter adjustments such as repositioning or scaling, or when you need the RGB Keyer's post-key color correction capabilities to better match the foreground to the background.

RBG Keyer example: using post-key color correction

This example shows use of the post-key color correction capabilities of the RGB Keyer to blend the foreground and background elements more effectively.

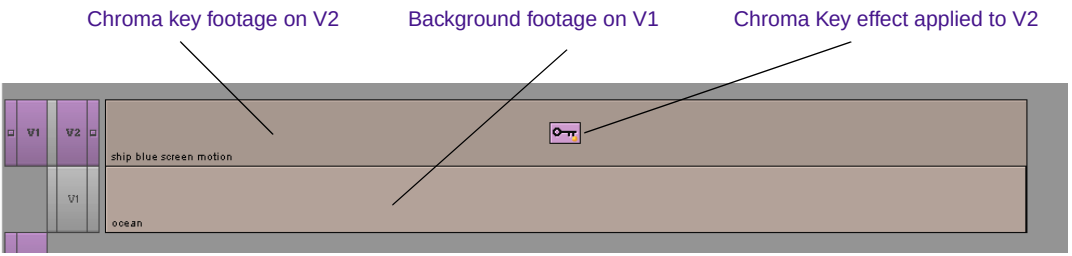
Before

After

Creating a Chroma Key Effect

To create a Chroma Key effect:

1. Create a sequence with two video layers.
2. Edit the background image onto track V1.
3. Edit the foreground image onto track V2.
4. Choose Effect Palette from the Tools menu.
5. Click the Key category.
6. Drag either the RGB Keyer icon or the Chroma Key Effect icon from the Effect Palette to the clip on track V2.



The Avid system adds the Chroma Key effect. Ultimatte blue is the default key color

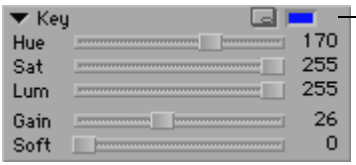
7. Move the position indicator to the segment containing the effect in the Timeline, and click the Effect Mode button.

   The Effect Editor opens and displays parameters for adjusting the chroma key.

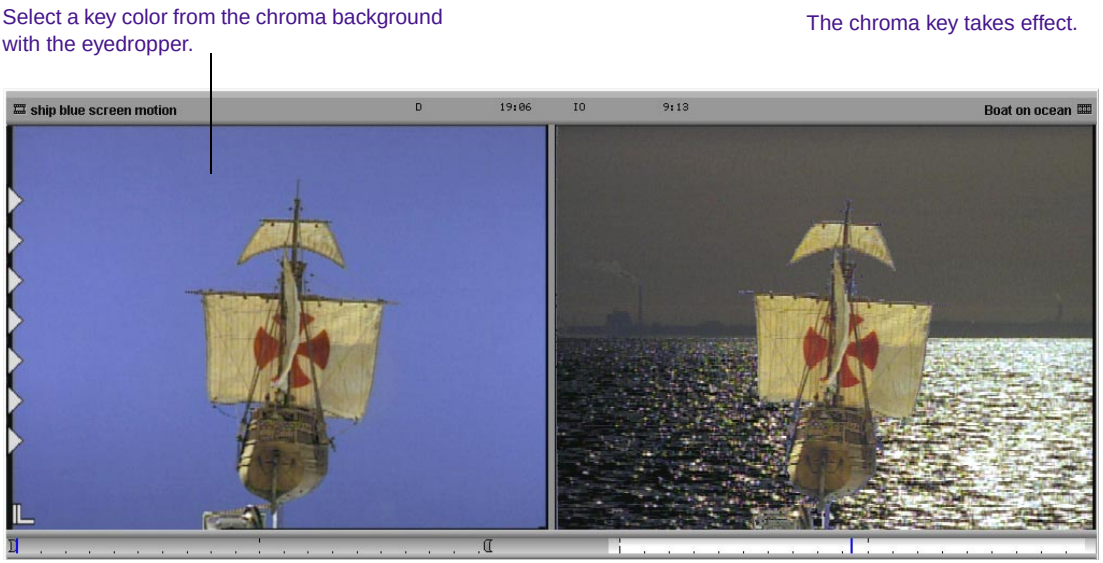
8. Open the Key Color parameter category (RGB Keyer) or the Key parameter category (Chroma Key effect).

   For the Chroma Key effect and the RGB Keyer, Ultimatte blue is chosen by default. To match the key color more closely to the color of the background screen used in the footage, proceed with the following step.

9. Click the Color Preview window in the Key parameter category to display the eyedropper icon, and then drag the eyedropper to a representative region of the blue or green background screen in the Record monitor.



The Avid system selects the primary key color, and the key takes effect.



10. Fine-tune the key by enabling additional parameter categories and adjusting sliders as necessary:

    - For more information on specific parameters, see **"Key Control Parameters" on page 492**.

- For more information on using post-key color correction with the RGB Keyer, see **"Using Post-Key Color Correction" on page 178**.

Using Post-Key Color Correction

You can use the Color Correction parameters in the RGB Keyer effect for post-key color correction of the foreground elements in the key.

Because the foreground and background elements of a chroma key are often shot at different times and locations, post-key color correction is especially useful for maintaining the key while matching the visual characteristics of the foreground elements to the background footage.

To perform post-key color correction:

1. Apply and adjust the RGB Keyer effect as described in **"Using the Chroma Key Effect and the RGB Keyer" on page 173**.
2. While in Effect mode, adjust the hue, saturation, and value of the foreground elements using the Color Correction parameters in the Effect Editor. For more information on the specific parameters, see **"Color Correction" on page 497**.

Creating a Luma Key Effect

Use a Luma Key effect to replace portions of the foreground video with the background video based on brightness or luminance.

To create a Luma Key effect:

1. Create a sequence with two video layers.
2. Edit the background image onto track V1.
3. Edit the foreground image onto track V2.
4. Choose Effect Palette from the Tools menu.
5. Click the Key category.

6. Drag the Luma Key Effect icon from the Effect Palette to the segment on track V2.
7. Use the eyedropper or the Luma Key sliders to select a brightness value in the foreground video.

   The Avid system replaces the corresponding portions of the foreground video with background video. See **"Key: Luma Key" on page 564** for an example.

Creating a Matte Key Effect

The Matte Key effect uses three layers of video to create the effect. The bottom layer is the background image, the middle layer is the foreground image, and the top layer contains the matte or alpha channel.

To create a Matte Key effect:

1. Create a sequence with three video layers.
2. Edit the background image onto track V1.
3. Edit the foreground image onto track V2.
4. Load a high-contrast image into the Source monitor, and edit it onto track V3. The high-contrast image can be an imported graphic or a clip that you adjust within the Avid system.

If the image is not high enough in contrast, you can adjust the contrast by applying the Color Effect and adjusting its parameters in Effect mode. For more information, see ***"Using the Color Effect to Prepare a High-Contrast Image" on page 182****.*

5. Choose Effect Palette from the Tools menu.
6. Click the Key category.
7. Apply the Matte Key effect as follows:

- If your high-contrast image was created with the Color Effect, press and hold the Alt key (Windows) or Option key (Macintosh) and drag the Matte Key Effect icon from the Effect Palette onto the segment on track V3 to nest the Color Effect within the Matte Key effect.
- If your high-contrast image on track V3 does not include a Color Effect, drag the Matte Key Effect icon from the Effect Palette onto the segment on track V3.

8. Click the Record Track Monitor button for track V3 in the Track Selector panel. You should see tracks V2 and V1 through the high-contrast image on track V3.
9. Move the position indicator to the Matte Key effect and render the effect.

For an example of a Matte Key effect, see ***"Key: Matte Key" on page 565*** *and* ***"Using Matte Keys with 3D Effects" on page 225****.*

About Real-Time Moving Mattes

If you import a moving matte as a 32-bit QuickTime® file or a graphic sequence, the Avid system handles the effect in real time. The basic procedure for importing a moving matte is described in the *Avid Media Composer and Film Composer Input and Output Guide.*

The Avid system treats a QuickTime file with embedded alpha as a moving matte if it has more than one frame.

To import a QuickTime file as a moving matte:

- Select either Use Existing or Invert Existing in the Alpha category on the Image tab of the Import Settings dialog box.

To import a graphics sequence as a moving matte:

1. Select the first file in the sequence as the file to import.
2. Select Auto Detect Sequential Files in the Image tab of the Import Settings dialog box.

   The Avid system uses all the files in the sequence to make the moving matte. If you import only one graphic file with alpha, it becomes a static matte.

The Avid system creates a real-time Matte Key effect with nested alpha and video fill. To preserve real-time performance, the system locks the alpha track so that you cannot replace it.

These guidelines apply to editing with real-time moving mattes:

- You can promote a real-time Matte Key effect to a 3D Warp effect, and use the 3D manipulation parameters.
- If the Matte Key effect is not on the top video track of a multilayered composite, it must be rendered before it will play in real time.
- If you add a motion effect to the matte and foreground, the effect will not play in real time until you render the motion effect.
- Real-time moving mattes cannot be combined with real-time titles without rendering the effect.
- Moving mattes in a 24p or 25p project play in real-time in their native format only. You must render moving mattes in order to output the sequence in alternate formats using the Digital Cut tool. For example, a moving matte imported into a 24p NTSC project will not play back to the PAL format on output unless you render it first.

Using the Color Effect to Prepare a High-Contrast Image

This section describes how to enhance high-contrast images for use in creating Matte Key effects.

To create a high-contrast image from available footage:

1. Apply the Color Effect to the clip and enter Effect mode.
2. Change the Luma Range to 0 to 255.
3. Drag the Sat (saturation) slider under Chroma Adjust all the way down to remove all color saturation from the image.
4. Adjust the Gamma to change the color of the midtones. Note that this is the only nonlinear function in the Color Effect.

   The high-contrast image can now be used as a matte for the key effect, as described in **"Creating a Matte Key Effect" on page 179**.

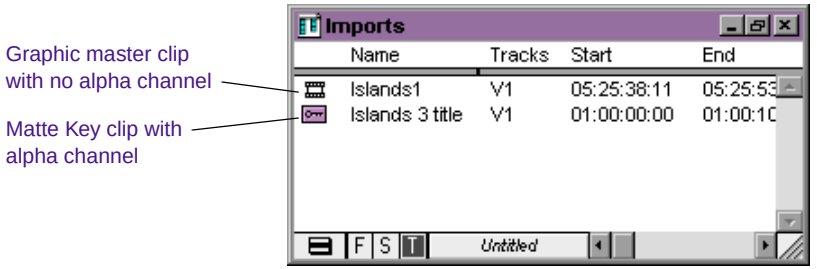
Black portions of the high-contrast image will be transparent and white portions will be opaque. To switch the order, use the Reverse option in the Foreground parameter category of the Matte Key effect.

You can also import a graphic image with an alpha channel and use it as a Matte Key effect. See ***"Editing with Imported Matte Key Clips" on page 183***.

Working with Imported Graphics and Animation

This section describes two different approaches to editing with imported graphic images, depending upon whether:

- The image was imported as a master clip with no alpha channel (an opaque graphic element)
- The image was imported as a Matte Key clip with an alpha channel (a keyable graphic element for video overlay)



These alternatives apply to both single-frame graphic images and animation. In addition, you can edit imported images into sequences using standard Avid system effects. These topics are described in this section.

(Windows) AVI files cannot be imported with an alpha channel. To import animation with an alpha channel, you must use another supported format. For more information on importing graphic and animation clips, see the Avid Media Composer and Film Composer Input and Output Guide.

Editing with Imported Matte Key Clips

When an imported clip includes an alpha channel for keying the graphic over video, it appears in the bin with a Key Effect icon.

Both single-frame graphic images (such as a single JPEG file) and multiple-frame animation sequences (such as a JPEG file sequence) appear in the bin in the same form after import, and you use the same editing techniques for both. You can edit this type of clip into a sequence as a standard matte key overlay.

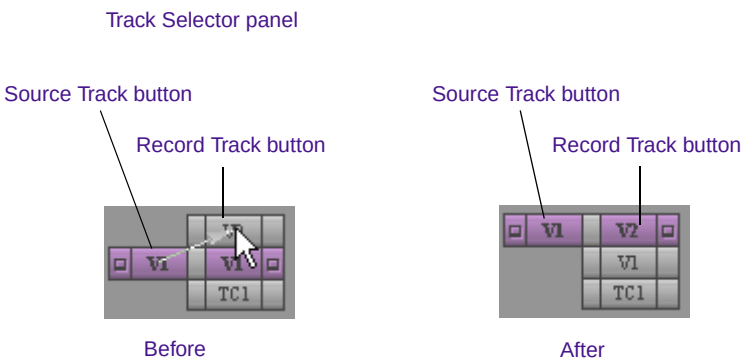
Only single-frame files can be used as real-time keyed graphics. PICT sequences, QuickTime® files, PICS animation files, and ERIMovie files cannot be used as real-time keyed graphics.

To edit a Matte Key clip into the sequence:

1. Edit the main video sequence.
2. Add a new track above the tracks in the sequence by choosing New Video Track from the Clip menu.

You must edit Matte Key clips onto an upper track to achieve the keying effect. If you edit a Matte Key clip onto track V1, for example, the image is keyed over black unless track V1 contains nested tracks.

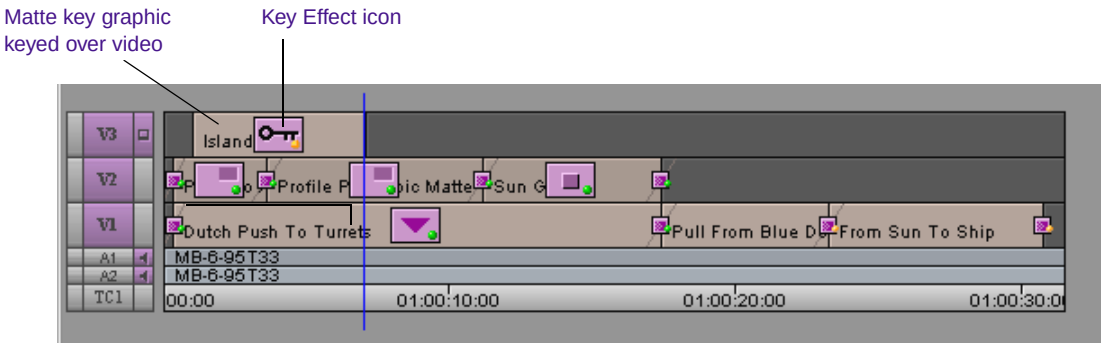
3. Play the sequence, and mark an IN point and an OUT point where you want to overlay the graphic.
4. Load a Matte Key clip into the Source monitor. Mark an IN point toward the center of the clip if it is a still.
5. In the Track Selector panel, click and drag the V1 Source Track button to the Record Track button for the new track to patch the video from track V1 of the Source monitor to the track in the sequence that will receive the Matte Key clip.



6. Click the Overwrite button to edit the matte key into the sequence.

   The Avid system keys the graphic over the video on the lower tracks.

   In the following example, the graphic appears on track V3 above the main video sequence edited onto tracks V1 and V2.



7. Adjust effect parameters in the Effect Editor, if necessary, using procedures described in **"Using the Effect Editor" on page 117**.

*If the keyed portions of the images are the reverse of the intended effect, click the Invert button in the Foreground parameter category. For more information, see **"Foreground" on page 489**.*

8. Use standard effect editing procedures to preview, render, or play the Matte Key clip.

Make sure the Record Track Monitor button for the topmost track is selected in the Track Selector panel to see the complete effect.

Editing with Imported Master Clips

When an imported clip does not include an alpha channel for keying the graphic over video, its icon is the standard master clip icon. This is true for both single-image graphics and animation sequences. You can edit this type of clip into a sequence as an opaque image or animation (in other words, as a single layer) using basic editing techniques described in this section.

To edit an imported master clip into the sequence:

1. Load a graphic clip into the Source monitor, and load a sequence into the Record monitor.
2. In the Source monitor, mark an IN point at the start of the clip and mark an OUT point to specify the duration of the graphic.
3. In the Record monitor, mark an IN point where you want to edit the graphic clip into the sequence.
4. Click the Source Track and Record Track buttons.
5. Click the Splice-in or Overwrite button to add the opaque graphic to the sequence.

   The opaque image appears in the sequence. In the Timeline, the graphic looks like a standard video clip edited into the sequence.
6. Play the clip using the standard playback procedures.

Using the Reformat Effects and the Pan and Scan Effect

The Reformat category contains effects for conforming media of different aspect ratios. One of these effects, Pan and Scan, available on some Avid systems, usually works as a vertical effect that you apply to a layer above the rest of your video material and that affects all the video material beneath it.

Reformat effects allow you to reformat media to different aspect ratios, for example, when you need to reformat a film aspect ratio for television programming. 16:9 Letterbox, 14:9 Letterbox, and 4:3 Sidebar resize the media to conform to the aspect ratio you select.

Original footage

After 16:9 Letterbox effect applied

Reformat works on all tracks below the track to which you apply it. For example, if you apply Reformat above a title track, the titles become reformatted as well. If you don't want to reformat the titles, apply Reformat below the title track.

Pan and Scan allows you to select a portion of the media to reformat and provides other parameters. See **"Understanding the Pan and Scan Effect" on page 188**.

Pan and Scan also supports conversion of 15:9 anamorphic source media to 16:9 anamorphic. **See "Selecting the Source and Target Aspect Ratios" on page 4-192.**

If you use a Reformat effect and the Pan and Scan effect on the same sequence, you must render one of the effects before the sequence will play in real time.

The following sections describe the Pan and Scan effect and explain how to use it and the other Reformat effects to change the aspect ratio of your media.

Understanding the Pan and Scan Effect

Pan and Scan is a technique for reformatting media to different aspect ratios. The most widespread use of this technique is for reformatting television programming, for example when 16:9 Anamorphic material needs to be converted to the 4:3 aspect ratio.

Merely stretching or shrinking the media to fit a new aspect ratio would distort the media. If you do not want to distort the original media, you must choose a portion of each frame in your media for output. Traditionally, this selection process, known as Pan and Scan, is done during the transfer from film to tape in a telecine room.

The Pan and Scan effect lets you pan across your media and select what portion of the media you want to retain for output. If necessary, you can insert keyframes into the Pan and Scan effect and adjust the effect for each keyframe.

Original media with the Pan and Scan wire frame (in 16:9 mode)

Results of the Pan and Scan effect (in 4:3 mode)

You can use Pan and Scan on any type of project (24p or 25p NTSC, 30i NTSC, 24p or 25p PAL, or 25i PAL).

About the Reformat Effects

The Reformat category contains three effects, other than Pan and Scan, that reformat media to new aspect ratios:

- **16:9 Letterbox** — Scales the image vertically to the 16:9 aspect ratio within a 4:3 frame. It works on 16:9 anamorphic media.
- **14:9 Letterbox** — Reformats media to the 14:9 Letterbox aspect ratio with a black band at the top and bottom. First the system expands the media horizontally by a fixed amount before scaling it down vertically, resulting in a slight horizontal cropping of the image. You control what part of the image is cropped with the Position slider.
- **4:3 Sidebar** — Reformats 4:3 source media to the 16:9 anamorphic aspect ratio by scaling down the media horizontally and applying a black band to the left and right sides of the image.

You would use one of these effects when you need to reformat a film aspect ratio for television programming. These effects also make it easier to combine 4:3 legacy media into a 16:9 master.

For more information, see **"Reformat Effects" on page 597**.

Outputting the Media with the Pan and Scan Effect

Media with the Pan and Scan effect can be output in two video formats: 4:3 or 16:9 anamorphic. Currently, the Pan and Scan effect does not generate data for inclusion in cut lists created with Avid FilmScribe. Consequently, if your target is not video, or if your source requires excessive scaling, you may visualize the reformatting operation but the Pan and Scan effect will not automate a film-to-film or a film-to-tape transfer.

Positioning the Pan and Scan Track

When your sequence does not contain titles, the Pan and Scan track should typically be the top track. If you use titles, the most effective way to work with Pan and Scan and titles is to work with multiformat titles, available in any project on a system that includes support for 24p or 25p projects. For more information on multiformat titles, see **"Working with Titles on Systems with 24p or 25p Support" on page 323**.

If you work with multiformat titles, you can place the Pan and Scan track under the titles. This placement ensures that both DSK titles and the Pan and Scan effect play correctly in real time.

When you place the Pan and Scan effect under multiformat titles, you might not see the titles with the correct Target aspect ratio as you work. For example, if you are reformatting from 4:3 to 16:9, titles will appear distorted in the Client monitor. When you output the sequence at 16:9 using the Digital Cut

tool, select the 16:9 aspect ratio and the titles will be sized correctly during the digital cut. For more information, see the chapter "Generating Output" in the Avid Media Composer and Film Composer Input and Output Guide.

When not using multiformat titles, you can place the Pan and Scan track over a title to properly scale the title along with the video tracks beneath it. If you need to pan, however, the pan will apply to the title as well as the other video tracks. Since this technique results in the title being panned, the results might not be desirable.

If you need to pan your footage and the title aspect ratio is not critical, you can move the titles above the Pan and Scan track. If the title target ratio is important, you may need to create a new title in your target aspect ratio.

Applying the Pan and Scan Effect

Because the Pan and Scan effect controls the aspect ratio of your final output, the effect must be applied to your entire sequence. You should apply Pan and Scan to its own video track after you finish editing the sequence.

There may be some situations in which you will want to place a Pan and Scan effect directly on a video segment. For more information, see ***"Combining the Pan and Scan Effect with Transition Effects" on page 205****.*

To apply the Pan and Scan effect:

1. After you finish editing your sequence, press Ctrl+Y to create a new video track on the topmost track.

2. Choose Effect Palette from the Tools menu.

   The Effect Palette opens.

3. Click the Reformat category.
4. Drag the Pan and Scan Effect icon from the Effect Palette to the new track.

If you apply the Pan and Scan effect and then add a segment to or remove a segment from your sequence, the Pan and Scan effect does not automatically adjust to cover the entire segment. Either trim the Pan and Scan effect manually, or remove the Pan and Scan effect and insert a fresh effect.

Selecting the Source and Target Aspect Ratios

If you enter Effect mode and select the Pan and Scan effect, you see a white wire frame in the Effect Preview monitor. This wire frame lets you select the portion of the media that appears in your output. The Pan and Scan aspect ratios determine the size and shape of the wire frame.

Correctly setting the Pan and Scan aspect ratios is the most important part of using Pan and Scan. Whenever you change aspect ratios, you

must decide which part of an image you will retain for the final output and which part you will discard. The Pan and Scan aspect ratios specify the size of the incoming image and determine how much of that image you can retain for your final output.

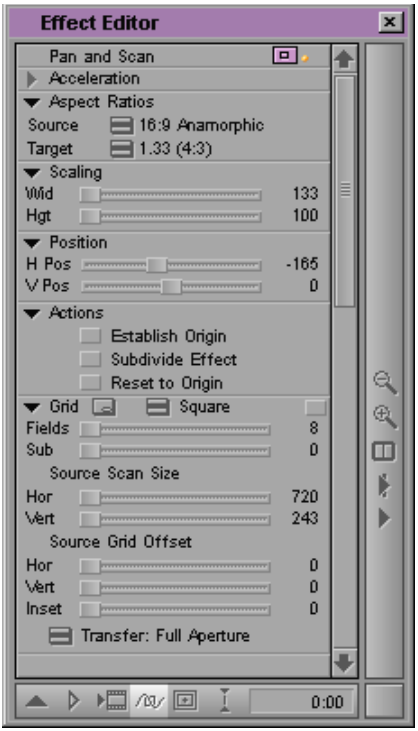
You must set two ratios:

- **Source ratio:** Specifies the aspect ratio of your incoming media
- **Target ratio:** Specifies the aspect ratio of the final output

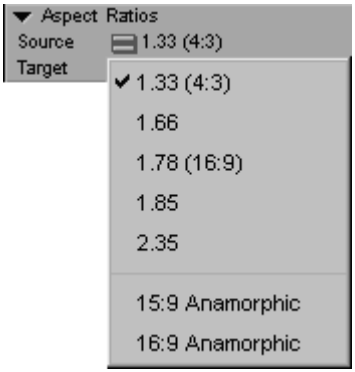
To set the Source and Target aspect ratios for a Pan and Scan effect:

1. Apply the Pan and Scan effect to the new video track, following the procedure described in **"Applying the Pan and Scan Effect" on page 191**.
2. Enter Effect mode.

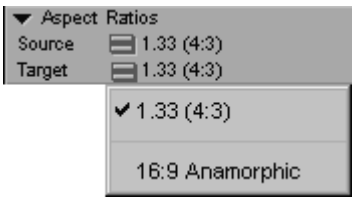
   The Effect Editor appears.



3. Select the Pan and Scan effect if it is not already selected.
4. In the Effect Editor, click the triangular opener for the Aspect Ratios parameter category.
5. Set the Source aspect ratio to the ratio of your source material.



6. Set the Target aspect ratio to the ratio of the final output.



Setting Up Your Monitors for the Pan and Scan Effect

To accurately view the effects of Pan and Scan while you edit, you need to set your monitors to display the correct aspect ratios. Your Record or Effect Preview monitor can display in 4:3 aspect ratio (the default) or 16:9 aspect ratio. Your Client monitor should also be able to display these two aspect ratios.

Generally, your monitors should all be set to 4:3. However, if your source aspect ratio is 16:9 Anamorphic, you should set the Record or Effect Preview monitor to 16:9. If your target aspect ratio is 16:9 Anamorphic, the Client monitor should be set to 16:9. Use 4:3 aspect ratio for all other aspect ratios.

If you are working with 16:9 Anamorphic and do not have the monitors set up correctly, the media and the wire frame will appear distorted. They will appear either elongated or squeezed.

To set the Record or Effect Preview monitor aspect ratio:

1. Right-click in the monitor.

   A shortcut menu appears.

2. Choose 16:9 Video from the shortcut menu to select or deselect 16:9 display.

Viewing Pan and Scan Media

In Source/Record mode, the Client monitor displays the media inside the Pan and Scan wire frame. The portion of the image inside the wire frame expands to fill the entire monitor. The Record monitor also shows the media inside the wire frame; however, the media will be distorted if either the Source or Target aspect ratio is 16:9 Anamorphic.

In Effect mode, the Effect Preview monitor displays your original media and the Pan and Scan wire frame. The Client monitor displays the original media.

Effect Preview monitor in Effect mode

In Effect mode, the original media displays in the Effect Preview monitor with the Pan and Scan wire frame.

Record monitor in Source/Record mode

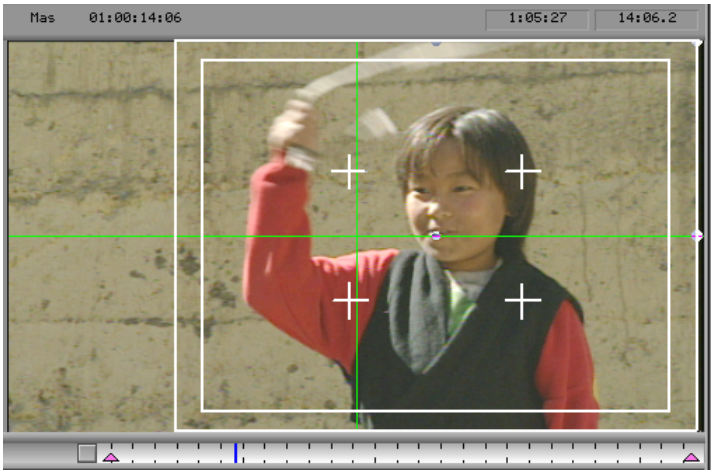
In Source/Record mode, the Record monitor shows a distorted view of the results of the Pan and Scan effect. The Client monitor shows the accurate view of the results.

Unlike other effects, you do not see the results of the Pan and Scan effect on a frame-by-frame basis while in Effect mode. You see the entire source image so that you may select a portion of it. To see the results of the Pan and Scan effect while in Effect mode, click the Play button. In Source/Record mode, you can see the results of the Pan and Scan effect on a per-frame basis or by playing the media.

Using the Effect Grid with the Pan and Scan Effect

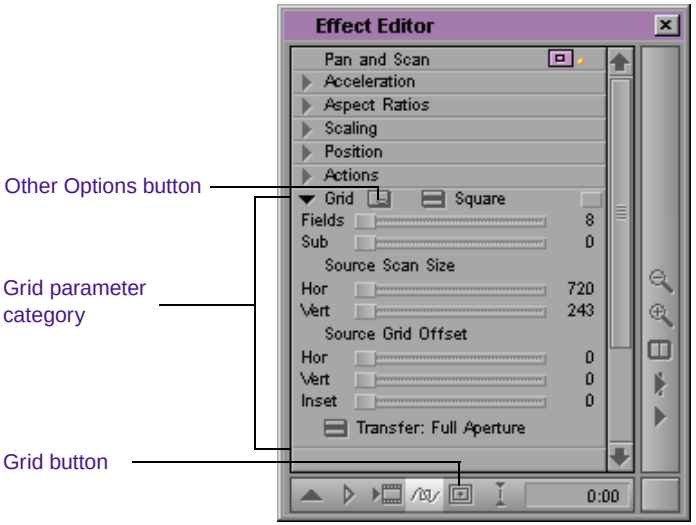
The Effect Grid displays a variety of positioning guides to help you move and position the Pan and Scan wire frame. Displaying the Safe Action grid and Thirds can be particularly useful when adjusting Pan and Scan compositions.

The following illustration shows the Effect Grid with Show Safe Action, Show Thirds, and Show Axes selected.



Safe Title/Safe Action and Thirds grid marks are based on the Target aspect ratio and are displayed inside the wire frame. Other grid markings are displayed as normal across the entire monitor.

You can open the Grid Settings dialog box by clicking the Other Options button in the Grid parameter category of the Effect Editor. The Grid Settings dialog box controls the size, position, and display of a variety of grids. For more information on Grid settings, see **"Working with the Effect Grid" on page 107**.



In addition to using the options in the Grid Settings dialog box, you can use the controls in the Grid parameter category of the Effect Editor to change some Grid settings. For more information on these parameters, see **"Grid" on page 490**.

Setting an Origin in the Pan and Scan Effect

Each Target aspect ratio has default position and scaling settings. You can return to these default settings at any time by selecting the aspect ratio again.

In addition to using the system's default values, you can create customized default values for each instance of the Pan and Scan effect by using Establish Origin.

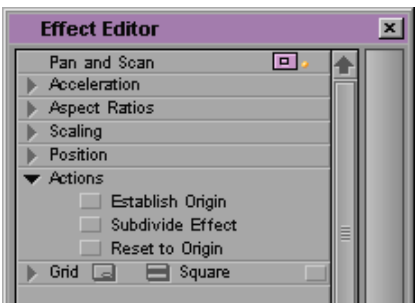
You should establish an origin before subdividing or adjusting individual keyframes in your Pan and Scan effect.

After inserting the Pan and Scan effect, you may want to adjust the size and position of the wire frame and save the wire frame's new settings as base settings for the Pan and Scan effect.

To save wire frame settings for the Pan and Scan effect:

- Click Establish Origin (in the Actions parameter category in the Effect Editor).

Now, whenever you adjust Pan and Scan, you can return to these settings by clicking Reset to Origin. Reset to Origin is useful for quickly centering the wire frame after you move it.



If you do not set an origin, clicking Reset to Origin returns to the default values for the Target aspect ratio.

Subdividing the Pan and Scan Effect

Because your sequence probably contains a variety of segments with different panning requirements, you may need to adjust the position of the Pan and Scan effect on a segment-by-segment basis. To make it easier to adjust Pan and Scan for individual segments, Pan and Scan includes the Subdivide Effect option. Subdivide Effect breaks up the Pan and Scan effect based on the segment boundaries of the selected video tracks underneath the Pan and Scan track.

You can also subdivide a Pan and Scan effect manually by using add edits.

The following illustrations show the Timeline before and after using the Subdivide Effect command.

Pan and Scan effect on a Filler track before subdividing the effect

Pan and Scan effect after subdividing the effect

Breaking up the effect minimizes the number of keyframes you need to add and manipulate because, by default, each effect has a keyframe at the start and end of the effect. If you want to reposition Pan and Scan for an entire segment, you can select the segment and drag the Pan and Scan wire frame to a new position. If you need to adjust Pan and Scan within the segment, add keyframes to the effect.

You should subdivide the Pan and Scan effect only after you have finished editing your sequence and have selected your Pan and Scan aspect ratios and origin.

To subdivide a Pan and Scan effect:

1. In Effect mode, move the position indicator to the Pan and Scan effect.
2. Click the Record Track buttons in the Track Selector panel for the video tracks to use as the subdivision guide.

   Subdivide Effect divides Pan and Scan based on the segment boundaries of the selected tracks underneath the Pan and Scan track.

3. In the Actions parameter category of the Effect Editor, click Subdivide Effect.

   The Avid system divides the Pan and Scan effect into multiple effects.

Subdivide Effect works on the selected Pan and Scan effect, not on the entire track.

Subdivide Effect does not subdivide segments connected by transition effects. For information on using Pan and Scan with transition effects, see ***"Combining the Pan and Scan Effect with Transition Effects" on page 205****.*

Using the Wire Frame in the Pan and Scan Effect

The wire frame displayed in the Record monitor outlines the section of media selected for output. The Pan and Scan wire frame behaves similarly to the Picture-in-Picture wire frame.

Scaling the Wire Frame

You can resize the wire frame by dragging its handles or by using the Scaling sliders; however, you cannot change the wire frame's shape. The wire frame's initial shape is determined by the Target aspect ratio. The system maintains the wire frame's shape during scaling.

To scale the wire frame do one of the following:

- Click one of the wire frame's handles, and drag it to the position you want.
- Click the triangular opener for the Scaling parameter category in the Effect Editor, and use the slider controls to adjust the wire frame's height and width.

Scaling lets you zoom in on your media. When you make the wire frame smaller, the image inside the wire frame is enlarged to fit the

output monitor. Because making the wire frame very small results in a pixelated image, it might not be appropriate to zoom in closely on an image when you plan to output directly to video.

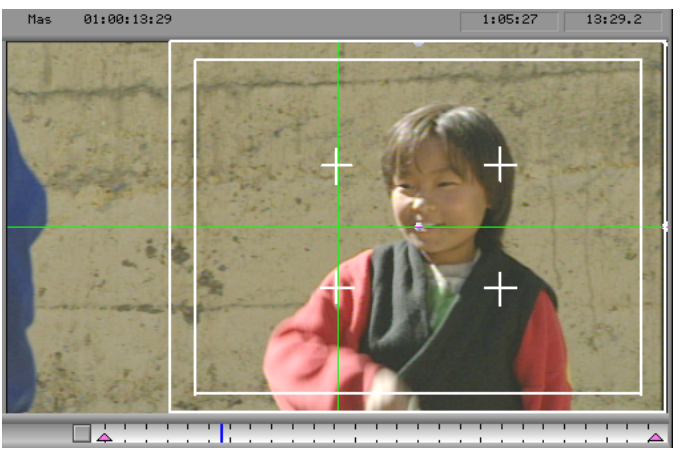
Positioning the Wire Frame

Moving the wire frame and defining a motion path works similarly to other multilayer effects; however, there are minor differences.

Dragging restricts the motion to the most important axis. For example, if you go from a wide aspect ratio (16:9) to a narrow aspect ratio (4:3), you can drag the wire frame from side to side. If you go from 4:3 to 16:9, you can drag the wire frame up and down.

To position the wire frame by dragging:

- Click inside the wire frame and drag it to a new position.



Pressing and holding the Shift key while dragging the wire frame lets you move in all directions.

You cannot drag the wire frame off the screen because in most circumstances you will not need to select empty space outside the boundaries of the source image. If you do need to position the edges of

the wire frame beyond the screen's limits, use the Position sliders in the Effect Editor.

To position the wire frame by using the position sliders:

- Open the Position parameter category in the Effect Editor and adjust the wire frame's horizontal and vertical Position sliders.

The Position sliders let you override some limits imposed by dragging.

Adjusting the Pan and Scan Effect

You might need to adjust Pan and Scan at different points throughout your sequence. The following are some suggestions for adjusting Pan and Scan.

If your sequence needs few adjustments:

1. Play the sequence until you see a problem with the panning.
2. Click the Play button, or press the space bar to stop play.
3. Enter Effect mode.

Mapping the Effect Mode button to a key lets you stop and enter Effect mode with one keystroke.

4. Adjust the Pan and Scan effect.

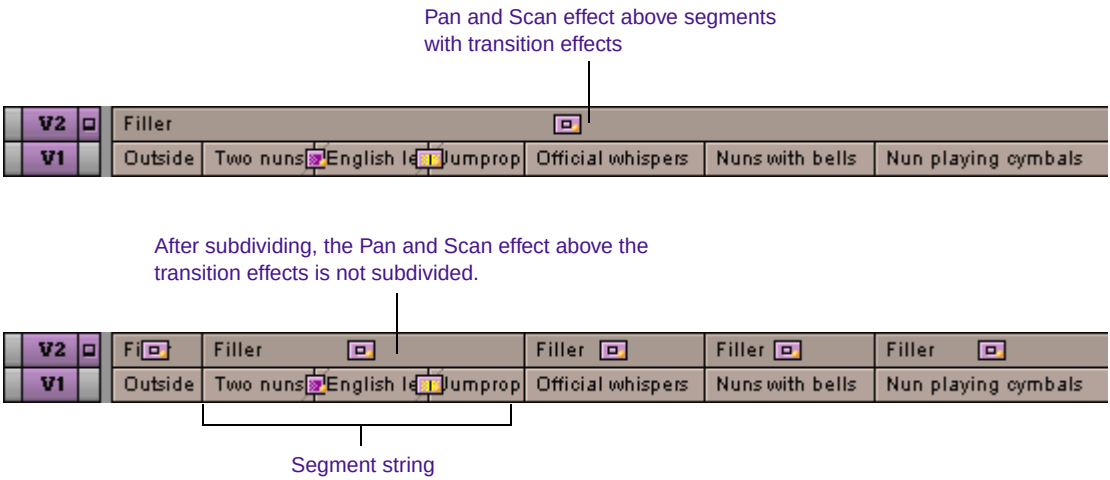
If your sequence needs many adjustments:

1. Enter Effect Mode. You will do all your adjustments in Effect mode.
2. Use the Go To Next Edit and Go To Previous Edit buttons to step from one Pan and Scan effect to the next.
3. Adjust the Pan and Scan effect.

Combining the Pan and Scan Effect with Transition Effects

When you subdivide the Pan and Scan effect, the subdivisions are based on the segment boundaries of the selected track. However, if two segments are connected by a transition effect, Pan and Scan does not place a subdivision between those segments. If one or more segments are connected by transition effects, Subdivide Effect treats this string of segments as one continuous segment.

The following illustration shows this behavior for a typical sequence with transition effects.



You can set Pan and Scan parameters for the start and end keyframes of the entire segment string and insert additional keyframes wherever you need to fine-tune the panning. However, this approach works only if the panning does not vary among the segments in the string.

If panning needs to vary greatly from segment to segment, you may need to handle Pan and Scan on a segment-by-segment basis. To work on a segment-by-segment basis, you need to combine the Pan and Scan effect with the transition effects by placing the Pan and Scan effect on your video track.

Placing Pan and Scan Effects on the Video Track

To combine Pan and Scan effects with transition effects, you need to place the Pan and Scan effects in the segments of the segment string.

To place Pan and Scan effects in the segments:

1. After subdividing the Pan and Scan effect, select the Pan and Scan effect above the segment string.
2. Press the Delete key to remove the Pan and Scan effect.

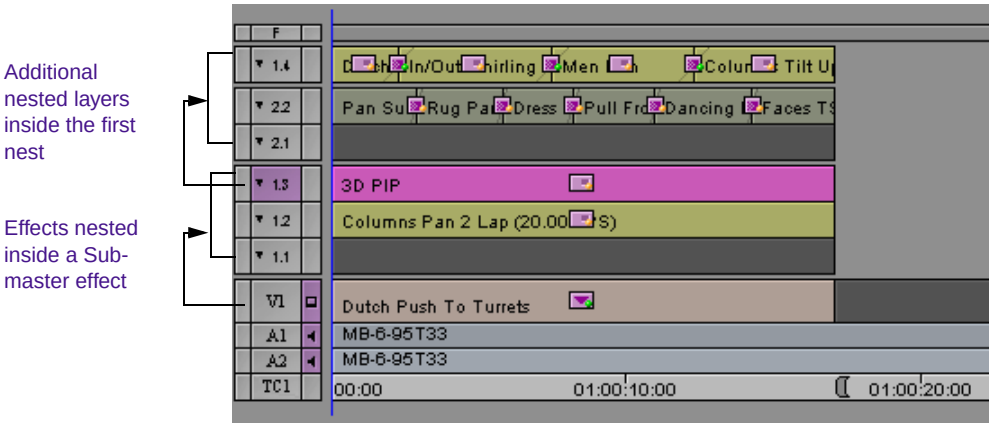
3. Choose Effect Palette from the Tools menu.

   The Effect Palette opens.
4. Click the Image category.
5. Drag the Pan and Scan Effect icon from the Effect Palette to the first segment in the segment string in the Timeline
6. Repeat step 5 for each segment in the segment string.

7. Adjust each Pan and Scan effect as needed.

Nesting Effects

You can use your Avid system to place effect tracks inside one another to better combine multiple images and digital video effects (DVEs). This involves a process known as *nesting*, which allows you to use the Timeline to *step into* a track, perform a series of editing operations, and then *step out* to view and render the effect as one segment on the track.



You can edit up to 24 video track layers (8 for offline systems). Into each layer of video, you can additionally nest (stack inside) up to 24 additional video tracks (8 for offline systems). In addition, you can step into each video track indefinitely, constrained only by your Avid system's memory.

Nested effects must be rendered in order to play back correctly.

You can use nesting when you want to create layered effects. In this case, the nested layers are treated as one element during the transition. Since transition effects, such as dissolves, fades, and wipes, are not multilayered, nesting is not applicable to these types of effects; nor are nesting effects applicable to audio tracks.

Some effects do not work well with each other when nested. For example, the Box Wipe effect and Edge Wipe effect cannot be used together in a nested segment because the two effects are competing to establish the shape of the wipe.

Another use of nesting is to constrain one effect using another effect. For example, you can use the Circle Shape Wipe effect to constrain an image posterization inside a region.

Nested effects do not appear in edit decision lists (EDLs) because they are not supported by linear tape-based edit controllers.

Stepping Into and Out of Nested Effects

You can step into an existing nested effect for editing. When you step into the effect, the full sequence in the Timeline is replaced with just the tracks that make up the nested effect. You can then add new tracks, monitor individual tracks, edit source material into the tracks, apply effects, and adjust effects on the nested tracks. You can step into any segment effect in this way.

You can also expand nested effects while leaving the rest of the sequence visible in the Timeline. See ***"Expanding Nested Effects in the Timeline" on page 208****.*

To step into a nested effect:

- Click the Step In button on the Timeline toolbar.

To step out of a nested effect:

- Click the Step Out button.

Expanding Nested Effects in the Timeline

You can expand an existing nested effect for editing within the Timeline. You can then add new tracks, edit source material into the tracks, apply effects, and adjust effects on the nested tracks. Any segment with a segment effect applied can be expanded in this way.

You cannot monitor individual tracks when you expand nested tracks in the Timeline. To monitor individual tracks within a nested effect, see ***"Stepping Into and Out of Nested Effects" on page 208****.*

To expand a nested effect:

- In Effect mode, double-click a nested effect to expand the effect within the Timeline.

- In Source/Record mode, click either the Extract/Splice-in button or the Lift/Overwrite button, and then double-click the nested effect.

The nested tracks appear in the Timeline above the track you double-clicked. Editing and patching features are available for changing the content of the track's effect.

Nesting level indicator

When you expand a nested effect, a number appears with the letter N in the Timecode button. This number represents the level of nesting that you are currently in. For example, N2 indicates that you are two levels in from the outermost track level.

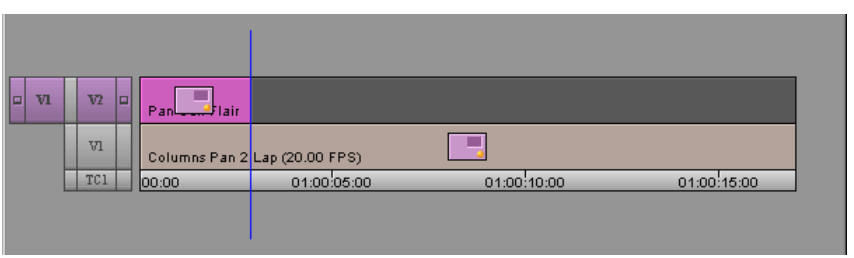
Double-click the effect's icon in the Timeline to step out of the nested effect.

Creating a Simple Nested Effect

This example involves nesting a sequence of clips with dissolves inside another segment effect.

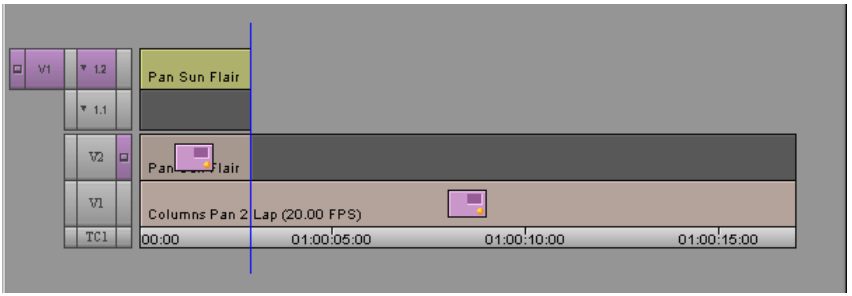
To create the nest:

1. Create a sequence and add a segment effect.



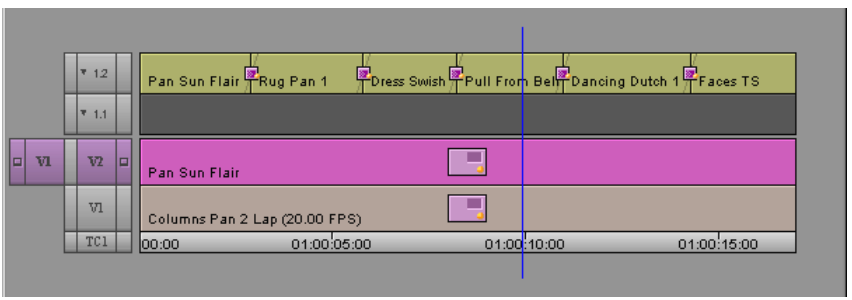
2. Click either the Extract/Splice-in button or the Lift/Overwrite button, and then double-click the segment.

   The segment opens to reveal the nested tracks.

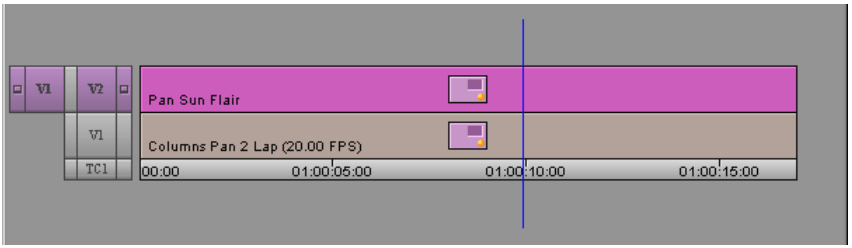


3. Edit new footage into the nested tracks, and apply additional effects as necessary.

   In this example, a series of clips is edited onto nested track 1.2, with dissolves applied between the shots. The 3D Picture-in-Picture effect applies to the entire nested dissolve sequence.



4. Double-click the main track for the nested effect (V2 in this example) to close the nested tracks again.



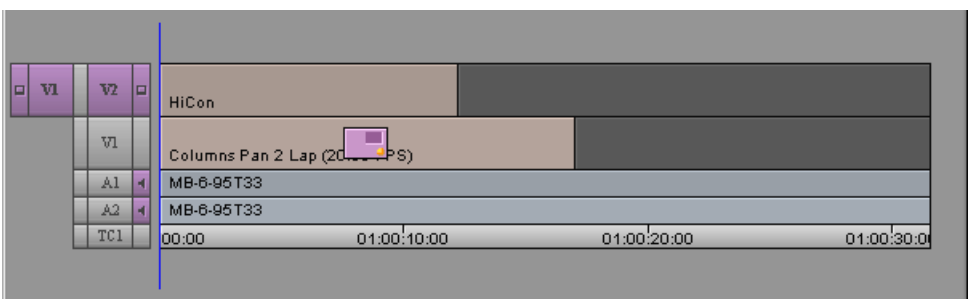
Nesting a Matte Key Effect

A Matte Key effect uses three layers of video to create the effect.

To nest a Matte Key effect:

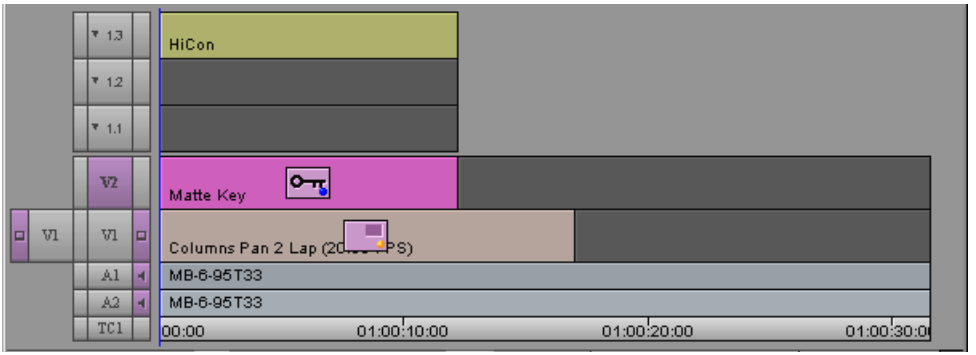
1. Create a sequence with the background video on track V1.
2. Load a high-contrast image into the Source monitor and edit it onto track V2.

   For an example of a high-contrast image, see **"Key: Matte Key" on page 565**.



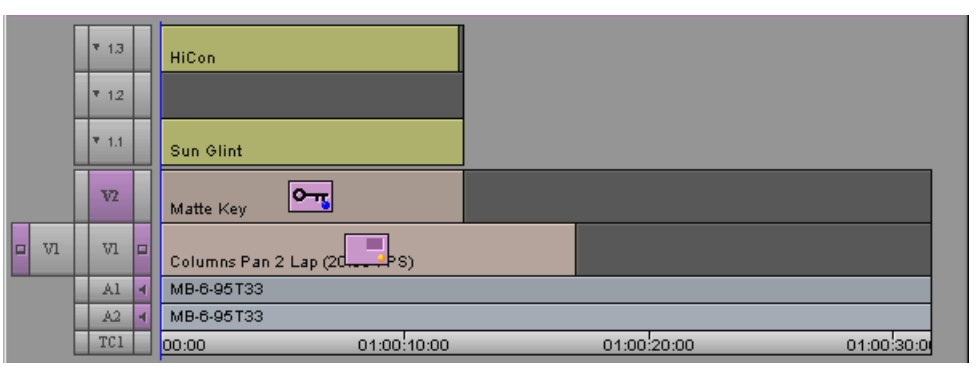
3. Choose Effect Palette from the Tools menu.
4. Click the Key category.
5. Drag the Matte Key Effect icon from the Effect Palette to the segment on track V2.
6. Click one of the Segment Mode buttons below the Timeline.

7. Double-click the Matte Key Effect icon in the segment. The Timeline expands to display three nested tracks (1.1, 1.2, and 1.3).



By default, nested track 1.3 contains the same image segment as track V2. Nested track 1.2 is empty (foreground filler track). Nested track 1.1 (background video) is also empty.

8. Deselect the Segment Mode button so you can edit the tracks.
9. Edit the foreground image onto nested track 1.1.
10. Click one of the Segment Mode buttons, and double-click track V2 to collapse the nested tracks.
11. Click the Record Track Monitor button for track V2 in the Track Selector panel. You should see tracks V1 and nested track 1.1 through the high-contrast image on track 1.3.



For an example of a Matte Key effect, see **"Key: Matte Key" on page 565**.

Submaster Editing

The Submaster effect is in the Image category of the Effect Palette. When you render this effect, the Avid system creates a single media file from several clips or effects in a sequence. The Submaster effect is a single-track segment effect.

This saves the new Submaster clip to the drive as a single media file. However, each element that makes up the composite is left untouched so you can still manipulate any element.

The Submaster effect is useful when you want to play back bandwidth-limited sequences, such as sequences composed of several seconds of single-frame clips. It is much faster to use the Submaster effect than to use methods such as applying a graphic, Picture-in-Picture, Mask, or Resize effect. Normally, Submaster effects render at about the same rate as motion effects.

You can nest up to 24 tracks inside a Submaster effect depending on the model of your Avid system.

An edit decision list (EDL) for a sequence that contains a Submaster effect represents the contents of the Submaster as a single cut. To work around this, you can create a new sequence with the contents of the Submaster and generate a separate EDL for that sequence.

Applying the Submaster Effect to a Multilayered Sequence

You can use the Submaster effect to speed the rendering process by applying it to a track above layered or nested effects and then rendering only the Submaster. The system renders the composite result of all tracks into the top track.

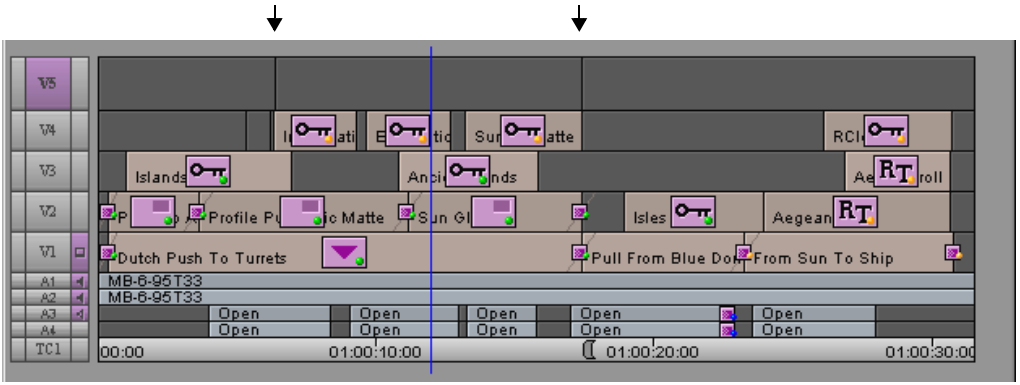
The Submaster effect maintains links to the original media files, so you should not delete the original media files. If you want to combine tracks to create a sequence that is independent from the original media files, perform a video mixdown.

The Submaster effect does not render each track separately, so you cannot play each track individually, and the blue dot remains in the effect icon. In addition, if you delete or modify a track below a Submaster effect, the Submaster effect becomes unrendered.

To apply the Submaster effect to a multilayered sequence:

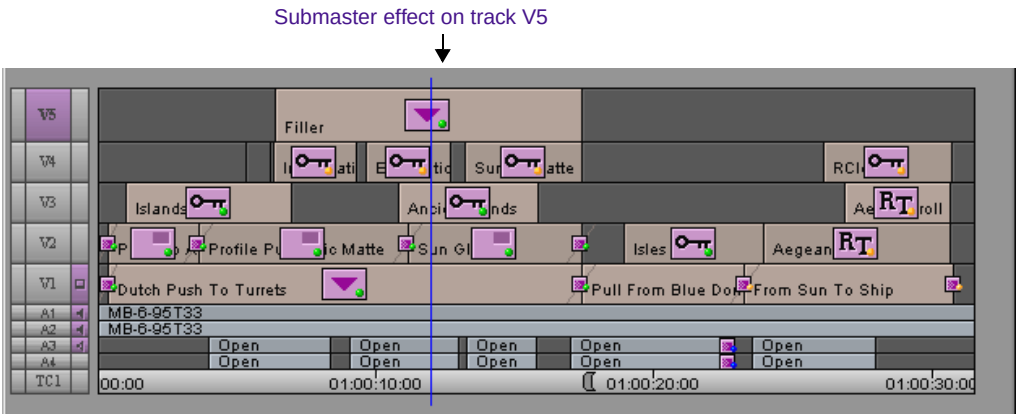
1. Choose New Video Track from the Clip menu.
2. On the new video track (V5 in this example), create one add edit before and another after the group of clips to be submastered.

Add edit marks on new track V5; bracket clips on track V4



3. Choose Effect Palette from the Tools menu.
4. Click the Image category.
5. Drag the Submaster Effect icon to the space between the add edits you added on the new track (V5 in this example).

   The Avid system applies the effect above the layers.



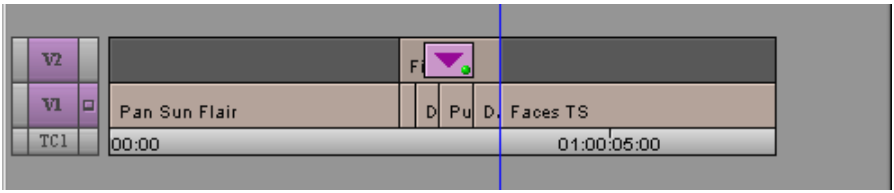
6. Render the Submaster effect, as described in **"Rendering Effects" on page 140**.

Using the Submaster Effect with a Series of Short Clips

The Submaster effect is useful when you want to play back bandwidth-limited sequences, such as a sequence composed of a series of short clips (a few frames each). You can apply and render the Submaster effect above the clips to improve playback.

To apply the Submaster effect to multiple clips:

1. Choose New Video Track from the Clip menu.
2. On the new video track, create one add edit before and another after the group of clips.
3. Choose Effect Palette from the Tools menu.
4. Click the Image category.
5. Drag the Submaster Effect icon to the space between the add edits you added on the new track.



6. Render the Submaster effect.

If you alter or move either the Submaster segment or the clips below it, the effect becomes unrendered. You must render it again.

Collapsing Layers into One Submaster Effect

You can use the Collapse feature to build a multilayer effect and then nest the effect within a single Submaster effect in one step. To use this feature, map the Collapse button from the Command palette to your keyboard or a user-selectable palette.

The Collapse feature allows you to build your effect at the topmost level and when you are finished, collapse the layers automatically into one Submaster effect. This feature is useful for simplifying a sequence with complex compositing. Once you have collapsed a complex composite, you can easily add transition effects to the start and end of the newly created Submaster composite effect.

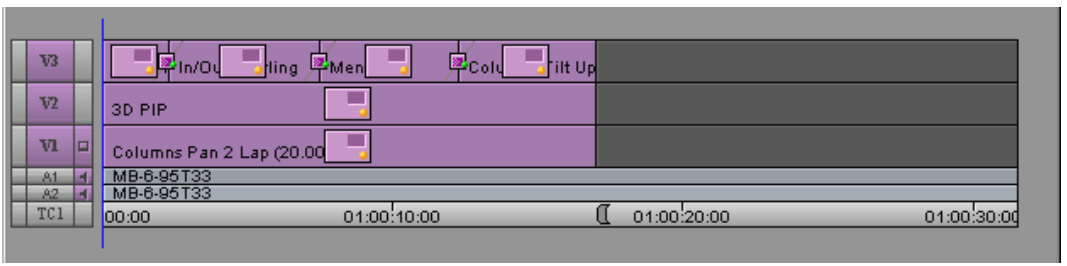
You can also use the Collapse feature to simplify the deletion of multilayer segment effects. After collapsing the effects, you can select the resulting segment and press the Delete key twice to delete the effect and all the layers.

After the tracks are collapsed into a Submaster effect, the Avid system recognizes a Submaster effect as a multilayer effect instead of a single-layer effect. This allows you to add chroma keys and other multilayer effects to the nested tracks within a Submaster effect.

You can drag "two-channel" effects (such as chroma key) onto Submaster effects if the Submaster segment contains two or more nested tracks. This is useful after performing a Collapse operation to composite the newly created Submaster over another background.

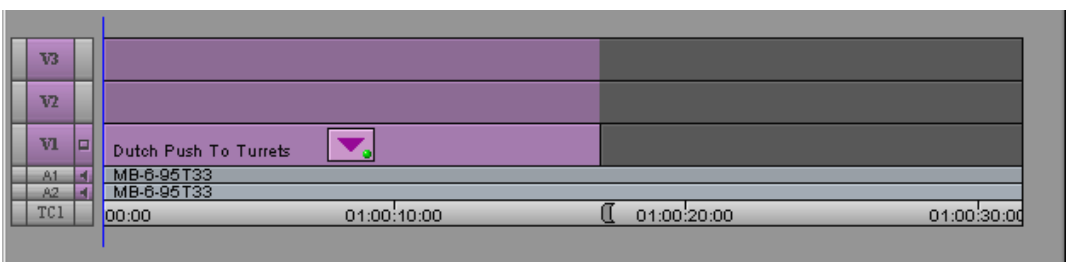
To collapse layers into a submaster effect:

1. Select all the tracks you want to collapse. The tracks must be adjacent.
2. Mark an IN point and an OUT point around the area to be collapsed.



3. Click the Collapse button.

   The Avid system collapses the tracks into a Submaster effect on a single track.



To open the nested tracks again:

1. Click either the Extract/Splice-in button or the Lift/Overwrite button.
2. Double-click the Submaster effect.

The following procedure explains an alternate way to use the Collapse feature:

1. Click either the Extract/Splice-in button or the Lift/Overwrite button below the Timeline.
2. Select the segments you want to collapse.
3. Click the Collapse button.

Performing a Video Mixdown

Video mixdown allows you to combine several tracks into a new master clip. You can use video mixdown after you have finished building your sequence and want to make it into one piece (for example, a standard opening to a program). It can be useful for a complex sequence you need to use repeatedly or if you want to add a motion effect to an entire sequence.

Video mixdown is similar to the Collapse feature; the difference is the end result.

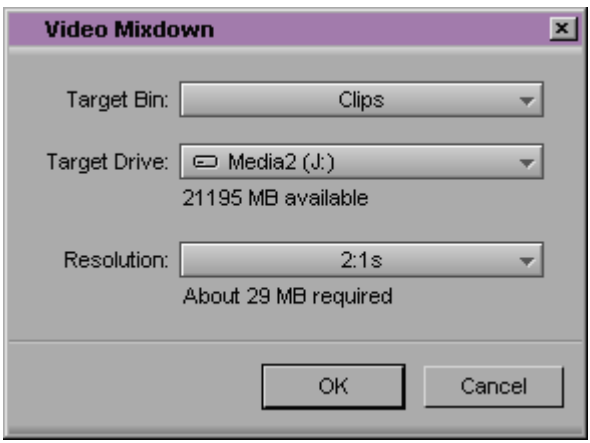
- With the Collapse feature, you collapse the tracks into a Submaster effect. After you collapse the tracks, you are still able to step in to the Submaster and work on the individual elements.
- With video mixdown, your end result is a new master clip made up of all the tracks you built on different layers. Those tracks become one clip; you cannot separate the tracks to work on them or step into the sequence.

You cannot generate an EDL for a sequence that contains a video mixdown. To work around this, you can either remove the video mixdown or maintain a version of the sequence that does not contain a video mixdown.

To perform a video mixdown:

1. Select the Record Track Monitor button in the Track Selector panel for the highest track you want to include in the video mixdown.
2. Mark an IN point and an OUT point around the area to mix down.
3. Choose Video Mixdown from the Special menu.

   The Video Mixdown dialog box appears.



4. Choose a target drive for storing the new master clip, and then click OK.

   A progress indicator appears. When the video mixdown is completed, a new clip appears in the bin along with the sequence, and a new media file is created on the target drive.

CHAPTER 5

Working with 3D Effects

This chapter describes procedures for creating and manipulating 3D effects on systems with 3D effects capability. For reference information on the parameters that apply to 3D effects and all the available 3D shapes, see **Chapter 10**, "**3D Effects Reference**."

About 3D Effects

The 3D Effects feature delivers a wide range of digital video effects, including the following:

- Image effects such as blur (defocus), corner pin, and resize with rotation and perspective
- Two-channel segment effects including smooth-motion picture-in-picture
- Shapes, including 3D spheres and four-way page curls

- Positioning, scaling, skewing, and rotation, with perspective
- Source cropping
- Internal borders including beveled and rounded edges
- Soft borders
- Trails and drop shadows with varying opacity
- Highlights and wipe generator
- Luma keyand chroma key effects

For information on the hardware requirements for the 3D Effects option, see the setup guide for your Avid system.

Turning the 3D Effects Option On and Off

The 3D Effects option is on by default. If for any reason you need to disable the 3D Effects option, you can do so by using one of two methods.

While the 3D Effects option is disabled, a limited set of real-time 2D effects is available. For example, dissolves, superimpositions, and titles are real-time effects.

The methods for disabling the 3D Effects option are:

- You can disable the 3D Effects option during startup by using a key sequence. In this case, the 3D Effects option will be reenabled automatically the next time you start the system.
- You can disable the 3D Effects option with a Console command. In this case, the 3D Effects option will remain disabled until you enter another Console command.

The Console window gives you access to low-level commands that can alter the operation of your Avid system. Use only Console commands that are documented in Avid Tech Notes or user manuals.

Turning the 3D Effects Option On and Off at Startup

To turn off the 3D Effects option during startup:

1. Press and hold the F and X keys on the keyboard while starting the Avid application.

   A dialog box appears, with buttons for enabling or disabling the 3D Effects option.

2. Click the button for disabling 3D.

   The system proceeds to start up with the 3D Effects option disabled.

After the application starts, the 3D Effect category is no longer available. The next time you restart the application, the 3D Effects option will be turned on again unless you press and hold the F and X keys.

Turning the 3D Effects Option On and Off in the Console

To turn off the 3D Effects option in the Console:

1. Choose Console from the Tools menu.

   The Console window opens.

2. Type the following command in the command line at the bottom of the Console window, and press Enter (Windows) or Return (Macintosh):

   `Disable3D`

   A message appears stating that the 3D Effects option is disabled.

3. Quit the Avid application, and restart it.

   During startup, a message indicates that 3D effects are disabled. To turn on the 3D Effects option again, repeat this procedure and type the command **`Enable3D`** in the command line at the bottom of the Console window.

3D effects play as cuts (unless rendered) while the 3D Effects option is disabled. Any effects that are real-time with 3D become non-real-time (blue dot) effects (unless rendered).

Accessing 3D Effects

To access 3D effect parameters, do one of the following:

- Apply the 3D Warp effect to a transition or segment. See **"Applying the 3D Warp Effect" on page 223**.
- Promote an existing 2D effect to 3D. See **"Promoting 2D Effects to 3D Effects" on page 225**.

Applying the 3D Warp Effect

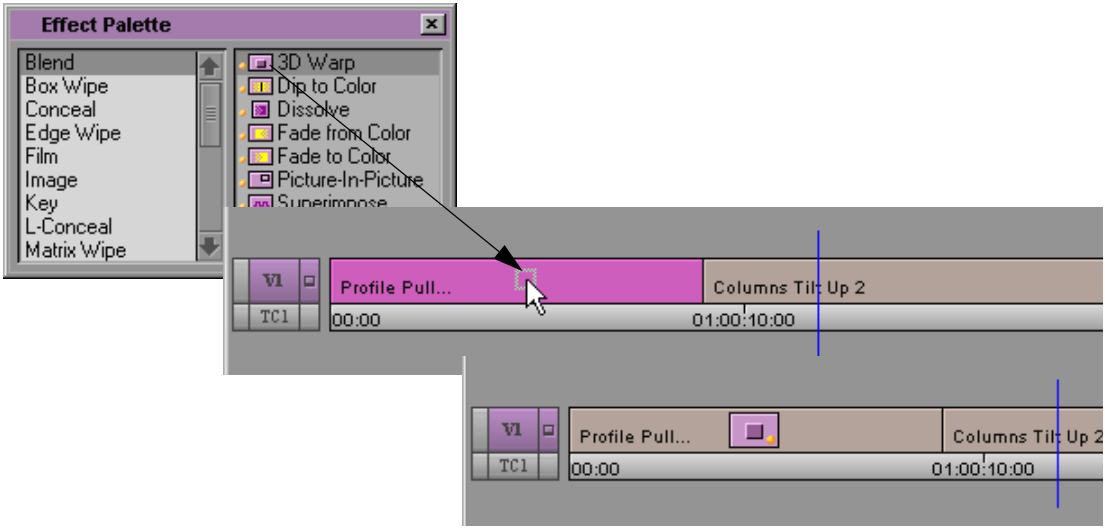
All the 3D effects features are accessible through the 3D Warp effect in the Blend category.

*This procedure assumes that you are familiar with adding effects to a sequence. For more information, see **"Applying Effects to a Sequence" on page 64**.*

To apply the 3D Warp effect:

1. Create a sequence by using standard Avid system editing procedures.
2. Choose Effect Palette from the Tools menu.
3. Click the Blend category.
4. Drag the 3D Warp Effect icon to a transition or a segment in the Timeline and release the mouse button.

   The 3D Warp Effect icon appears in the Timeline as shown in the following illustration.



5. In the Timeline, move the position indicator to the 3D Warp effect and click the Effect Mode button.

   The Effect Editor and the Effect Preview monitor appear. The two default keyframe indicators appear under the Effect Preview monitor.

Now you can begin adjusting the 3D Warpparameters to customize your effects.

Promoting 2D Effects to 3D Effects

You can use 2D effects as building blocks for 3D effects. For example, if you have a 2D Picture-in-Picture effect, you can add 3D features like 3D borders, drop shadow, page curls, smooth curve movement, and rotation. You can also promote a Title effect created with the Title tool to a 3D effect.

The following rules and restrictions apply to promoting effects to 3D:

- Some software-based effects cannot be promoted to 3D.
- You cannot demote a 3D effect to a 2D effect. If you play a 3D effect on a system that does not have 3D hardware, the effect plays as a cut (unless the effect was rendered on the 3D system). However, you can reapply the 2D effect.
- All effects that were real-time in 2D are still real-time when you upgrade to 3D.

To promote a 2D effect or title to a 3D effect:

1. Click the Effect Mode button to open the Effect Editor.
2. Click the effect icon in the sequence to select it.
3.  Click the 3D Promote button in the Effect Editor.

For information on creating a 2D Title effect, see ***Chapter 6****.*

Using Matte Keys with 3D Effects

A matte key is an effect made up of three components:

- High-contrast image or matte, also called the *key*
- Background image (the image that shows through the lightest part of the matte)
- Foreground image (the image that shows through the darkest part of the matte)

For more information on Matte Key clips, see ***"Creating a Matte Key Effect" on page 179****.*

You can promote real-time 2D Matte Key effects (graphics imported with alpha channel) to 3D effects, called 3D Warp, and apply additional parameters, such as Shape Wipe effects, or X, Y, and Z positioning.

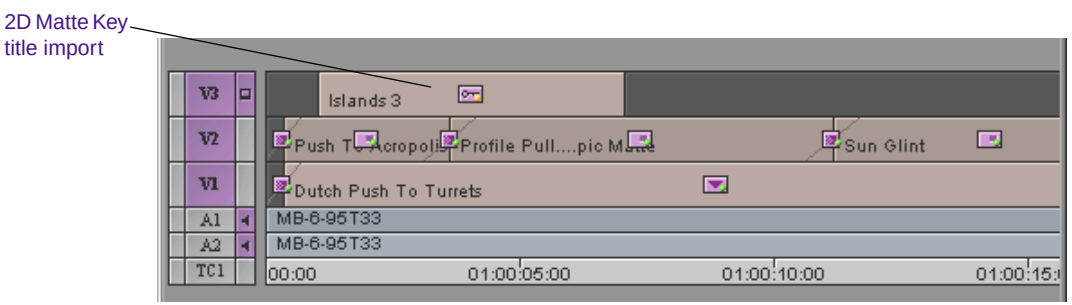
You cannot promote matte keys created using the Matte Key effect from the 2D Effect Palette to a 3D matte key.

To create a matte key for use with 3D effects:

1. Import a graphic file containing an alpha channel.

   The system creates a Matte Key clip when you import the file. In this example, the imported graphic is a title created in Adobe® Photoshop®.

2. Edit the Matte Key clip into your sequence as an overlay.



Make sure Render On-the-Fly is enabled (displays a check mark in the Special menu) so you can see the matte key as you are working with it.

3. Promote the Matte Key clip to a 3D Warp effect as explained in **"Promoting 2D Effects to 3D Effects" on page 225**.

4. Enter Effect mode, and apply changes to additional parameters to achieve the effect you want.

   In this example, the effect, promoted to 3D, was repositioned with the Position parameters. Then the 3D Slat Wipe effect was chosen and adjusted in the Shape category to make the top and bottom elements of the title slide across in opposite directions.

Final 3D Matte Key title graphic: Slat wipe in the Shape category was used to make the top and bottom titles slide across in opposite directions.

Understanding the 3D Effects Interface

This section provides basic information for using the 3D effects parameters and the Effect Preview monitor and controls.

Moving in 3D Space

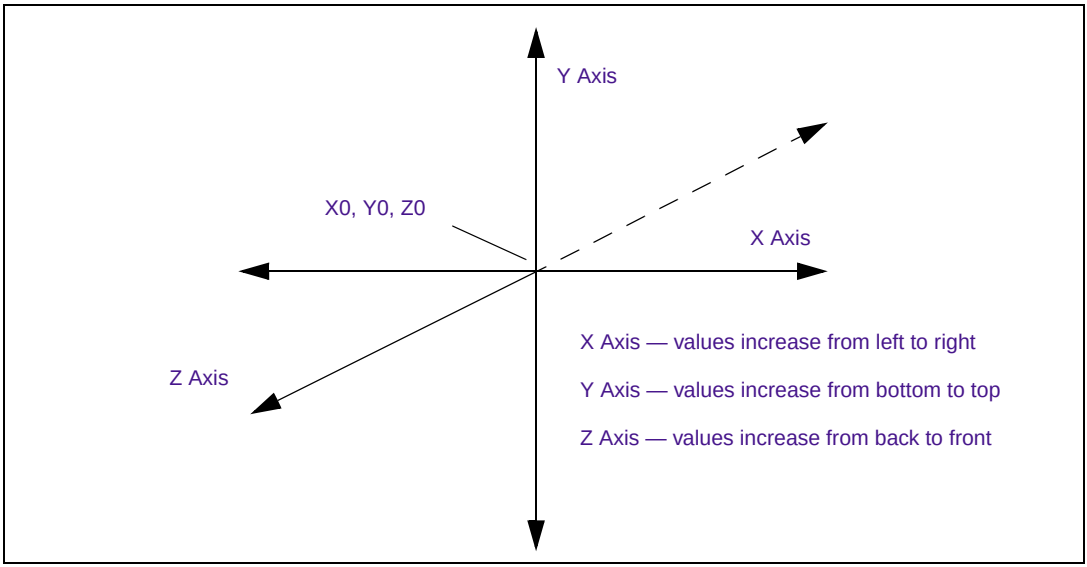
You do not need to use a lot of math to create most 3D effects, but you do need some basic understanding of degrees of motion and geometry, as described in this section.

Moving objects in 3D space requires an understanding of each of the 3D effects parameters and their correct order in the effects parameters hierarchy. For more information, see ***"About 3D Effects Parameters" on page 231****.*

The 3D Coordinate System

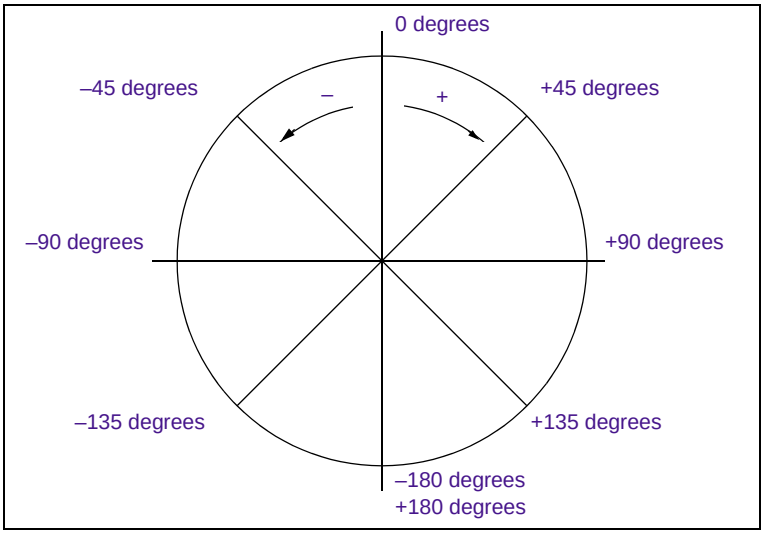
Throughout this chapter, the terms X, Y, and Z refer to the three axes or dimensions of the image that can be manipulated in the 3D effect's coordinate space.

- X refers to the image's left/right direction.
- Y refers to the image's up/down direction.
- Z refers to the image's front/back dimension.

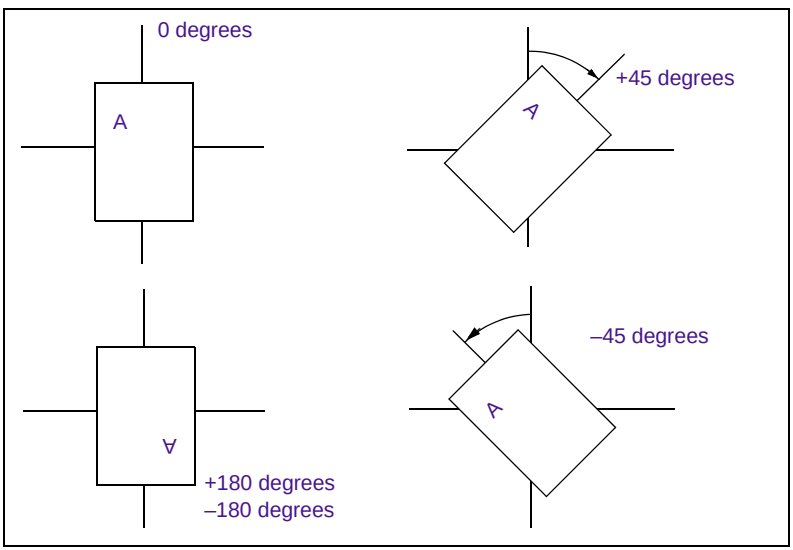


Rotation Axes

The Shape and Rotation parameters allow you to rotate the image around the X, Y, and Z axes. Note that you can rotate more than 360 degrees (from –720 to 720 degrees) between keyframes. The following illustration shows how angles of rotation are distributed around a circle.



The following illustration shows several rotation examples.



About 3D Effects Parameters

The following sections provide a basic introduction to 3D effects parameters. For specific information on each of the parameters available in the Effect Editor, as well as important information on the hierarchy of 3D effects parameters, see **Chapter 10**, "**3D Effects Reference**."

Manipulating 3D effects parameters requires a basic understanding of degrees of motion and the system of geometry used in your Avid system's 3D effects interface. For more information, see ***"Moving in 3D Space" on page 228.***

Accessing 3D Effects Parameters

To access the 3D effects parameters:

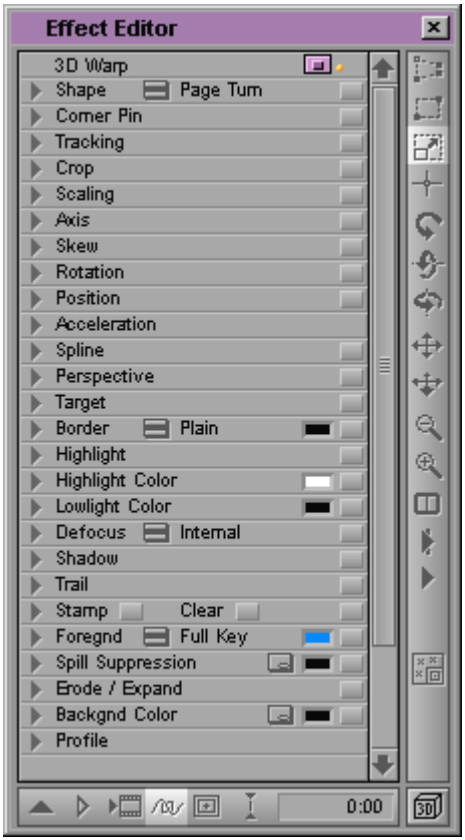
1. Move the position indicator to the icon for the 3D Warp effect in the Timeline.
2. 
   Click the Effect Mode button.

   The Effect Editor window opens and displays the parameters for the 3D Warp effect .

If the Effect Editor window is already open and active, you can just select the segment or transition effect to display the effect's parameters in the Effect Editor window.

Manipulating 3D Effects Parameters

As in 2D effects, the 3D Warp parameters are grouped in collapsible panes. Each parameter pane represents a specific type of manipulation, called a *category*, that you can apply to an image. You can apply category adjustments either individually or in combination.



Basic manipulation of the parameter categories, sliders, and buttons is identical to that of 2D effects parameters. For more information, see **"Using the Effect Editor" on page 117**.

Resetting Default Values

To reset the parameters for a category to their default values:

- Alt+click (Windows) or Option+click (Macintosh) the Enable button.

This operation affects only selected keyframes.

This method works only for 3D effects and AVX plug-in effects.

Using Effect Templates

Once you create a 3D effect and adjust parameters, you can save the adjustments as a template for later use. This allows you to use the same effect parameters in multiple places in a sequence or in different sequences.

- You can drag an effect template and drop it into the Effect Preview monitor or onto the effect segment in the Timeline to apply all the values from the template.
- You can drag an effect template and drop it onto an open parameter category to reset the parameters of the category to those of the first keyframe of the effect template. This allows you to use selected portions of effect templates.

For more information, see **"Applying an Effect Template" on page 138**.

Zooming In or Out on the Effect Preview Monitor

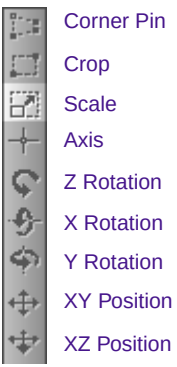
Because you can move the edges of a 3D effect outside the enclosing frame, the Avid system lets you view an outline of the image area at a reduced scale. Use the Enlarge and Reduce buttons in the Effect Editor.

Manipulating 3D Effects Directly

You can perform a number of operations on an image by clicking buttons in the Effect Editor and dragging handles attached to the image in the Effect Preview monitor. This is similar to the procedures you use to directly manipulate 2D effects; some additional manipulations are possible, however, when working with 3D effects.

For more information on direct manipulation of 2D effects, see **"Moving the Image Directly" on page 134**.

Manipulating 3D Effect Handles

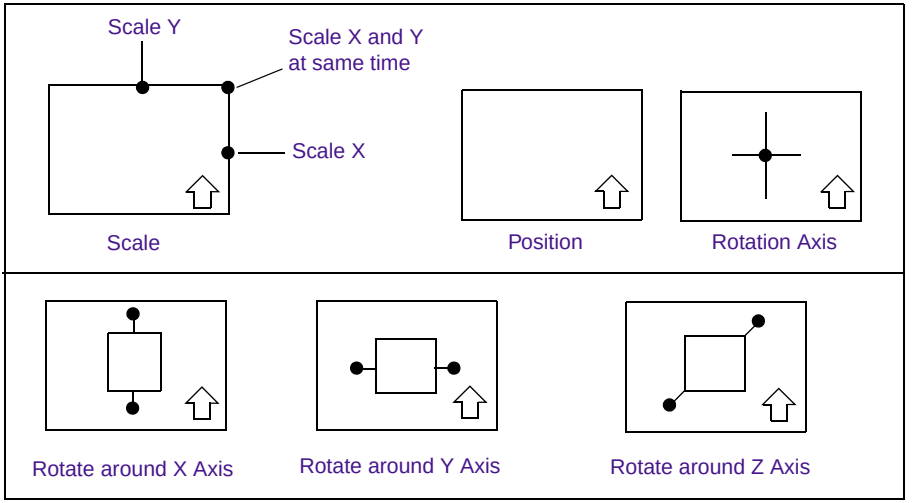


Various 3D effect handle buttons appear along the right side of the Effect Editor. You determine the direction and type of manipulation performed in the Effect Preview monitor by selecting one of the image manipulation buttons on the Effect Editor.

To manipulate a 3D effect handle in the Effect Preview monitor:

1. Click one of the image manipulation buttons on the Effect Editor to activate the specific handles.
2. Click the handles and drag them to manipulate the image.
3. Click the image manipulation button a second time to turn off the handles.

The following illustration shows the handles for several image manipulation buttons.



Using the Motion Path Editor

Use the Outline/Path button when you want to see the path an image takes on the screen (for example, moving a Picture-in-Picture effect as described in **"Defining a Motion Path" on page 133**). The motion path editor displays the path between keyframes as either a straight line or a smooth curve.

Click the Enable button in the Spline category to switch between a straight line and smooth curve. For a description of the Spline parameters, see **"Spline" on page 665**. For an example, see **"Using the Spline Parameters with 3D Effects" on page 249**.

Creating Custom 3D Effects

This section provides examples of some basic 3D effects, including the steps and values used to create the effects. You can use them to practice creating 3D effects, or you can use them to get ideas for building your own effects. Examples of both segment effects and transition effects are included.

If you need more information while you are trying to complete the examples shown here, refer to the following sources:

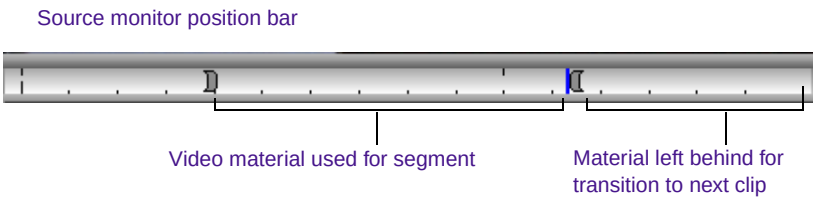
- **Chapter 2**, for basic information on effects editing
- **"Understanding the 3D Effects Interface" on page 228** for information on the 3D interface and moving in 3D space
- **Chapter 10**, for reference information on all 3D effects parameters and controls
- The user's guide, for basic information on editing

In addition to re-creating the examples in this chapter, you can experiment with the default shape effects. Each shape effect has default values for the first and last keyframes. Examples of the default shapes are provided in **Chapter 10**.

Some Tips for Creating 3D Effects

The following tips apply to the examples in this chapter:

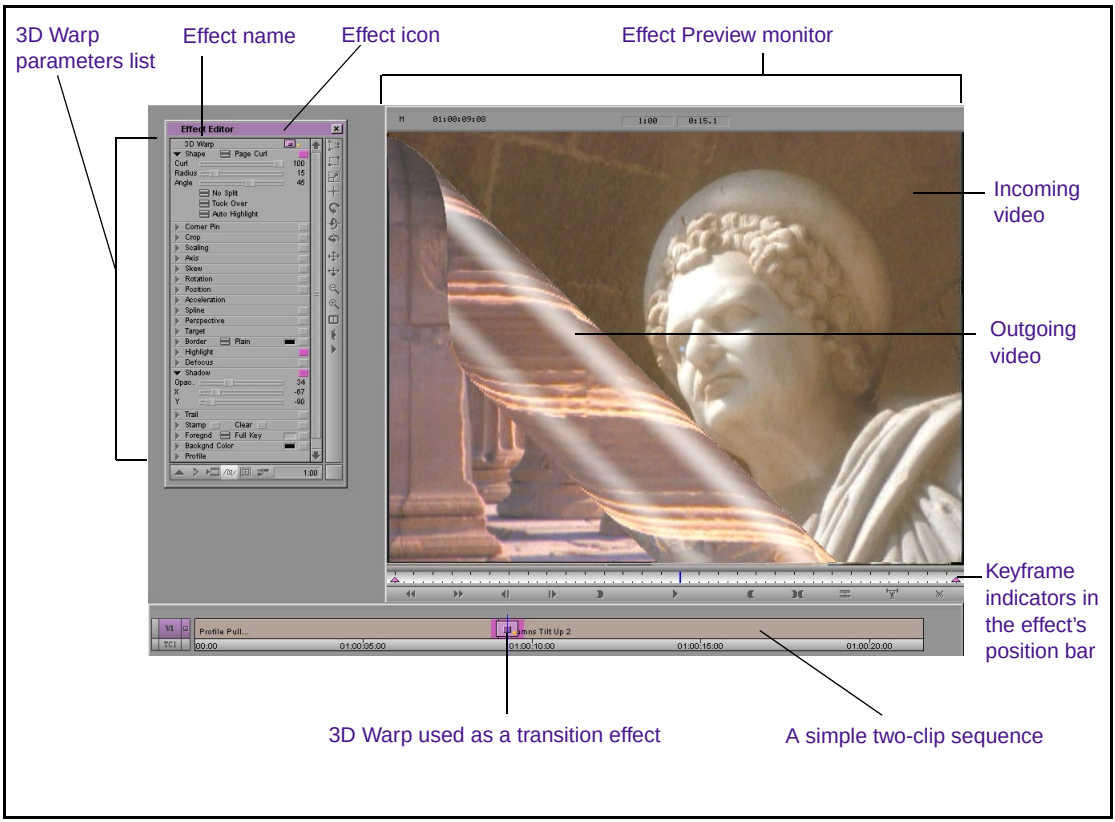
- **Creating the sequence:** Transition effects require only a two-clip sequence. Some of the segment effects require at least two tracks.
- **Avoiding Insufficient Source errors:** Several of these examples assume that you are creating a transition effect centered on the cut between the incoming and outgoing video. Make sure you leave enough material for the overlapping portions of the transition when you mark the source material. For example, the following illustration shows the Source monitor position bar for the outgoing video clip.



If you get an Insufficient Source message when you apply an effect to the transition, you did not leave enough source material behind for the system to create the transition.

- **Using the Swap Sources button:** When you use the 3D Warp effect as a transition and click on the effect for the first time, the system applies the effect to the incoming video. To apply the effect to the outgoing video, click the Swap Sources button in the Foregnd (Foreground) parameter category. Click anywhere in the effect's Timeline to view the results.

The following illustration shows the display (in Big Effect mode) for **"Creating a Page Curl Transition" on page 238** and identifies several areas that are referred to throughout the chapter.

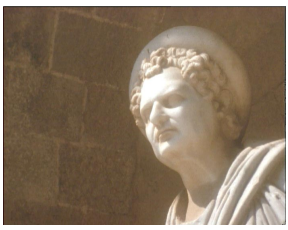


Creating a Page Curl Transition

This example uses the Page Curl effect. This effect treats the foreground video channel as though it were a sheet of paper being rolled up to reveal another page beneath. Page Curl supports two highlights on the curl. The following illustrations show the effect created in this example.

Page Curl

Outgoing video

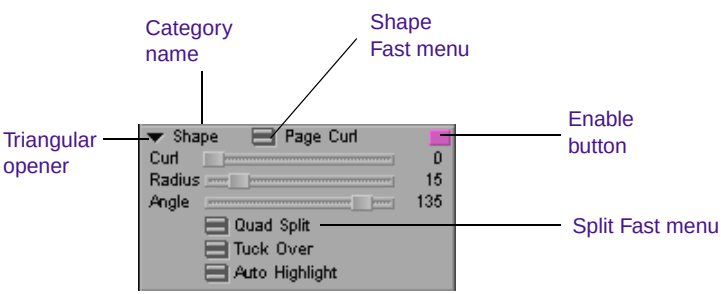


Incoming video

To create the Page Curl effect:

1. Create a sequence and apply the 3D Warp effect as described in **"Applying the 3D Warp Effect" on page 223**.

2. In the 3D Warp parameter list, click the triangular opener for Shape, and choose Page Curl from the Shape Fast menu.



The default Page Curl effect appears on the incoming video. To apply the effect to the outgoing video, swap the video sources as follows:

a. Scroll down to display the Foregnd parameter category, and click the triangular opener.

b. Click the Swap Sources button.

c. Click anywhere in the Effect Preview monitor's position bar, and the system displays the effect on the outgoing video.

3. Locate the Highlight category, and click the Enable button.

4. Click the first keyframe indicator.

The 3D Warp parameters for the first keyframe are now active.

5. In the Shape parameter category, set the Curl slider to 0 (no curl).
6. Click the last keyframe indicator.
7. Set the Curl slider to 80. This takes the curl completely off the underlying video.
8. Click the Play or Play Loop button to preview the effect.

You might want to use the Transition parameters to lengthen the effect. See ***"Using the Transition Parameters" on page 73*** *for more information.*

A Simple Variation on the Page Turn Transition

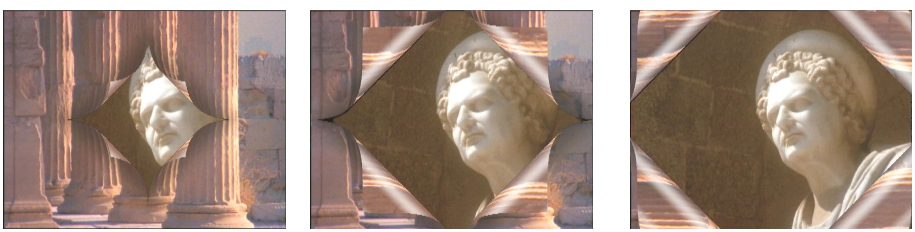
This example describes how to make some simple changes to the Page Turn transition to create a dramatically different effect. To create this variation, use the example you created in the previous section.

For the previous example, you used the default No Split option on the Split Fast menu. This example uses the Quad Split option.

1. Click the first keyframe indicator, and choose Quad Split from the Split Fast menu for the Shape parameter.
2. Click the Angle slider, type **135** on the numeric keypad, and press Enter to set the Angle for the first keyframe to 135 degrees.
3. Click the last keyframe and set the Angle to 135. The following table shows the values for each keyframe.

Effect Parameter	First Keyframe	Last Keyframe
Shape Page Curl	Curl = 0 Radius = 15 Angle = 135 Quad Split	Curl = 80 Radius = 15 Angle = 135 Quad Split
Highlight	Enabled	Enabled

Now step through or play the effect. The following illustrations show the effect.



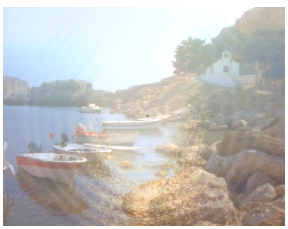
Page Curl effect
Quad Split 135 degree angle

Creating a Splash Dissolve

This example creates a Splash effect and uses it as a dissolve. Use the Opac. (opacity) slider in the Foregnd parameter category to create the dissolve. Changing the opacity value from solid to transparent creates the same effect as a dissolve.

The following illustrations show the effect and the outgoing and incoming video.

Outgoing video

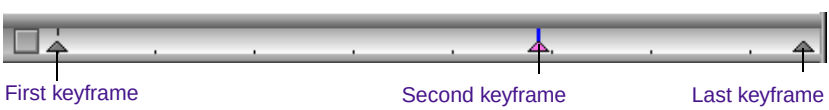


Splash dissolve

Incoming video

Here are some tips for creating this effect:

- Use the Multi Wave shape and increase the radius throughout the effect, starting at 0 and ending at 55.
- Add a new keyframe (shown as the second keyframe below) to provide a starting point for the dissolve. The complete dissolve occurs between the second and last keyframes.



For information on working with keyframes, see **"Using Keyframes" on page 129**.

To create the Splash effect:

1. Create a sequence with two video clips as you did in the Page Curl examples, and drag the 3D Warp effect onto the transition point in the Timeline.
2. Click the effect in the Timeline and enter Effect mode (click the Effect Mode button).

3. Choose Multi Wave from the Shape Fast menu.

   The system displays the default Multi Wave effect on the incoming video.
4. Click the Swap Sources button in the Foregnd (Foreground) parameter category to display the effect on the outgoing video.

   Now click anywhere in the effect's Timeline, and the system displays the effect on the outgoing video.
5. Click the first keyframe indicator.
6. In the Shape parameter category, set the Radius value to 0.
7. Click the last keyframe indicator.
8. In the Shape parameter category, set the Radius value to 55.
9. With the last keyframe still selected, set the Opac. slider in the Foregnd parameter category to 0.
10. Add a new keyframe approximately three-quarters of the way through the effect.

    This keyframe will have a predetermined radius value (calculated by the system to create a smooth splash between radius values 0 and 55). You do not need to change this value.
11. For the keyframe you just added, set the Opac. slider to 100 in the Foregnd parameter category.
12. Click the Play or Play Loop button to preview the effect.

The following table shows the nondefault keyframe values for this example.

Effect	Parameter	First Keyframe	Second Keyframe	Last Keyframe
Shape				
	Multi Wave	Radius = 0	Let the system set the Radius.	Radius = 55
Foregnd				
	Full Key	Opac = 100	Opac = 100	Opac = 100

Try experimenting with the Highlight parameter for this effect. Open the Highlight parameter category, and adjust the Inty (intensity) value.

Turning a Splash into a Flat Image

The following techniques show two different ways to turn a splash into a flat image.

- Set the Radius value to 0. This setting conceals the ripples entirely. It allows you to create splash sequences simply by increasing the Radius.
- Bring Amplitude and Automatic Highlight intensity down to 0. Lowering the amplitude reduces the distortion. Reducing the highlight intensity to 0 eliminates highlights and shading. This allows you to:
  - Bring up a full-sized splash from beneath the center of the picture by keeping the Radius constant and increasing the Amplitude and Highlight intensity settings.
  - Create a splash that starts small, becomes a full-sized splash, and then changes to a flat picture. The following example shows how to do this.

This example creates a splash that grows from the center of the screen. As the splash begins to cover the screen, the splash slowly fades away so that the final scene is completely flat. Fade the splash by lowering the Amplitude and Highlight intensity values to 0. The following illustrations show several stages of the effect.

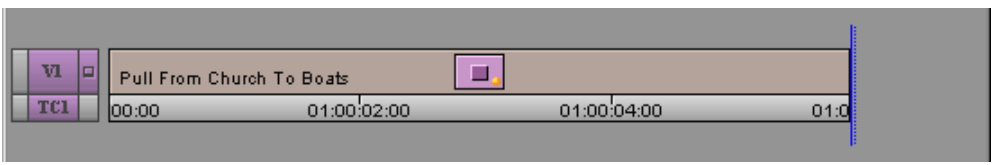
Multi Wave Splash starts at center

Splash at peak

Splash slowly fades to flat

To turn a splash into a flat image:

1. Apply the 3D Warp effect as a segment effect as shown in the following illustration.

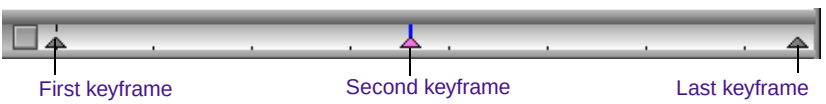


2. Click the Effect Mode button to enter Effect mode.

3. Choose Multi Wave from the Shape Fast menu.
4. Set Highlight parameter values for the first and last keyframes by using values from the following table.

Effect Parameter	First Keyframe	Second Keyframe	Last Keyframe
Shape Multi Wave	Radius = 0 Freq = 70 Ampl = 36	Let the system set the Radius. Freq = 70 Ampl = 36	Radius = 50 Freq = 0 Ampl = 0
Highlight	Inty = 20	Inty = 20	Inty = 0

5. Create a new keyframe in approximately the center of the effect's position bar. This new keyframe is shown as the second keyframe in the following illustration.



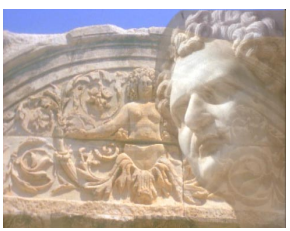
   The Avid system automatically calculates a radius size for this new keyframe in order to continue the smooth transition from 0 radius to a radius of 50.

6. Set the Shape and Highlight values for the second keyframe as shown in the above table.
7. Step through or play the effect.

Experiment with the X Pos and Y Pos Shape parameter values to reposition the splash on the screen. Also experiment with the Aspect and Angle parameters to stretch and rotate the splash.

Creating a Cropped Foreground Effect

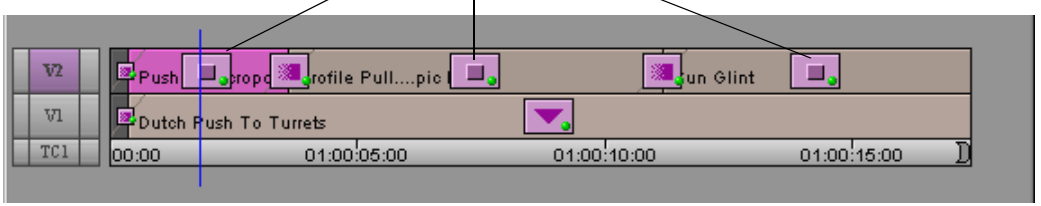
This example shows how to adjust 3D Warp parameters and apply them repeatedly as a template to create a consistent band of foreground segments — scaled and cropped with a soft border shadow — across a background.



Top video track (V2)

Settings for the 3D Warp effect are saved as a template and then applied to all segments on the top video track for consistency throughout the dissolve sequence.

Bottom video track (V1)



To create a foreground band of footage:

1. Build the sequence with the background footage on the bottom track and the foreground footage on the top track. In this example, dissolves are added between a series of foreground segments.
2. Apply the 3D Warp effect to one segment of the top video track.
3. Enter Effect mode, and then click the segment to display the parameters in the Effect Editor.
4. Make sure both the starting and ending keyframes are selected; then adjust the effect parameters as shown in the following table.

Parameter Category	Parameter Settings
Crop	T (top): 600 L (left): –999 B (bottom): –600 R (right): 999
Scaling	X: 110 Y: 100
Position	Enable the category (leave parameter defaults).
Border	Select a dark color for the border. For more information on color selection, see **"Adjusting a Color Parameter" on page 125**. Width: 40 Soft: 100 H (hue): 0 S (saturation): 0 L (luminance): 255

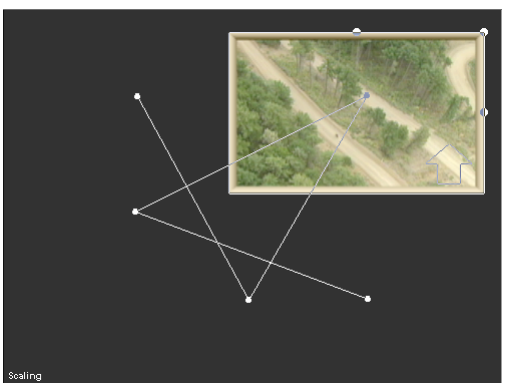
Leave all other categories deselected.

5. Save the parameters as a template by dragging the effect icon from the Effect Editor to a bin.
6. Apply the template from the bin to the remaining segments on the top track.
7. Click the Play Loop or Play button to preview the effect. The foreground segments play through smoothly with the same scale, border, and cropping effect against the background.

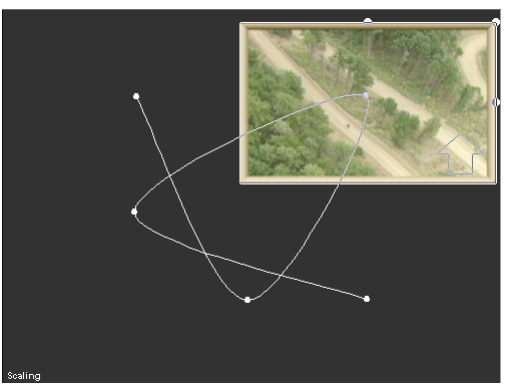
Using the Spline Parameters with 3D Effects

This example shows how to use the Spline parameters to create a smooth path for moving a 3D Warp effect.

The following illustrations show the motion path editor with the Spline parameter turned on and off. (The background image is black to make the motion paths more visible in this illustration.)



Motion path editor with Spline turned off



Motion path editor with Spline turned on

To use the Spline parameters:

1. Enter Effect mode and click the first keyframe indicator (on the left end of the effect's position bar).

2. Click the Outline/Path button in the Effect Editor.

   A dot appears in the center of the image, and the arrow indicator appears to show the orientation of the image.

3. Click anywhere in the foreground video, and move the image to the bottom left corner of the Effect Preview monitor.

Clicking and dragging moves a wire frame around the monitor. Press the Alt key (Windows) or Option key (Macintosh) and drag to move the actual effect object.

4. Click the last keyframe indicator, and move the image for that keyframe to the top right corner of the monitor. Notice that the two dots are connected by a straight line.
5. Add a keyframe approximately halfway through the effect's position bar.
6. Move the image for the center keyframe to the top left corner of the monitor.
7. Play the effect. Notice that the image moves along straight lines.
8. Click the Enable button in the Spline parameter category.

   Notice that the straight lines connecting the dots turn into a smooth curve.

9. Play the effect again and notice the smooth movement.

Experiment with the XY Position and XZ Position buttons at any one of the keyframes. Also experiment with the Rotation buttons.

Corner Pinning an Image

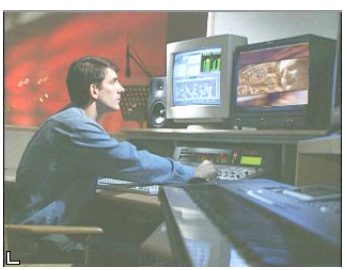
Corner pinning is a way of precisely positioning a foreground image over an image in the background video track, with matching perspective.

This example shows the background and foreground videos used to create a segment transition using corner pinning. The segment starts with the foreground image “pinned” onto the video monitor in the scene; the image then moves off the TV and eventually fills the screen.

Foreground video corner pinned to background image

Foreground video moving off background image

Foreground video continuing to move off background image



Background video

Foreground video

To corner pin an image:

1. Create a segment with two video tracks, placing the foreground video on the top track.
2. Apply the 3D Warp effect to the top track.

3. Enter Effect mode.
4. Position, scale, and rotate your image if necessary.

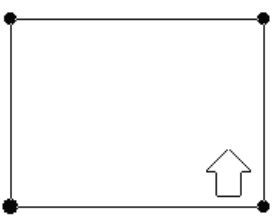
For best results, make adjustments to the Position, Scale, and Rotate parameters before you use Corner Pin. This way, the center of the image for Corner Pin scale and rotation adjustments will be closer to the apparent center of the image, and you will find it easier to get the results you want.

5. Position the corners using one of the methods described in the following sections.
6. To review your edit, click the Play or Play Loop button.

To return a corner to the default position, click the corresponding corner button in the parameter category, press the Alt key (Windows) or the Option key (Macintosh), and click the Enable button in the Corner Pin parameter category.

To use the Corner Pin button:

1. Click the Corner Pin button in the Effect Editor to activate the handles.
2. Click the handles and drag to manipulate the image.
3. Click the Corner Pin button a second time to turn off the handles.



To use the Quick Pin feature:

1. Click the Corner Pin button in the Effect Editor to activate the handles.
2. Press and hold the Ctrl and Alt keys (Windows), or the Ctrl and Option keys (Macintosh). Position the cursor where you want the highlighted corner to be corner pinned, and click.

   The next corner is highlighted.
3. Continue using the Ctrl and Alt keys (Windows), or the Ctrl and Option keys (Macintosh), while clicking until the image is positioned where you want it.

   The next corners continue to be highlighted in a clockwise rotation each time you click.
4. Click the Corner Pin button a second time to turn off the handles.

To use the parameter category:

1. Click the Enable button in the Corner Pin category.
2. Use the X and Y sliders in the Corner Pin parameter category to position the image.

   The Corner Pin parameter category has a button for each corner, letting you pin one corner at a time.

Creating a Stamp

The Stamp category of the 3D Warp effect allows you to make certain effects — such as titles and Matte Key effects — remain on screen while other effects come and go, even though the effect segment itself has ended. For example, you can stamp a product or channel logo onto the lower corner to act as a type of watermark effect without adding additional layers onto the sequence.

In the example below, two effects (one Title effect and one imported Matte Key effect) are applied sequentially on the top track. Each one

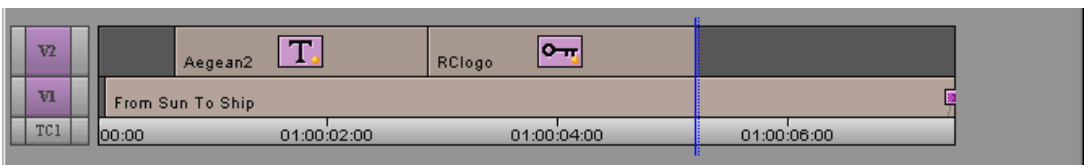
has Stamp enabled on the last keyframe. Enabling Stamp lets each element remain in place as the next element appears on the screen.

Both elements remain in place, and you could add additional stamps until you enable Clear to clear the Stamp buffer.

The first element zooms into position from full screen.

The first element is then “stamped” in place on the last keyframe.

The second element appears and is also stamped in place.



To create a stamp:

1. Create the image you want to use as a stamp.

   For example, you can use the Title tool to create a title or you could import a PICT image.

2. Create a segment with at least two video tracks.

   If you want the stamp to be in the foreground, it has to be on the top track.

3. Add the track with your stamp image to the segment.

4. Enter Effect mode.

5. Click the 3D Promote button to turn on 3D effects.

6. Select the keyframe where you want the stamp to occur.

If you do not want to use the first or last keyframe, add a keyframe where you want the stamp to occur.

7. Click the Enable button in the Stamp parameter category.

   You can enable Stamp on more than one keyframe by repeating steps 6 and 7.

8. To review your edit, click the Play or Play Loop button.

To clear a stamp:

1. Select the keyframe where you want the stamp to be cleared.
2. Click the Clear button in the Stamp parameter category.

   Everything in the Stamp buffer is cleared.

Using Axis for a Transition

The effect created in this example uses changes to axis and rotation to create a transition. If you move the axis in Z, the point of rotation moves off the object and creates a "barrel roll" effect as if the object is inside a rolling barrel. By breaking the move into two parts, you can add another shot on the reverse side of the image.

To use axis for a transition:

1. Create a two-track sequence.
2. Apply the 3D Warp effect to the segment on the second track.
3. Make the effect at least 5 seconds long.
4. With both keyframes selected, set Z to –90 in the Axis parameter category.
5. Select the second keyframe and set Y to –180 in the Rotation parameter category.
6. Play the effect to see the simple YZ barrel roll.
7. Go back 3 seconds from the end of the effect and add a new keyframe.

8. Copy the last keyframe values to the new keyframe.
9. Duplicate this new keyframe 1 second later by copying and pasting so that the last three keyframes are identical.

   The frame stays at the half barrel roll position for 3 seconds.
10. Select the last keyframe and set Z to 180 in the Position parameter category.

    This should bring the frame full screen for the new ending position.
11. Play the effect.

    It should do a half barrel roll back, stay in position, and then move forward.
12. Find the point during the half barrel roll where the image is edge on to the viewer.

    The image should disappear and reappear with the back of the image showing.
13. Perform an add edit at this point.

    This divides the effect in two with the correct keyframes being sent to the correct parts of the clip.
14. Load the incoming video into the Source monitor, and mark it so that you can use it for the back of the image.
15. Step into the second part of the effect until all you see in the Timeline is the original video.
16. Mark the clip and replace it with the new shot.
17. Step out and play the effect.

    Notice that the new incoming shot is reversed.

18. Step back in and apply a Flop to the incoming image.
19. Render the Flop.
20. Step out again and play the effect.

The incoming shot correctly transitions to full screen at the end of the effect.

About Chroma Keys

Like matte keys, chroma keys are used to replace an area of one shot with another shot. However, unlike matte keys, the area of replacement is determined by a single highly saturated color, usually a distinctive blue or green. The foreground object, such as a person, is shot in a studio in front of a screen of the selected color. Then the background is keyed out with a more desirable background, such as a weather map, an outdoor scene, or computer-generated animation.

Chroma keys work better when you use component sources that have been digitized as a component signal. You can achieve this by using a component format, such as Betacam SP or D1. Proper lighting is also crucial to separating the foreground image from the chroma key color background.

To apply a Chroma Key effect:

1. Edit the foreground image onto track V2 and the background image onto track V1 in the Timeline.
2. Apply the 3D Warp effect to track V2.
3. Choose Chroma Key from the Fast menu in the Foregnd (Foreground) parameter category.
4. Click the Color Preview window, and press and hold the mouse.
5. When the eyedropper appears, drag it to the most representative area of color to be keyed and release the mouse.

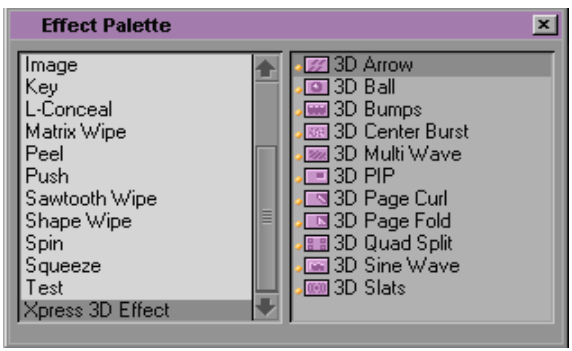
When choosing a color, stay away from corners of the frame or the area immediately around the foreground because these areas may contain subtle shades of gray.

When you are finished, the system replaces the color with the video on track V1.

6. (Option) If your system includes the 3D Spill Suppression parameter category, use Spill Suppression if necessary to remove spill in the foreground image.
7. (Option) Use the sliders in the Foregnd (Foreground) parameter category to make refining adjustments to improve the look of the key.

Using Avid Xpress 3D Effects

The Effect Palette — on systems with 3D effects capability— contains an Xpress 3D Effect category.



The Xpress 3D effects have the following uses:

- Xpress 3D effects are completely compatible with Avid Xpress™ systems that are also equipped with the 3D Effects option. As a result, you can move sequences containing Xpress 3D effects between other Avid systems (Symphony™ or Media Composer) and Avid Xpress systems.

To maintain compatibility when transferring sequences from Symphony or Media Composer systems to Avid Xpress systems, use only Xpress 3D effects. Do not use the 3D Warp effect to create 3D effects.

- Xpress 3D effects provide a fast way to apply basic 3D effects to your sequence, without making custom adjustments using the 3D Warp effect. For example, the 3D Page Curl effect automatically creates a page curl effect when you apply it.

You can further adjust Xpress 3D effects in the Effect Editor; use the 3D Warp effect, however, when you need finer control of 3D effects parameters.

CHAPTER 6

Creating Titles and Graphic Objects

The Title tool enables you to create titles that incorporate text, graphic objects, imported graphics, and video. This chapter explains how to create titles, including graphic objects. Throughout this chapter, the term "title" refers to both text and graphics.

- **Working with Titles on Systems with 24p or 25p Support**
- **Saving and Recalling Title Styles**
- **Exporting a Title as a Graphics File**

About Creating and Editing Titles

The following is an overview of the tasks you perform to create a title:

- **Set up the drawing environment.** After you open the Title tool, you can choose whether to display a color background or a frame of video from your sequence. You can also use safe colors or safe title and action guidelines or apply a grid for the placement of objects.
- **Create a new title with the Title tool.** You create the title by working with text and graphic objects and then applying and adjusting borders, colors, transparency, and shadows.
- **Save the title and exit the Title tool.** When you save a new title, you select a resolution that is compatible with your project and a target drive for the title media. You can also save just the styles for the title for future use. When you close the Title tool, the new title appears in the bin and in the Source monitor, ready for editing.

These basic procedures are described throughout this chapter. For information on editing a title into a sequence, see **Chapter 7**.

If your system includes support for 24p or 25p projects, you have some additional options available to you when you are working with titles. For more information, see ***"Working with Titles on Systems with 24p or 25p Support" on page 323****.*

Downstream Keying of Titles and Graphics

By default, the Avid system creates all titles using its *downstream key* (DSK) capabilities. Graphic elements imported with an alpha channel are also created as DSK clips.

Downstream keying allows you to add uncompressed titles or graphics over multiple streams of compressed or uncompressed media and continue to play the sequence in real time. You can see the real benefits of downstream keying during editing of Title Effect clips into sequences.

For information about editing with DSK titles, including descriptions of various restrictions and playback capabilities, see ***Chapter 7****.*

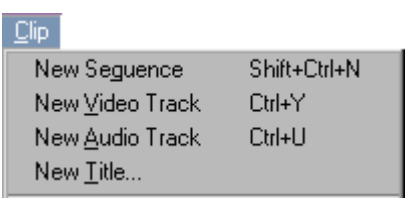
Opening the Title Tool

To open the Title tool:

1. In the Record monitor, move the position indicator to the video frame to be used as a reference.

   If you are not using video as the background, you can skip this step. For more information, see **"Selecting a Background" on page 270**.

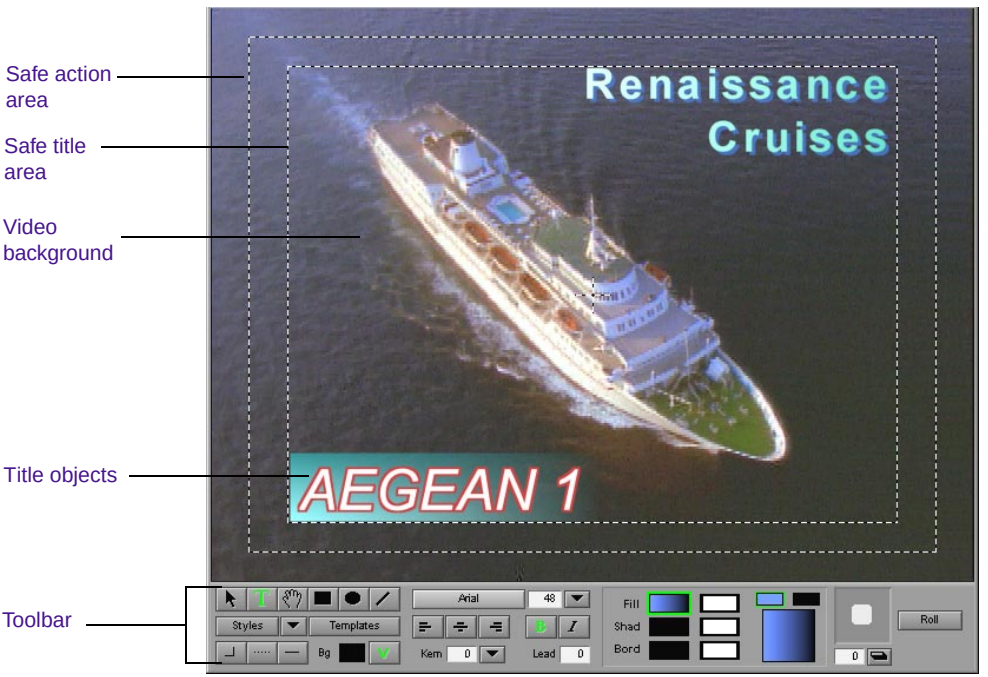
2. Choose New Title from the Clip menu or Title Tool from the Tools menu.



The Title tool opens. The Text tool is automatically selected, and the cursor becomes an I-beam, ready for entering text.

Understanding the Title Tool

The following illustration shows a title over a video background.



The Title tool has several major components:

- A video background based on a sequence or a color background that you create.
- The title or graphic in the foreground that you create.
- The safe title and safe action area guidelines. For more information, see **"Using Title and Action Guidelines" on page 269**.

- The toolbar at the bottom of the screen. For more information, see **"Understanding the Toolbar" on page 264**.
- In addition, there are title-related menu items on the File, Edit, Object, and Alignment menus. These menu items are described throughout this chapter.

Understanding the Toolbar

At the bottom of the Title tool are tools and pop-up menus you can use for creating and editing text and objects. They work much like similar tools in other draw and paint programs.

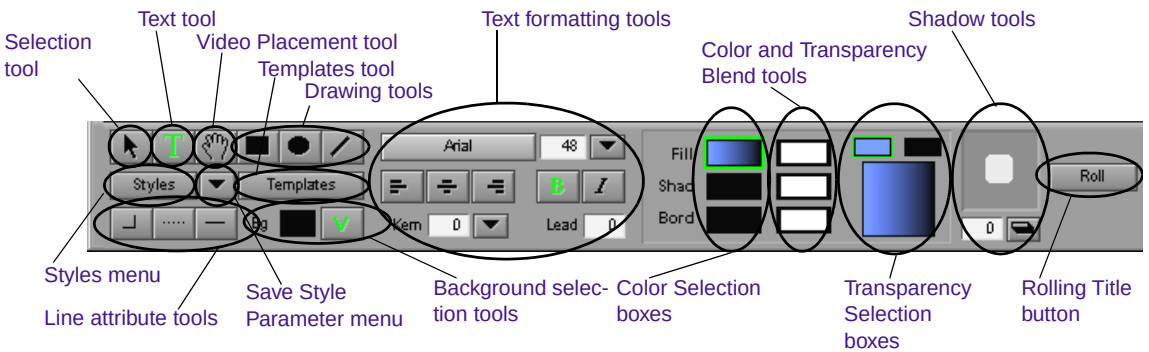


Table 6-1 briefly describes each section of the toolbar.

Table 6-1 Toolbar Elements

Tool	Description
Selection tool	Changes the cursor to an arrow and allows you to select text or objects for operations. See **"Using the Selection Tool" on page 266**.
Text tool	Changes the cursor to an I-beam and allows you to enter text. See **"Working with Text" on page 273**.

Table 6-1 Toolbar Elements (Continued)

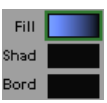
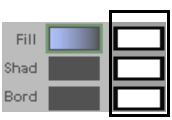
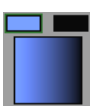
Tool	Description
Video Placement tool	 Changes the cursor to a hand and allows you to pan around the entire video clip within the Title tool.
Drawing tools	 Allow you to draw boxes, circles, ovals, and lines. See **"Creating Graphic Objects" on page 284**.
Styles menu	 Displays examples of the styles you defined and allows you to select one. See **"Recalling a Title Style" on page 330**.
Save Style Parameter menu	 Displays examples of the styles you defined and allows you to select one. See **"Saving a Title Style" on page 327**.
Templates menu	 Allows you to create and recall title templates. See **"Creating and Using Title Templates" on page 321**.
Text formatting tools	 Allow you to set various text attributes such as font, font size, kerning, and leading. See **"Formatting the Text" on page 277**.
Color Selection boxes	 Allow you to change the color of text and objects. See **"Selecting Colors and Setting Transparency" on page 296**.
Transparency Level boxes	 Allow you to change the transparency levels of text and objects. See **"Adjusting the Transparency" on page 300**.
Color and Transparency Blend tools	 Allow you to create a blend between two colors or two transparency values. See **"Blending Two Colors in an Object" on page 299**.
Shadow tools	 Allow you to create drop shadows and depth shadows for text and objects and to preview the degree of softness set for shadows. See **"Working with Shadows" on page 302**.

Table 6-1 Toolbar Elements (Continued)

Tool	Description
Line attribute tools	 Allow you to change the corners of boxes, line and border thickness, and arrowhead styles. See **"Selecting Line Attributes" on page 286**.
Rolling Title button	 Allows you to create rolling titles. See **"Creating Rolling Titles" on page 290**.
Background selection tools	 Allow you to switch between a video and opaque background and change the color of opaque backgrounds. See **"Selecting a Background" on page 270**.

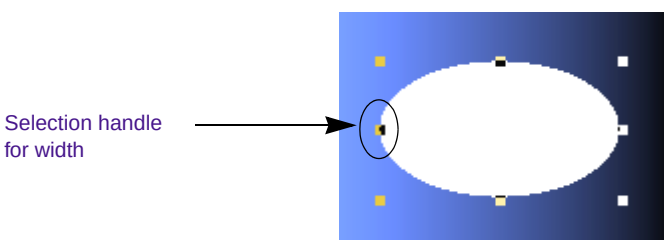
Using the Selection Tool

The Selection tool is one of the most frequently used tools. You use the Selection tool when performing certain operations on objects you create, such as moving, formatting, resizing, or applying color.

To select an object:

- Click the Selection tool and click an object.

Selection handles appear around the object.



You can press the Alt key (Windows) or Option key (Macintosh), and click anywhere in the Title tool to switch between the Selection tool and the Text tool. You can also press and hold the Ctrl and Alt key (Windows), or the Ctrl and Option key (Macintosh), to display the Selection tool temporarily at any time.

To select multiple objects do one of the following:

- Shift+click with the Selection tool
- Click outside the objects and drag to surround the objects with a lasso

After you use a tool in the toolbar, the system reverts to the Selection tool, and the cursor becomes an arrow. To prevent a tool from automatically reverting to the Selection tool, double-click the tool's icon.

Setting Up the Drawing Environment

This section describes some aspects of the Title tool that you can use to set up your titling or drawing session.

You can set or change these features at any time during your work on a title. These settings are stored with User settings and will appear each time a particular user opens the Title tool.

Installing Fonts

You can apply any font that is installed on the system when creating titles in the Title tool. When installing and using fonts, consider the following:

- If you want to apply a special font that is not currently on the system, you must install the font first before creating titles.
- If you are bringing a project from another system, check to make sure you have installed any fonts used in titles contained in the

project. These fonts must match exactly (you cannot use variations of the font in the same font family). If your system does not recognize a font contained in a title, the Font Replacement dialog box appears to enable you to substitute an alternative font. For more information on font replacement, see the *Avid Products Collaboration Guide*.

- If you are bringing a project from one platform to another (Macintosh-based to Windows NT-based, or Windows NT-based to Macintosh-based), you might need to substitute a font from the new platform for an existing font in the project. Windows NT and Macintosh fonts sometimes differ even when they have the same name. If your system does not recognize a font contained in a title, the Font Replacement dialog box appears to enable you to substitute an alternative font. For more information on font replacement, see the *Avid Products Collaboration Guide*.
- If you intend to create titles with font sizes of 128 points or larger, use True Type® fonts. Some non-True Type fonts cannot display consistently at sizes of 128 points or higher.

For more information on installing fonts, see your Windows NT system documentation or Macintosh system documentation.

Previewing Titles

Text and objects in titles are created anti-aliased with an 8-bit alpha channel. Anti-aliasing ensures that text, lines, and object edges appear smooth, regardless of size. You can preview a title to see the title drawn with anti-aliasing, just as it will be saved.

To switch the display of anti-aliased titles on or off, choose Preview from the Object menu. A check mark indicates that Preview mode is enabled.

Titles are always saved in anti-aliased format.

The display behavior for title objects in Preview mode is as follows:

- You can alter the graphics characteristics of title objects (including colors, shadows, borders, and transparency) without losing the anti-aliased preview.
- You can select text objects and apply text styles from the Styles pop-up menu without losing the anti-aliased preview.
- When you click a text object for editing with the Text tool, the text is displayed without anti-aliasing. When you finish editing the text and click outside the object to deselect it, the anti-aliased preview is restored.

Using Title and Action Guidelines

By default, the system displays two outlined boxes in the Title tool to use as guidelines (see the illustration at the beginning of the section **"Understanding the Title Tool" on page 263**). The inner box is the safe title area. All text for television broadcast should remain within this inner box. The outer box is the safe action area for video display. These guidelines are self-adjusting for PAL and NTSC projects.

You can customize the Effect Grid display. For more information, see ***"Working with the Effect Grid" on page 107****.*

To display the safe title area or safe action area guidelines:

- Choose Safe Title Area/Global Grid from the Object menu.

Using Safe Colors

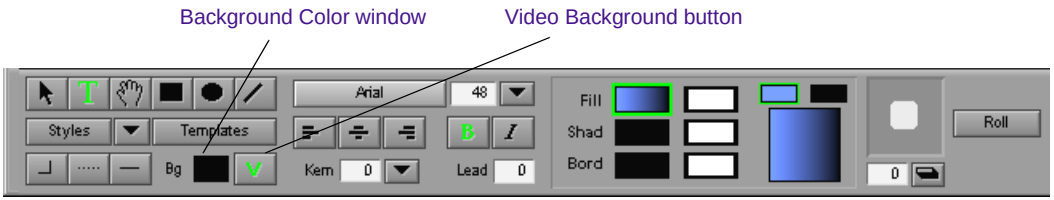
If you plan to use your title for television broadcast, you can choose the Safe Colors command from the Object menu. This command displays only low saturation colors for use in text, objects, and background. Colors with low saturation look best when combined with video. By default, Safe Colors is turned on.

To display only safe colors:

- Choose Safe Colors from the Object menu.

Selecting a Background

Use the Video Background button to switch between a video background and an opaque color background.



Using a Video Background

If there is a sequence in the Record monitor, the Title tool opens with a video background. The location of the position indicator in the Timeline at the time you open the Title tool determines the initial video frame that displays. If there is no sequence in the Record monitor, the Title tool opens with no video showing (the background appears black).

The Video Background button is green when you are creating a title for display over a video background.

Use the background video frame as a reference. It does not become part of the title you create. You can edit the title anywhere else in the current sequence or in another sequence.

Updating the Video Background

You can update the video background at any time while creating titles within the Title tool.

To update the video background:

1. Click the Video Background (**V**) button in the toolbar to activate video background if you have not already done so.
2. Load the sequence into the Record monitor.
3. Move the position bar in the Timeline or in the monitor to display the new frame.
4. Click again in the Title tool to activate its window.

   The background is updated to reflect the current contents of the Record monitor.

Creating a Color Background

To create a title that appears over an opaque color background:

1. Click the Video Background (**V**) button to switch off the video background if it was previously turned on.
2. Click and hold on the Background Color window.

   The Title Tool Color Picker dialog box appears.
3. Use the Title Tool Color Picker dialog box, eyedropper, Windows Color dialog box, or Macintosh Color Picker to select a color. See **"Selecting Colors and Setting Transparency" on page 296** for a description of how to use these tools.

   The default background color is black.

When you create a title with a color background, it is opaque and it cannot be used to key over video.

You cannot create rolling titles with a color background. You can create a separate color background as a title and then edit the rolling title over it in the sequence.

Displaying a Grid

You can display a grid to help you position text and objects. The visible grid does not appear when you save the title.

To display a grid:

- Choose Show Alignment Grid from the Alignment menu.

Snapping to a Grid

The snap grid is an invisible grid that helps position and connect objects. The snap grid has four lines for each line in the visible grid. Each square in the grid is subdivided by four invisible vertical and horizontal grid lines. Text and objects can snap to these lines.

To snap to a grid:

- Choose Align to Grid from the Alignment menu.

When you create or drag an object in the Title tool, the object snaps to the nearest grid line.

Bringing the Title Tool to the Foreground

If the Title tool becomes obscured by another window, you can instruct the Avid system to redisplay the tool. Choose Title Tool from the Windows menu or from the Tools menu.

Using the 16:9 Display Format for Titles

For more information on HDTV and the 16:9 option, see the editing guide for your system.

The Title tool supports the 16:9 aspect ratio for display of NTSC and PAL footage. The 16:9 option allows you to display the full-aspect ratio of wide-screen video used in the high-definition television (HDTV) format.

When you select the 16:9 option in the Composer settings, the Title tool increases its maximum horizontal size, and saved titles appear correctly in the Source and Record monitors set to 16:9.

Because the 16:9 aspect ratio extends the horizontal dimensions of the footage, when you first open the Title tool in 16:9 mode you must use the Video Placement tool (the hand icon) to pan back and forth to view footage on the sides. Click the Maximize button in the upper-right corner of the Title tool to automatically resize the tool to fit the monitor.

Working with Text

By default, the Text tool is active when you open the Title tool, and you can begin entering text as soon as you click in the Title Tool window.

To use the Text tool at any other time, click the Text tool, click anywhere within the text object, and begin typing. An I-beam cursor indicates your position within the text. The Text tool remains selected until you select another tool.

You can press the Alt key (Windows) or Option key (Macintosh) and click anywhere in the Title Tool window to switch between the Selection tool and the Text tool.

For information on previewing smooth text, see ***"Previewing Titles" on page 268****.*

Creating Text

To create text:

1. Click the Text tool on the toolbar.

   The cursor becomes an I-beam.

2. Click the position in the frame where you want to add text.

   An insertion point appears.

3. Type the text.

   To insert a line return, press Enter (Windows) or Return (Macintosh).

Text is word-wrapped automatically as you type. You can adjust the wrapping by changing the width of the text object. For more information, see ***"Resizing Text Objects" on page 275****.*

4. When you have finished typing, click the Selection tool on the toolbar to deselect the text object.

When you create text that is aligned on the left side using left justification (the default), you can eliminate the unused space on the right side of the newly created text object, especially if you want to use the Alignment menu commands.

To eliminate the space, click the middle selection handle on the right side of the text box and drag it to the left until it is closer to the text.

Copying and Pasting Text

You can copy and paste text into the Title tool directly from a word processing or text editing application.

There is a limit to the size of text objects you can create in the Title tool. Avoid pasting large blocks of text (numerous pages in a word processor) into the Title tool. Instead, consider pasting smaller blocks of text into separate text objects.

To copy and paste text into the Title tool:

1. Click the Text tool on the toolbar.

   The cursor becomes an I-beam.

2. Click the position in the frame where you want to add text.

   An insertion point appears.

3. Open the text file in a word processor or text editor.

4. Select the text in the word processor or text editor, and then choose Copy from the Edit menu or press Ctrl+C (Windows) or ⌘+C (Macintosh).

5. Click the Title tool again to activate it.

6. Press Ctrl+V (Windows) or ⌘+V (Macintosh) to paste the text into place at the insertion point.

   The pasted text takes on the attributes currently set in the Title Tool toolbar.

Resizing Text Objects

When you resize a text object, the text remains the same size but rewraps to fill the reshaped area.

To resize a text object:

1. Click the text object with the Selection tool.

2. Click one of the object selection handles for width and drag to resize.

You can resize only the width of a text object. The height of a text object is automatically determined by the number of words and the size of text.

Repositioning Text Objects

To reposition a text object:

1. Click the text object with the Selection tool.
2. Move the text by doing one of the following:
   - Click in the middle of the object and drag it to a new position.
   - Use the arrow keys to move the object one pixel at a time.
   - Use commands on the Alignment menu to position the text. For more information, see **"Aligning Objects" on page 311**.

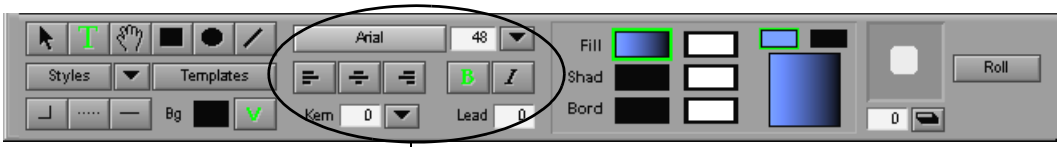
Editing a Text String

To edit an existing text string;

1. Click the Text tool, and click anywhere in the text.
2. You can perform the following tasks:
   - Use the arrow keys to move around within the text string.
   - Type additional characters.
   - Press Enter (Windows) or Return (Macintosh) to insert a line return.
   - Drag to select characters.
   - Use the Cut, Copy, and Paste commands from the Edit menu.
   - Use the Delete key.
   - Change the formatting of the selected text, as described in **"Formatting the Text" on page 277**.

Formatting the Text

The text formatting tools control the appearance of text. You can click a text object with the Selection tool to format all the text within it, or you can use the Text tool to select a string of text within a text object to format individual characters or words.



Text formatting tools

You can modify the following text attributes for either a text object or a selected text string:

- Current font
- Bold and italic
- Point size
- Kerning
- Leading

You can modify the following attributes for an entire text object only:

- Color (see **"Adjusting the Color" on page 297**)
- Transparency (see **"Adjusting the Transparency" on page 300**)
- Drop and depth shadows (see **"Working with Shadows" on page 302**)
- Outlined text (see **"Selecting a Line or Border Width" on page 287**)
- Justification (see **"Justifying the Text" on page 280**)

While you type text, only the text color is apparent. Shadows, outlines, and other color attributes appear when you finish typing the text and click the Selection tool.

If you want to create text elements in the title with different appearances, create a separate text object for each set of attributes.

Setting the Default Text Attributes

When you start the application and open the Title tool, the system uses default text attributes. You can change the defaults at any time. Changes you make to the default text attributes apply until you quit the application.

To change the default text attributes:

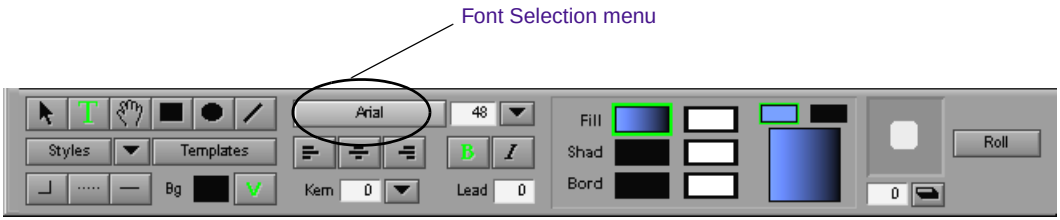
1. Click the Selection tool.
2. Click in the Title Tool window but do not select any text.
3. Change any of the text attributes.

Now whenever you start typing a new text string, the system uses your new defaults.

Selecting a Font

The Font Selection menu shows the current font for a text selection and allows you to change the font.

When you first open the Title tool, the font listed is the preferred system font. If an existing text object is selected, the Font Selection menu displays the font of the text object.



The Font Selection menu displays all fonts currently installed on the system.

To change the font:

1. Click the Font Selection menu to display the pop-up menu.
2. Select a font from the menu.

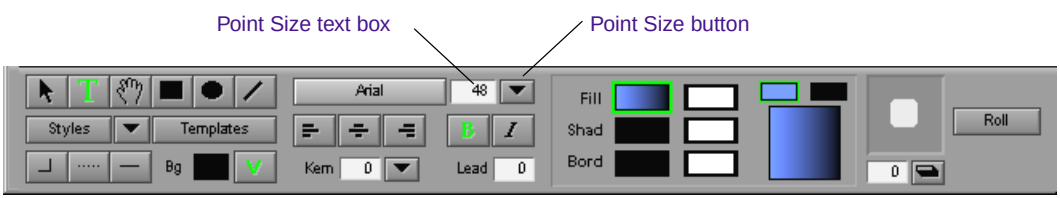
   The system displays the name in the Font Selection menu and uses this font for text until you change it during the editing session.

If a text object is selected, the Font Selection menu displays the font of the text object.

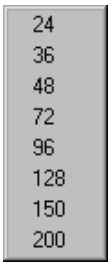
Changing the Point Size

The point size controls the size of the selected text. A *point* is a typographical unit of measure. There are 12 points to the pica and 72 points to the inch.

You can enter a point size either before or after you type text.



Point Size pop-up menu

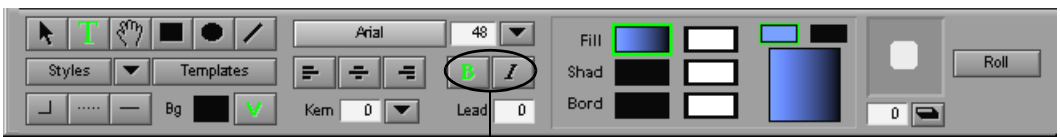


To change the point size, do one of the following:

- Click the Point Size button and choose a standard point size from the pop-up menu.
- Double-click in the text box and type a point size between 5 and 999; then press Enter(Windows) or Return (Macintosh).
- Click in the text box and use the Up Arrow and Down Arrow keys to change the value incrementally.

Making Text Bold or Italic

The Bold and Italic buttons are located under the Point Size text box.



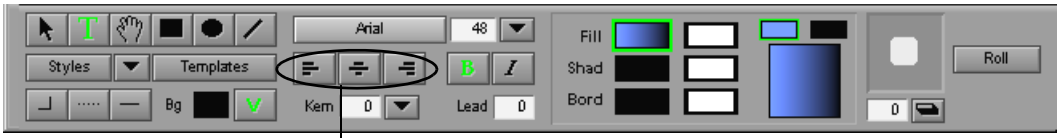
Bold and Italic buttons

In addition, the Object menu contains commands for bold and italic.

To change the text style, select the text you want to change and click the appropriate button, or select the appropriate command from the Object menu.

Justifying the Text

Below the Font Selection menu are the buttons for text justification. *Text justification* controls the alignment of text in an existing text object and also when you type text in a new text object.



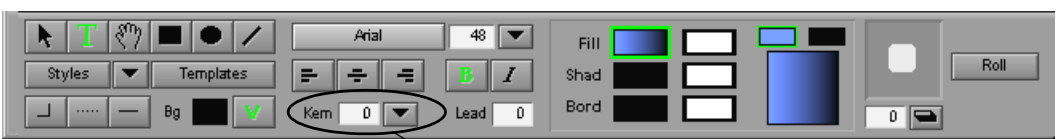
Text justification buttons

Click the left text justification button to left justify the text. Click the center button to center the text. Click the right button to right justify the text.

Kerning the Text

Kerning improves the appearance of titles by controlling the amount of space between characters. You can expand or condense the character spacing to make text more readable or to create special effects, such as dramatically expanded spacing in a title.

The text kerning controls are located beneath the text justification buttons.



Kerning text box and Kerning selection button

You can kern the text for an entire text object, or you can manually kern individual character pairs or character strings. For example, if you mix italic and plain versions of a font in a title, you might want to adjust the spacing between characters.

Loose kerning

Normal kerning

Tight kerning

You can use the menu options to select predefined kerning options or specify your own custom kerning value. Positive numbers increase the spacing; negative numbers decrease the spacing. You can also use the arrow keys to make incremental adjustments.

You can adjust kerning for individual characters or selected groups of characters using the arrow keys only.

You can choose the kerning value before you type text.

Adjusting Kerning Manually

To adjust kerning manually with the arrow keys:

1. Click the Text tool on the toolbar.
2. Click between a character pair or select a group of characters to be kerned.
3. Press the Alt key (Windows) or Option key (Macintosh) and use the Left Arrow or Right Arrow key to increase or decrease the kerning.

Using the Predefined Kerning Sizes

To adjust kerning with the predefined sizes in the menu:

1. Select the text.
2. (Option) Click the Kerning selection button and choose *Pair Kerning* to eliminate excessive space between some character pairs. Note that pair kerning works only on fonts that support kerning tables (for example, Palatino).
3. Choose a kerning option from the Kerning pop-up menu:

   - *Loose* adds space between letters.
   - *Normal* leaves spacing unchanged.
   - *Tight* closes up the spacing between letters.

Using the Kerning Text Box

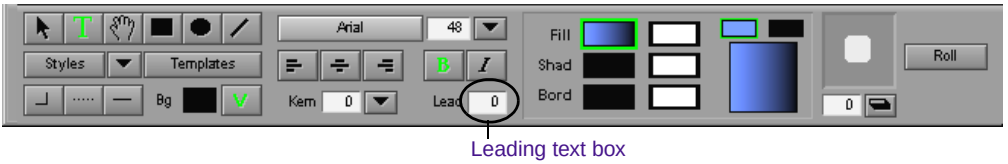
To adjust kerning with the text box:

- Click in the Kerning text box and type a positive or negative numerical value. Values are a percentage of the point size.
- Click in the Kerning text box and use the Up Arrow and Down Arrow keys to change the value incrementally.

The system applies the kerning to the entire text object.

Adjusting Leading

Use *leading* to adjust the line spacing between lines in a title. Leading is measured in points, from baseline to baseline of the lines of text. The Title tool uses the leading that is built into the font as the default. Positive leading values add space; negative values decrease space. You might want to add leading for sans serif, tall, or boldface fonts, and for fonts with a strong vertical emphasis.



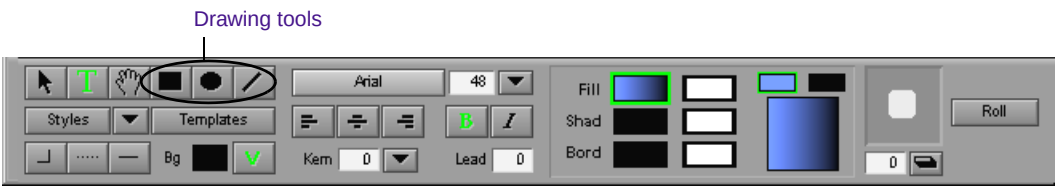
To set leading:

1. Click in the Leading text box.
2. Type a number to indicate the leading value you want.

   The system adjusts leading immediately.

Creating Graphic Objects

The drawing tools enable you to draw graphic objects such as squares, rectangles, circles, ovals, and lines. To use the drawing tools, select one of these shapes.



After creating graphic objects, you can change the following attributes:

- To round the corners of a box, adjust the width of lines and text borders, or add arrowheads to lines, see **"Selecting Line Attributes" on page 286**.
- To change or blend colors in a graphic object, see **"Adjusting the Color" on page 297**.
- To apply a drop or depth shadow, see **"Working with Shadows" on page 302**.

- To add transparency to an object or an object's shadow, see **"Adjusting the Transparency" on page 300**.

By default, when you use a drawing tool and deselect the created object, the cursor reverts to the Selection tool. To avoid this, double-click the drawing tool when you select it in the Title Tool toolbar.

Drawing a Square or Rectangle

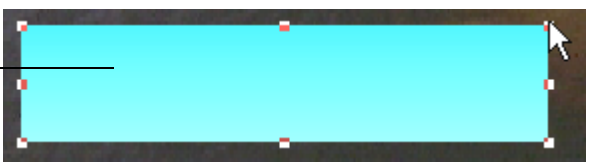
To draw a square or a rectangle:

1. Click the Square and Rectangle tool on the toolbar.

   The cursor becomes a crosshair pointer.

2. Click in the Title tool and drag to create an object.

Pressing the Shift key while you drag constrains the Square or Rectangle tool to create a square.



Drawing a Circle or Oval

To draw a circle or an oval:

1. Click the Oval tool on the toolbar.

   The cursor becomes a crosshair pointer.

2. Click in the Title tool and drag to create an object.

Pressing the Shift key while you drag constrains the Oval tool to create a circle.

Drawing a Line

To draw a line:

1. Click the Line tool (slanted line) on the toolbar.

   The cursor becomes a crosshair pointer.

2. Click in the Title tool and drag to create a line.

Pressing the Shift key while you drag constrains the Line tool to create a horizontal or vertical line.

Selecting Line Attributes

Line attribute tools

Use the line attribute tools to round the corners of a box, select the width of lines and borders, and add arrowheads to line endpoints.

You can also change the following drawing attributes:

- Color (see **"Adjusting the Color" on page 297**)
- Transparency (see **"Adjusting the Transparency" on page 300**)
- Drop and depth shadows (see **"Working with Shadows" on page 302**)

If you do not select an object and you choose a line attribute, the system makes that the default for any new objects that you create.

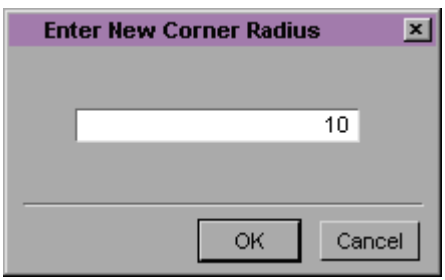
Rounding Corners

To round box corners:

1. Select a box.
2. Click the Box Corner tool.

   The Corner Selection pop-up menu appears.

3. Choose a rounding option from the pop-up menu, or choose the custom radius option to open a dialog box and enter a custom radius.
4. If you choose the Custom Radius option, in the dialog box type a whole number (in pixels) to specify a custom corner radius and click OK. The maximum radius is 200.



Selecting a Line or Border Width

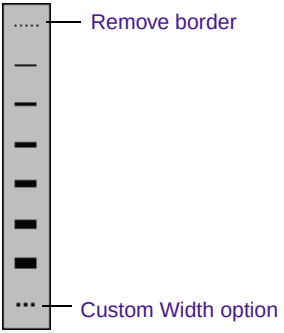
You can use the Border Width tool to change the width of lines created with the drawing tools or to apply a border outline to text or graphic objects.

To select a line or border width:

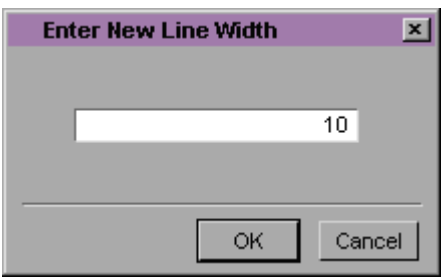
1. Select an object (such as a line, shape, or text object).

2. Click the Border Width tool.

   The Border Width pop-up menu appears.



3. Choose from the standard width selections or choose the Custom Width option to open a dialog box and enter a custom width.
4. If you choose the Custom Width option, in the dialog box type a whole number (in pixels) to specify a custom width. Use a width of 1 or greater for lines and 0 or greater for object outlines. The maximum width is 200.



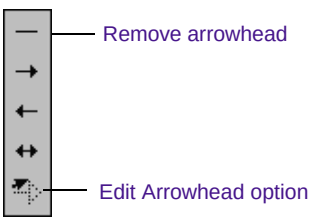
If you selected a line for modification, the width of the line changes. If you selected an object for modification, the width of the outline changes.

Adding Arrowheads

To add arrowheads to a line:

1. Select a line.
2. Click the Arrowhead tool.

   The Arrowhead Selection pop-up menu appears.



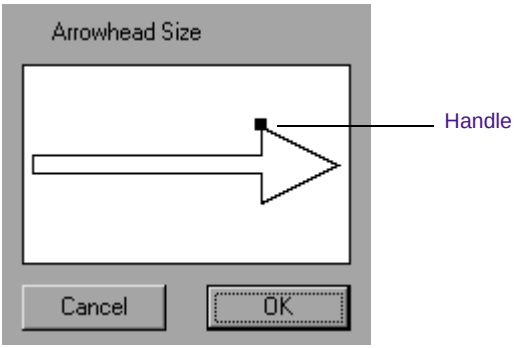
3. Choose an arrowhead style from the pop-up menu, or choose the Edit Arrowhead option as described in the following section.

Changing Arrowhead Size

To change the arrowhead size:

1. Select a line.
2. Click the Arrowhead tool.
3. Choose the Edit Arrowhead option from the pop-up menu.

   The Arrowhead Size dialog box appears.



4. Click the handle on the arrowhead and drag it vertically or horizontally to resize and reshape it.

The shape of the arrowhead is in scale with the line width.

5. Click OK.

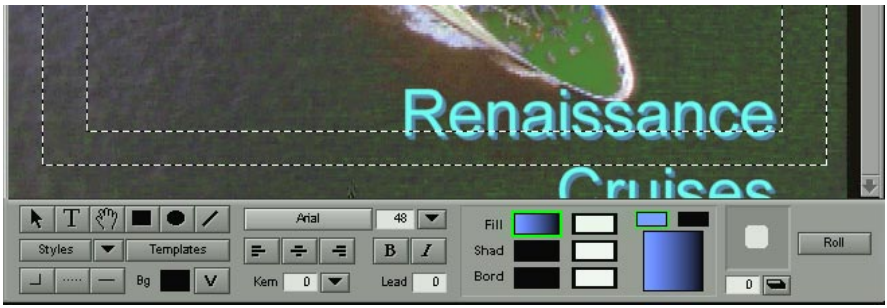
   The system applies the arrowhead to the line.

Creating Rolling Titles

You can create text or graphics that roll up the screen. You create the title in the Title tool and refine the motion during editing.

Rolling titles scroll vertically, moving from top to bottom or bottom to top, as shown in the following example.

Rolling titles scroll from bottom to top by default.



You cannot save a rolling title with a colored background even though you can set the Title tool to display a colored background while you create a rolling title. To place a rolling title over a colored background, you must export the background as a PICT file, reimport it (with Ignore Existing Alpha selected in the Import dialog box), edit it into your sequence, and then edit the rolling title onto a new layer above the background graphic.

Page Count Limits for Rolling Titles

Rolling titles form pages in the Title tool that are similar to the pages you create with a word processor. A *page* in a rolling title is a unit the size of a PAL or NTSC frame.

Table 6-2 shows the maximum number of pages you can create for rolling titles.

Table 6-2 Title Object Size

Object Type	Height	Height
Graphic objects	17 pages NTSC 14 pages PAL	8 K pixels
Text objects	67 pages NTSC 57 pages PAL	32 K pixels

Page limitations are based on the overall size of the text object. Typing more text, increasing the size of the font, or adjusting kerning and leading all affect the number of pages in the object.

- If you reach the end of the page limitation while you are typing text, the object stops getting bigger and text entry stops.
- If you attempt to make changes to the text formatting that cause the text to exceed the page limit, a message box appears, stating that the operation will exceed the limit. Click OK to abort the operation and keep the title within the limit.

Using Auto Size Mode

For more information on adding extra pages with Auto Size mode disabled, see **"Adding Pages" on page 295**.

Auto Size mode causes the Title tool to add or remove pages automatically as you add, delete, or reformat the text. You can disable Auto Size mode if you want to add extra pages before or after the text to make room for additional title elements, for example.

Auto Size mode is active by default in Rolling Title mode. To switch Auto Size mode off or on, choose Auto Size Mode from the Object menu. A check mark indicates that Auto Size mode is enabled.

Setting Up Text Formatting for Rolling Titles

Before creating a rolling title, consider setting up the text formatting defaults for such things as font, point size, leading, and kerning.

When you type the text for a rolling title, lines of text wrap appropriately within the safe title area, and the title scrolls down as you type, providing a realistic sense of positioning, word wrap, and page count limitations.

*To set up the defaults, see **"Setting the Default Text Attributes" on page 278**.*

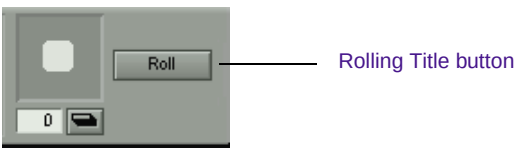
Typing the Rolling Title Text

To type rolling title text:

1. Choose New Title from the Clip menu or Title Tool from the Tools menu.

   The Title tool opens.

2. Click the Text tool on the toolbar.
3. Click the Rolling Title **(Roll)** button to activate Rolling Title mode.



   The button changes to green, and a page number display appears in the bottom right corner of the Title tool.

The Video Background button is automatically enabled (you cannot create rolling titles over a color background).

4. Type the title text.

   The text wraps automatically as you type.

5. When you are finished, click the Selection tool on the toolbar to select the new text object.

Resizing the Width of a Rolling Title

To resize a rolling title:

1. Click the title object with the Selection tool.
2. Click the object selection handle, and drag to resize the title until it appears as you want.

You can resize only the width of a text object. The height of a text object is automatically determined by the amount of text.

Scrolling Through a Title

When you create a rolling title, a scroll bar appears along the right side of the Title Tool window for moving vertically through the title.

Use standard techniques for scrolling, such as clicking the arrow icons, dragging the scroll box, or clicking in the scroll bar. You can also do the following:

- Press the Page Up or Page Down key on the keyboard to move through the title one page at a time.
- Press the Home or End key to go to the beginning or end of the title.
- Press the Up Arrow or Down Arrow key to move the cursor through the title one line at a time.

Going to a Page

When you first create a rolling title, a page number text box appears in the lower right corner of the Title tool. The page number text box reflects your current position in the title.

To go to a different page:

1. Click in the page number text box.
2. Type a page number for a specific page, or use the Up Arrow and Down Arrow keys to cycle through the page numbers.
3. Press Enter (Windows) or Return (Macintosh).

Adding Pages

You can add pages to a rolling title to create space for adding new elements.

To add pages to a rolling title:

1. Choose Auto Size Mode from the Object menu to disable it (the check mark should no longer appear in the menu).

The Add Page command is not available when Auto Size mode is enabled.

2. Choose Add Page from the Object menu to add a page. You can choose Add Page repeatedly to continue adding pages up to the maximum page count.

For more information on maximum page counts, see ***"Page Count Limits for Rolling Titles" on page 291****.*

3. Select text or graphic objects within the title and position them within the range of available pages, or create new elements.

Deleting Additional Pages

You cannot select individual pages to delete during the creation of a rolling title. However, if you add pages to the title with Auto Size mode disabled, once you complete the title you can remove excess pages at the end of the title.

To delete additional pages:

- Choose Auto Size Mode from the Object menu.

The system removes excess pages at the end of the title.

Formatting Rolling Titles

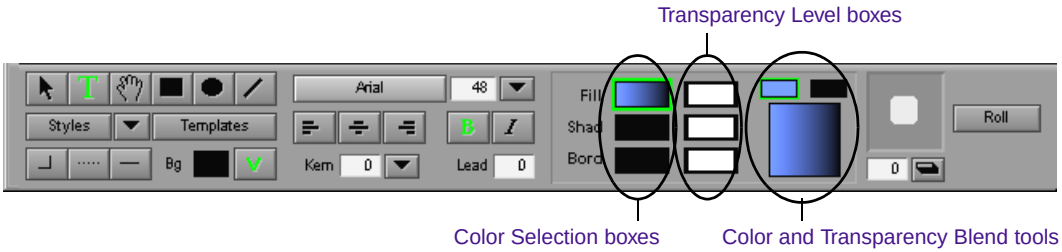
You can modify the text attributes of a rolling title with the same methods used to format still text elements:

- For information on adjusting font, point size, style, justification, kerning, and leading, see **"Formatting the Text" on page 277**.
- To create outlines surrounding the text, see **"Selecting a Line or Border Width" on page 287**.
- For information on adjusting color and transparency, see **"Selecting Colors and Setting Transparency" on page 296**.
- To add a drop or depth shadow, see **"Working with Shadows" on page 302**.

Selecting Colors and Setting Transparency

You can select the color and transparency for text and graphic objects, their shadows and borders.

The following illustration shows the boxes associated with color and transparency.



- The Color Selection boxes control fill (Fill), shadow (Shad), and border (Bord) color, respectively.
- The Transparency Level boxes control fill, shadow, and border transparency, respectively.
- The Color and Transparency Blend tools appear when you select a Fill or Border Color Selection box or Transparency Level box.

  If you select a Color Selection box, the top boxes show the two colors that are used to create the blend. The bottom box shows the blended color and allows you to control the direction of the blend or transparency.

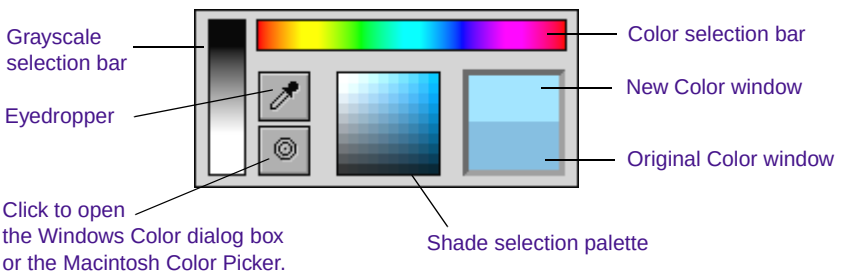
  If you select a Transparency Level box, the top boxes show the two transparency values that are used to create the blend. The bottom box allows you to control the direction of the transparency blend.

Adjusting the Color

You can select a color from the Title Tool Color Picker, use an eyedropper to select a color from any open application on your computer, or use the Windows Color dialog box or the Macintosh Color Picker to select a color. All these features are available through the Title Tool Color Picker.

To select a color:

1. Select a text or graphic object. If you do not select an object, the color will be applied to the next object you create.
2. Click one of the Color Selection boxes on the toolbar:
   - Fill (Fill) applies the color to the selected object.
   - Shadow (Shad) applies the color to the selected object's shadow.
   - Border (Bord) applies the color to the selected object's outline or border.
3. The Title Tool Color Picker opens.



You can drag the Color Picker from the toolbar to create a floating palette.

4. Choose a color:
   - To choose from the Title Tool Color Picker, drag the cursor along the color selection bar to the color you want, and then move the cursor down into the shade selection palette to choose a shade. The color is applied when you release the mouse button.
   - To use the eyedropper, drag the cursor to the eyedropper icon and release the mouse button. The cursor changes to the eyedropper. Click the color you want from anywhere in the window to apply the color to the selected object.

- To use the Windows Color dialog box or the Macintosh Color Picker, drag the cursor to the round button icon under the eyedropper, and release the mouse button. The Windows Color dialog box or the Macintosh Color Picker appears. For more information, see **"Using the Windows Color Dialog Box" on page 125** or **"Using the Macintosh Color Picker" on page 127**.
- To choose a grayscale value, click in the grayscale selection bar.

Blending Two Colors in an Object

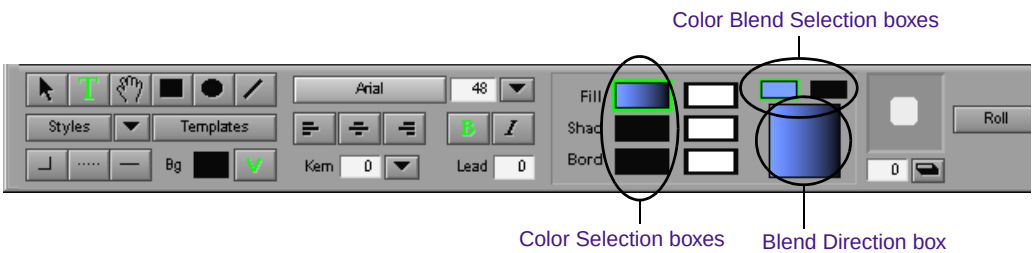
The Avid system lets you blend two colors in a text or graphic object or in a border. You can also specify the direction of the blend.

You can blend the fill and border but you cannot blend a shadow.

To blend two colors:

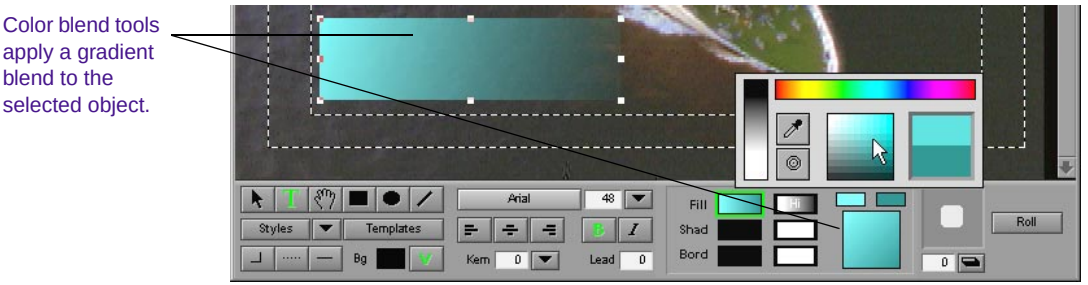
1. Select text or another object.
2. Click the Color Selection box for either fill or border.

   The Color Blend tools appear.



3. Click one of the Color Blend Selection boxes, and choose a color using either the Title Tool Color Picker, the eyedropper, the Windows Color dialog box or the Macintosh Color Picker.

4. Click the other Color Blend Selection box, and choose the second color for your blend.



The Blend Direction box appears below the two Color Blend Selection boxes. This box displays the blend and allows you to specify the direction of the blend (for example, left to right).

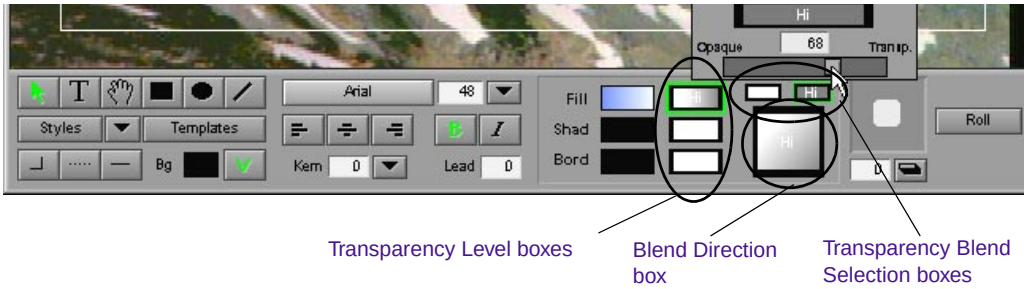
5. Click the Blend Direction box and drag clockwise or counterclockwise to achieve the effect you want.

   As you rotate the pointer, the position of the two colors rotates. The change takes effect as soon as you release the mouse button.

Adjusting the Transparency

After you select a color, you can select the color transparency. To do so, click the appropriate Transparency Level box, depending on whether the transparency will apply to an object or will adjust a shadow or outline around the selected object.

The Transparency Level box displays the text “Hi” with a background that changes from black to white. A completely white background represents a fully transparent object or portion of an object. The following illustration shows an example.

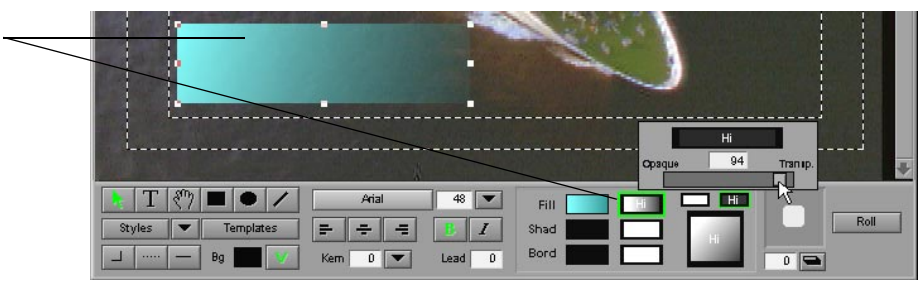


In the pop-up control that appears, drag the slider until you attain the transparency you want, and then release the mouse button. The system immediately applies the transparency to your selection.

You might find it useful to turn off the shadow and shadow softness for an object while experimenting with transparency. Set the shadow value to 0 in the Shadow Depth text box and the softness value to 0 in the Shadow Softness dialog box, as described in ***"Working with Shadows" on page 302****.*

Blending Transparency of Fills and Borders

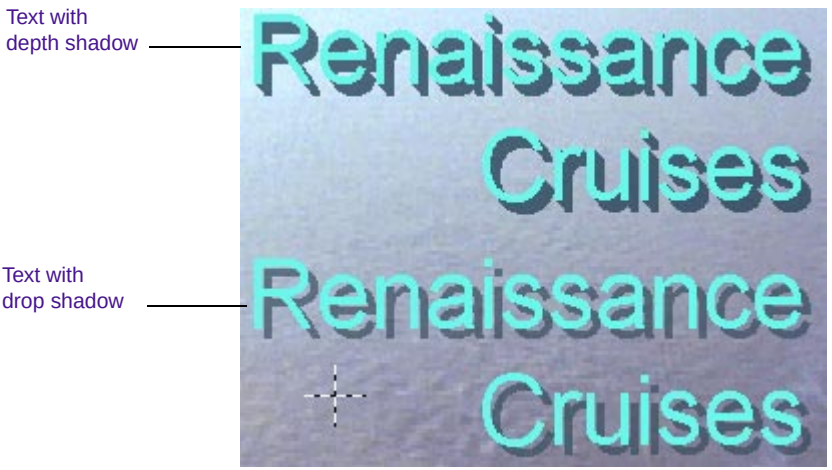
You can blend the transparency of fills and borders by using a technique similar to blending colors. Use the Transparency Blend Selection boxes to set the blend values. Use the Blend Direction box to set the direction of the blend.



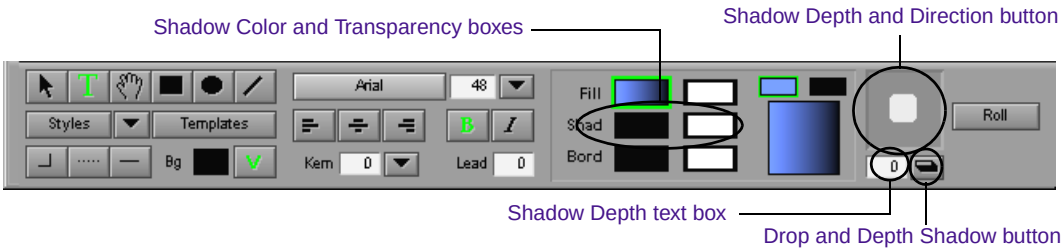
For more information on creating a blend, see ***"Blending Two Colors in an Object" on page 299****.*

Working with Shadows

You can add a drop shadow or depth shadow to text and objects. A drop shadow is offset from the title itself, as though cast by a light source. A depth shadow extends from the edges of the title, as though the title were three-dimensional. The following illustration shows an example of drop and depth shadows.



You can select the color, width, direction, and transparency for the shadow. You can also soften (blur) shadows or create a glow effect behind title text. You can place the shadow anywhere within the title without restriction. The following illustration shows the tools used to create and modify shadows.



Applying Shadows

To apply shadows to text or objects:

1. Select text or an object.
2. Click the Drop and Depth Shadow button to switch between a drop or depth shadow.
3. Adjust the depth or direction of the shadow as follows:
   - Click the Shadow Depth and Direction button and drag the shadow displayed to any position.
   - Press the Shift key; then click the shadow in the Shadow Depth and Direction button and drag to restrict shadow placement to 45-degree angles around the title.
   - Press the Shift key and use the arrow keys to move the shadow to any position around the title.
   - You can also type a value in the Shadow Depth text box to change the shadow depth by increments.

The Avid system automatically orients the shadow to the selected object. You can continue to follow these procedures to adjust the shadow until you achieve the effect you want.

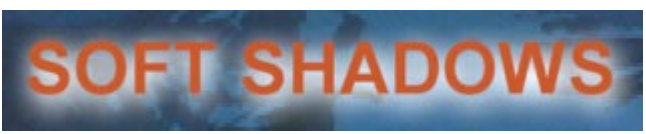
Adjusting Shadow Color and Transparency

Use the procedures described in **"Selecting Colors and Setting Transparency" on page 296** to apply color and transparency to shadows.

Adjusting Shadow Softness

You can set a value for the degree of softening or blurring that applies to the shadows you create in the Title tool. The value that you set applies immediately to any selected title. The value is also saved as the new default setting and applies to any new title objects you create in current and future Title tool sessions. To change the degree of softening that applies to objects in the Title tool, you must set a new value.

The following illustration shows a title shadow with a Shadow Softness setting of 15.

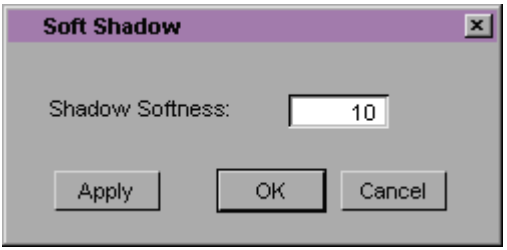


Setting Shadow Softness

To set a degree of softening or blurring for shadows:

1. Choose Soften Shadow from the Object menu.

   The Shadow Softness dialog box appears.



2. Type a number in the Shadow Softness text box to represent the degree of softening you want.

   Shadow softness values must fall between 4 and 40. The higher the value, the more blurred the shadows will be. If you set the value to zero, shadows on title objects will have no softening (hard edges).

3. Click OK to close the Shadow Softness dialog box.

Adjusting Shadow Softness on the Fly

You can adjust the shadow softness value of a title object on-the-fly either by entering different values in the Shadow Softness text box or by using the Up Arrow and Down Arrow keys.

To adjust shadow softness on the fly by using the Shadow Softness text box:

1. Select one or more objects in the Title tool.
2. Choose Soften Shadow from the Object menu.
3. Type a number in the Shadow Softness text box to represent a degree of softening.
4. Click Apply.

   The system applies the softness value to the selected title object.

5. Repeat steps 3 and 4 until you are satisfied with the effect.
6. Click OK.

To adjust shadow softness on-the-fly using the Up Arrow and Down Arrow keys:

1. Select one or more objects in the Title tool.
2. While pressing and holding the Shift and Alt keys (Windows) or the Shift and Option keys (Macintosh), press the Up Arrow and Down Arrow keys to adjust the softness value incrementally until you are satisfied with the effect.

   Each press of the Up Arrow key adds 1 to the shadow softness value. Each press of the Down Arrow key subtracts 1 from the shadow softness value.

Viewing Shadow Softness

The current degree of softness is always represented visually on the shadow display of the Shadow Depth and Direction button. The following illustration shows this representation for a shadow softness setting of 10.

To confirm the numerical value that is currently set for shadow softness, choose Soften Shadow from the Object menu and check the number in the text box.

Creating a Glow Effect

If you create a title object with Shadow Softness set to a non-zero value and Shadow Depth set to zero in the Title tool, the object will appear to have a glow or halo around it. In the following illustration, Shadow Softness is set to 10.

To create titles that do not have either softened shadows or glows, you must set the Shadow Softness to zero.

Manipulating Objects

This section describes how to manipulate objects after you have created them. See **"Using the Selection Tool" on page 266** for a description of how to select objects.

Basic Object Manipulation

You can use commands from the Edit menu to manipulate objects.

To manipulate objects:

1. Click an object — such as text, a square, a rectangle, a circle, or an oval — with the Selection tool.
2. Perform one of the following:
   - Choose Cut from the Edit menu to cut an object and move it to the Clipboard.
   - Choose Copy from the Edit menu to copy an object to the Clipboard.
   - Choose Paste from the Edit menu to paste an object from the Clipboard.
   - Choose Select All from the Edit menu to select all objects.

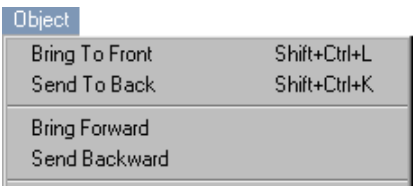
- Choose Delete from the Edit menu to delete selected objects.

You cannot delete locked objects. Unlock objects you want to delete.

- Choose Duplicate from the Edit menu to duplicate an object.

Layering Text and Objects

You can use commands on the upper portion of the Object menu to layer text and objects to create complex graphics.



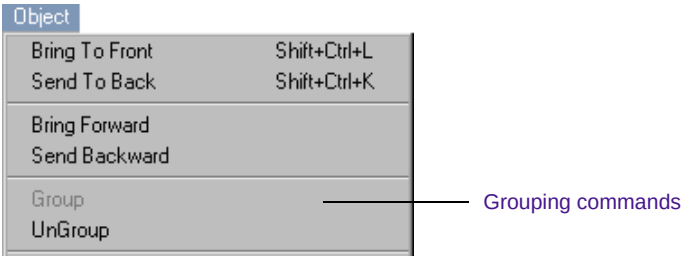
The last object created occupies the top layer, but you can move objects forward or backward within the screen area.

To adjust the layering of objects in a title:

1. Click an object with the Selection tool.
2. Choose one of the following commands from the Object menu:
   - Bring To Front, to bring an object to the top layer.
   - Send To Back, to send an object to the bottom layer.
   - Bring Forward, to move an object forward one layer.
   - Send Backward, to move an object back one layer.

Grouping and Ungrouping Objects

After creating a number of text and graphic objects, you can use commands on the Object menu to group the objects and treat them as a single object.



Combining the objects into a group means that actions, such as moving or applying color, affect all objects in the group.

To group objects:

1. Shift+click multiple objects with the Selection tool.
2. Choose Group from the Object menu.

   The Avid system creates a grouped object from the individual objects. Changes to any individual object in the group affect all objects in the group.

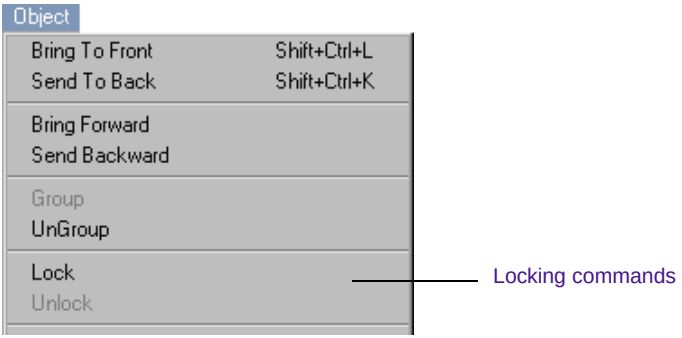
To ungroup objects:

1. Click a grouped object with the Selection tool.
2. Choose UnGroup from the Object menu.

   Everything in the group becomes an individual object that you can move or change independently.

Locking and Unlocking Objects

You can lock objects using commands on the Object menu so that changes to default settings, such as the font setting or object position, do not affect the locked objects.



You may also want to lock objects so that you do not inadvertently change them while working on other objects. You can lock an individual object or multiple objects.

To lock objects:

1. Click an object with the Selection tool.
2. Choose Lock from the Object menu.

   The Avid system locks the object. It cannot be changed until you unlock it. When selected, the object displays hollow selection handles to indicate that it is locked.

To unlock objects:

1. Click a locked object with the Selection tool.
2. Choose Unlock from the Object menu.

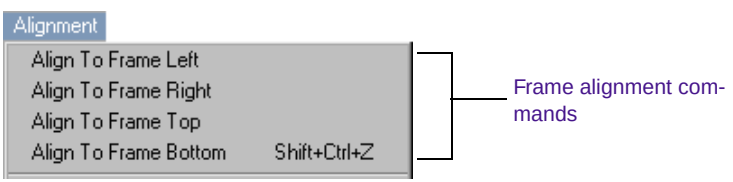
   The Avid system unlocks the object. You can now change it.

Aligning Objects

You can use the Alignment menu commands to align text and objects to each other and to the frame. Aligning to the frame refers to the safe title area. For information about the safe title area, see **"Saving Titles and Title Styles" on page 313**.

To align objects to the frame:

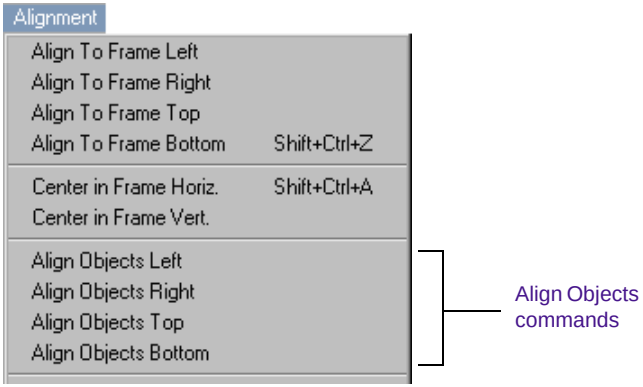
1. Click an object with the Selection tool, or Shift+click multiple objects.
2. Choose a frame alignment direction from the upper portion of the Alignment menu.



   The objects are aligned within the safe title area.

To align objects to each other:

1. Shift+click or lasso multiple objects with the Selection tool.
2. Choose an object alignment direction from the Alignment menu.



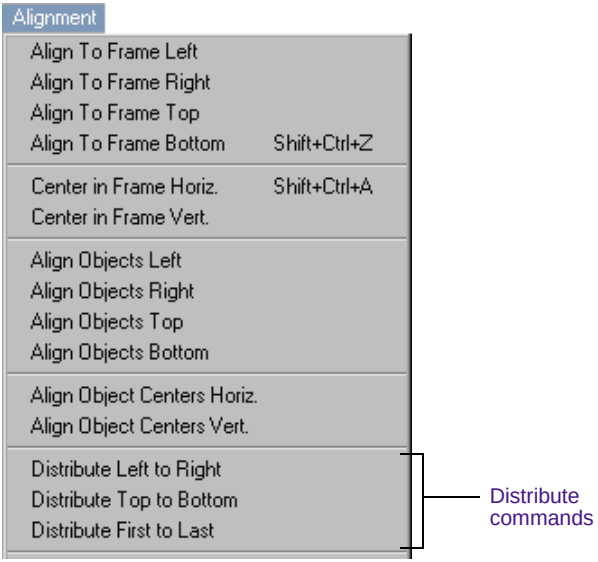
For information on aligning objects to a grid, see ***"Displaying a Grid" on page 272****.*

Distributing Objects

You can use Alignment menu commands to distribute text and graphic objects evenly across the safe title area. For information about the safe title area, see **"Saving Titles and Title Styles" on page 313**.

To distribute objects:

1. Shift+click at least three objects with the Selection tool.
2. Choose a distribute command from the Alignment menu:
   - Distribute Left to Right, to distribute the objects evenly from left to right across the safe title area.
   - Distribute Top to Bottom, to distribute the objects evenly from top to bottom across the safe title area.
   - Distribute First to Last, to distribute the objects evenly between the position of the first object selected and the position of the last object selected. This option is especially useful for aligning objects diagonally or for roughly positioning a group of objects and then lining them up without spreading them out to the edges of the safe title area.



Saving Titles and Title Styles

After creating a new title, there are three basic ways to save your work:

- Save the title and exit the Title tool.
- Save the title and continue creating additional titles.
- Save a title style that you can apply to additional titles you create.

You can also reopen in the Title tool a previously saved title and make further changes, as described in this section.

After editing a title into a sequence and adjusting effect parameters, you can also save a Title Effect template that contains only the effect information (without title media) for applying to other previously created titles. For more information, see ***"Saving an Effect Template" on page 137****.*

You should render all fast-saved titles and any unrendered rolling titles before exporting the sequence using OMF®.

Matching Resolutions

When you save a new title, you must choose a resolution for the title that is compatible with the project, based on the following:

- The rules regarding different media resolution groups apply to titles. In other words, you cannot mix titles from one resolution group with media from another. For example, you cannot mix single-field titles with two-field media in a sequence.

For full information on mixing media resolutions in a project, see the appendix "Resolutions and Storage Requirements" in the Avid *Media Composer and Film Composer* Input and Output Guide.

- Your Avid system uses the resolution information to compute the dimensions of the title.
- Even though DSK titles are uncompressed, if you decide during editing that you need to render the title or disable the DSK capabilities to create a layered effect, the title renders with the resolution you select when you first save the title.

Saving a Title and Exiting the Title Tool

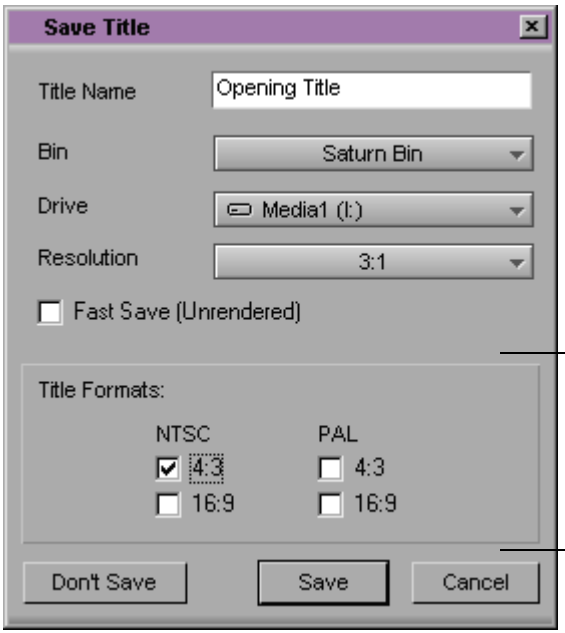
To save the title and exit the Title tool:

1. Choose Close from the File menu.

   If the contents of the title have changed since the last time it was saved, a dialog box appears, asking if you want to save the existing title.

2. Click Save.

   The Save Title dialog box appears.



3. Type a name to identify the title in the bin; then choose a bin, drive, and resolution from the pop-up menus.

If you are saving a new title, the resolution you choose becomes the default for future new title saves.

You must select a resolution that is compatible with the sequence. Titles will not play with incompatible media. For more information on resolution groups and compatibility, see the appendix "Resolutions and Storage Requirements" in the Avid *Media Composer and Film Composer* Input and Output Guide.

You can also use the Media Creation tool to set the resolution and drives for titles. See the section on "Media Creation Settings" in the Avid *Media Composer and Film Composer* Input and Output Guide.

4. Select or deselect Fast Save, depending on your needs. For more information, see **"Using the Fast Save Option" on page 318**.
5. (Option) If you are working on a system that supports 24p or 25p projects, select the title formats you want to save.

   For more information, see **"Working with Titles on Systems with 24p or 25p Support" on page 323**.
6. Click Save.

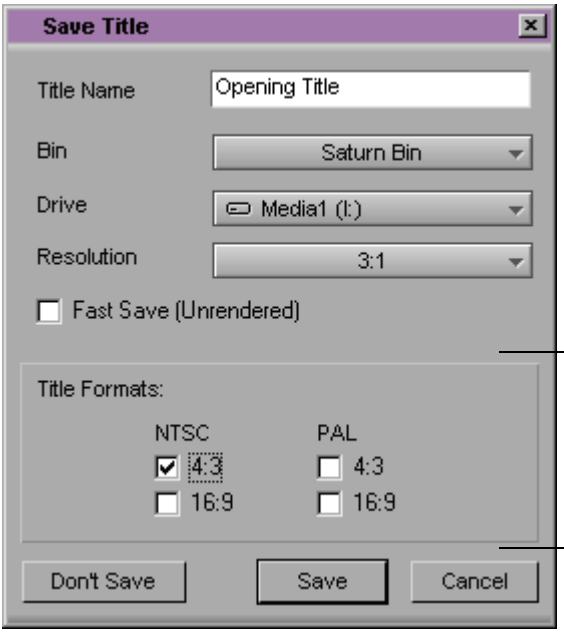
   The Title tool closes, and the Avid system loads the new title into the Source monitor. A two-minute Title Effect clip that corresponds to the new title appears in the bin.

Saving Multiple Titles in a Session

To save multiple titles:

1. Choose Save Title from the File menu.

   The Save Title dialog box appears.



2. Type a name to identify the title in the bin; then choose a bin, target drive, and resolution from the pop-up menus.

You must select a resolution that is compatible with the sequence. Titles will not play with incompatible media. For more information on resolution groups and compatibility, see the appendix "Resolutions and Storage Requirements" in the Avid *Media Composer and Film Composer* Input and Output Guide.

You can also use the Media Creation tool to set the resolution and drives for titles. See the section on "Media Creation Settings" in the Avid *Media Composer and Film Composer* Input and Output Guide.

3. Select or deselect Fast Save, depending on your needs. For more information, see **"Using the Fast Save Option" on page 318**.
4. (Option) If you are working on a system that supports 24p or 25p projects, select the title formats you want to save.

For more information, see **“Working with Titles on Systems with 24p or 25p Support” on page 323**.

5. Click OK.

   The new Title Effect clip appears in the bin.

6. Create another title.

7. Choose Save Title as from the File menu, and repeat steps 2 to 5 for each subsequent title that you create.

   The Avid system loads titles into the Source monitor as they are saved, so the most recently saved title always appears in the Source monitor.

Using a Keyboard Shortcut to Save a Title (Windows Only)

You can use a keyboard shortcut that is equivalent to choosing “Save as” from the File menu of the Title tool. You can quickly save the latest version of your title without replacing the original.

To save a title by using a keyboard shortcut:

1. Press Shift+Ctrl+S.

   The Save Title dialog box appears.

2. Name the title.

3. Select a bin and an drive where you want to save the title.

4. Click Save.

Using the Fast Save Option

You can use the Fast Save option to work more quickly when creating and saving multiple titles in a Title tool session.

Fast Save skips the steps that create anti-aliased images from title objects. Instead, just the raw title objects (text and graphics) are saved in the bin, with the prefix "unrendered."

You can edit with the titles and then batch-render them at a more convenient time. Fast Save is ideal for working with multipage rolling titles with complex styles and shading.

For information on rendering Fast-saved titles, see **"Creating Media for Unrendered Titles in a Bin" on page 359**.

Fast-saved titles appear as black in the monitors and are labeled as "media offline" during editing.

Always render fast-saved titles before exporting a sequence using OMF and before creating an EDL from the sequence. In addition, render all rolling titles before you export a sequence as OMF.

Saving a Title with Fast Save

To use the Fast Save option, select Fast Save (unrendered) in the Bin Parameters dialog box when saving the title. For complete procedures for saving titles, see **"Saving a Title and Exiting the Title Tool" on page 314** or **"Saving Multiple Titles in a Session" on page 316**.

Fast Save remains in effect until you either deselect it, load a title that was saved without Fast Save selected, or exit the Title tool.

Viewing Fast-Saved Titles in a Bin

To quickly locate the unrendered fast-saved titles:

1. Open the bin containing the unrendered fast-saved titles.
2. Choose Select Unrendered Titles from the Bin menu.

   The fast-saved titles are highlighted in the bin.

Revising a Title in a Bin

If you want to revise a title that has not been edited into a sequence, you can reopen the title in the Title tool directly from the bin.

For information on revising a title that has been edited into a sequence, see ***"Revising a Title in a Sequence" on page 352****.*

To revise a title in a bin:

1. Press the Ctrl key and double-click the Title Effect icon in the bin.

   The title opens in the Title tool.

If the Title tool is already open, you can drag a Title Effect clip from the bin directly into the Title Tool window.

2. Edit the title using techniques described in **Chapter 7**.
3. Save the title using one of the following options:

   - **Save Title:** To save the title with the same name and media parameters (bin, drive, and resolution), choose Save Title from the File menu.

     The revised Title Effect clip replaces the previous clip in the bin. The clip also appears in the Source monitor.

     The Title tool remains open. You can continue creating additional titles, or choose Close from the File menu.

   - **Save Title as:** To rename the title or change any of the media parameters (bin, drive, and resolution):

   a. Choose Save Title as from the File menu.

      The Save title dialog box appears.

   b. Rename the title or choose other options from the Bin, Drive, and Resolution pop-up menus.

      If you keep the same name for the title, the system retains the original Title Effect clip in the bin and creates a new clip with

the same name plus a two-digit extension that adds incremental numbering for each revision.

c. Select or deselect Fast Save, depending on your needs. For more information, see **"Using the Fast Save Option" on page 318**.

d. (Option) If you are working on a system that supports 24p or 25p projects, select the title formats you want to save.

For more information, see **"Working with Titles on Systems with 24p or 25p Support" on page 323**.

e. Click Save to save the title and exit the Title tool.

Creating and Using Title Templates

Title templates let you create a standard format for text and graphics that you use regularly. After you've set up your template, open the template, edit the text, and save the new title. The template prevents you from changing the position, colors, shadows, or graphics, which ensures consistency.

Creating Title Templates

To create a title template:

1. Open the Title tool by choosing New Title from the Clip menu or Title Tool from the Tools menu.
2. In the Title tool, create the text and graphic elements to include in the template.
3. Click the Templates button.

4. Choose Save Template from the pop-up menu.

   The Save Template dialog box appears.

5. Type a name for the template.

6. Click Save.

   By default, the Avid system saves the template in the Title_Templates folder, but you can save it elsewhere if you prefer.

7. Close the Title tool and click Don't Save in the dialog box.

Using Title Templates

To use a title template:

1. Open the Title tool by choosing New Title from the Clip menu or Title Tool from the Tools menu.
2. Click the Templates button.
3. Choose Include Template from the pop-up menu.

   The Open dialog box appears.

4. Select the template you want to use and click Open.

   The Title template opens.

5. Make any edits you want to the text.
6. Close the Title tool and click Save in the dialog box.

   The Save Title dialog box appears.

7. Type a name for your title and click Save.

   The named title appears in the bin you specify. Now you can edit the title into the sequence. See **Chapter 7**, "**Editing with Titles**."

Working with Titles on Systems with 24p or 25p Support

If your system includes support for 24p or 25p projects, you can work with titles in multiple formats.

When you are working in a 24p or 25p project, you create titles in one of four formats:

- NTSC 4:3
- NTSC 16:9
- PAL 4:3
- PAL 16:9

Although you initially create a title in only one format (the native format in which you are editing when you create the title), you can save it in any of the four formats.

In a project other than a 24p or 25p project, you can create a title in one format and then save it in multiple aspect ratios. For example, in an NTSC video project, you might create a title at NTSC 4:3 and then save it in both the 4:3 and 16:9 aspect ratios.

The following sections explain how these multiformat options affect the creation and handling of titles.

The Title tool uses your system's DSK capabilities to apply the correct title to each output format for your project. Other imported titles and graphics cannot be saved in multiple formats and will be resized along with the video signal when you generate output in a format different from the native project format. This might affect the finished look of the title or graphic.

Multiformat titles must be real-time DSK. If your Avid system includes support for 24p or 25p projects, you can save titles in multiple formats (NTSC 4:3, PAL 4:3, NTSC 16:9, or PAL 16:9, depending on your source media). When you create a digital cut, you can choose the appropriate

format. This feature works only for real-time DSK titles. It does not work for rendered titles. Rendered titles will play in the original rendered format.

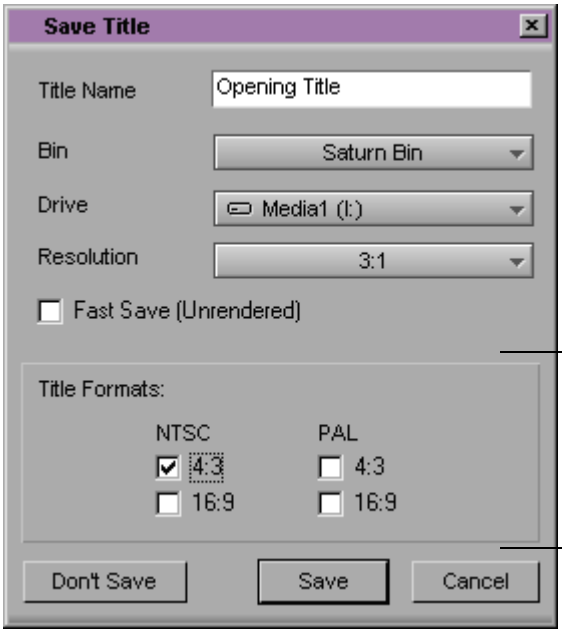
If you need to render effects that play at the same time as the title, render all effects except the title. Alternatively, create a video mixdown of all tracks except the title.

Creating Titles on Systems with 24p or 25p Support

When you create a title on a system that includes support for 24p or 25p projects, you need to consider the different video formats and aspect ratios in which your project will be output. In particular, if you create a title in the 16:9 ratio, you need to use the grid to verify that the title will appear safely within the limits of the 4:3 viewing area. For more information on using the grid, see **"Working with the Effect Grid" on page 107**.

Saving Titles on Systems with 24p or 25p Support

When you save a title in a 24p or 25p project, the Save Title dialog box displays a check box for each of the four possible formats.



You can choose to save a title in any combination of the four formats, with the following restrictions:

- The format in which you created the title is selected by default and is always saved (even if you deselect the check box).
- If you choose to save the alternate video format and the alternate aspect ratio from that in which you created the title, the corresponding aspect ratio in the original video format is also saved. For example, if you create a title as NTSC 4:3 and choose to save it as PAL 16:9, the system will save three formats in total: NTSC 4:3, PAL 16:9, and NTSC 16:9.

When you first save a title after starting the application, the system selects only the native format in the Save Title dialog box. Once you choose a combination of formats to save a title, that combination becomes the default when you reopen the Save Title dialog box while the application is running.

For more information on 24p or 25p titles, see ***"Working with Existing Multiformat Titles" on page 355*** *and* ***"Re-creating Title Media on Systems with 24p or 25p Support" on page 361****.*

When you save a title in a project other than a 24p or 25p project, the Save Title dialog box displays a check box for each aspect ratio (4:3 and 16:9) of the video format you are working in (NTSC or PAL). The check boxes for the other video format are dimmed and unavailable.

The aspect ratio in which you created the title is selected by default and is always saved. If you need a version of the title in the other aspect ratio, select the appropriate check box.

Saving and Recalling Title Styles

As you begin to work with a title, you may set up some basic title parameters you will use again for other titles. You can save the following style parameters in the form of a title style:

- Font, style, size, justification, kerning, and leading
- Fill color and transparency
- Shadow color, transparency, depth, direction, softness, and type
- Border color, transparency, and width

You can also assign a title style to one of the function keys on your keyboard. You can then recall that style simply by pressing the appropriate function key.

Table 6-3 shows the Title Style sheet options.

The following illustration shows the location of the two menus that allow you to choose and define title styles.

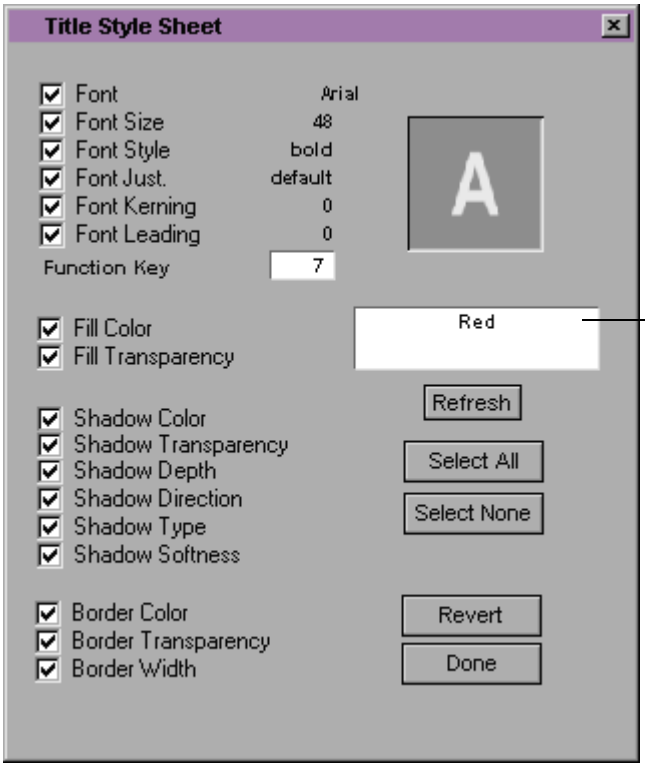
Saving a Title Style

To save title parameters to a Style sheet:

1. Click the Selection tool so that the cursor becomes an arrow.
2. Select the object that you want to use as a basis for the title style.
3. Click the arrow next to the Styles button.

   A menu appears that allows you to choose either an existing title style name or Save As.
4. Choose Save As.

   The Title Style Sheet dialog box appears. The following illustration shows an example.



5. Check the parameters that you want to include in the style. The Avid system uses the values from the currently selected object or from the current defaults if no object is selected.
6. (Option) Type a function key number in the Function Key text box to assign the style to a function key.

   For example, typing 5 assigns the style to the F5 function key.
7. Type a name in the Style Sheet text box, and click Done when you are ready to exit the dialog box and save the values.

Title Style Sheet Options

The Title Style Sheet dialog box allows you to create templates for the Title tool. Style sheets allow you to define and select basic text and drawing parameters that you can use with the Title tool.

Table 6-3 Title Style Sheet Options

Option	Description
Check boxes	Choose the current attributes of the object that you want to include in the style. You can modify the attributes that are associated with a saved title. Use the check boxes to specify the attributes to save.
Function key	(Option) Designate a function key that you can use to apply the title style.
Style name	This name appears in the Style list in the Title tool and in the Settings scroll list.
Refresh	Appears after you change an item on the dialog box. Click to display the change in the sample window.
Select All **Select None**	Allows you to select all or none of the check boxes.
Revert	Returns the settings to those used when the style was last saved.
Done	Closes the dialog box and saves your changes.
Close button	The Close button in the upper right corner (Windows) or upper left corner (Macintosh) of the dialog box acts as a Cancel button. A dialog box appears asking whether you want to cancel or save your changes. If you created a new style from within the Title tool, choosing Cancel means that the system will not create the new style.

Recalling a Title Style

After you have saved your title style, you can recall the style and use the attributes as the defaults in subsequent Title tool sessions. You can recall a title style by using the Title Styles tear-off menu or, if you have assigned the style to a function key, by pressing the appropriate key.

To recall title style attributes by using the Title Styles tear-off menu:

1. Click the Styles button to display the Title Styles tear-off menu.

Arrows on the right and left allow you to scroll back and forth.

The menu contains a scaled visual representation of each style.

2. Drag the cursor to the chosen style and release the mouse button.
3. The style attributes appear in the Title Tool toolbar.

To recall a title style attribute by using a function key:

- Press the appropriate function key.

The style attributes appear in the Title Tool toolbar.

Confirming Function Key Mapping of Title Styles

To verify which function key is assigned to a particular title style, do one of the following:

- Open the Title Style Sheet dialog box for the style from the Settings scroll list in the Project window, then check the function key number in the Function Key text box.
- In the Title tool, click the Styles button to display the Title Styles tear-off menu, then position the mouse pointer over the style.

  The ToolTip that appears indicates the function key assignment along with the name of the style.

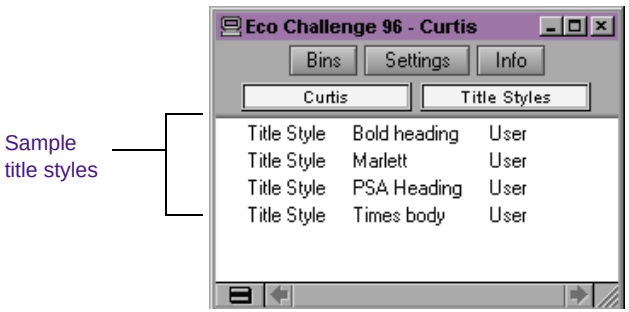
Applying Title Styles to Text Objects

To apply a title style directly to text objects:

1. Select one or more text objects.
2. Do one of the following:
   - Click the Styles button to display the Title Styles tear-off menu, and then choose a title style.
   - If the style is assigned to a function key, press the appropriate function key.

Managing Title Styles

The Avid system lists the available title styles in the Project window. Click the Settings button in the Project window as shown in the following illustration.



To delete a style:

- Select the style in the Project window and press the Delete key or choose Delete from the Edit menu.

To copy a style:

- Select the style in the Project window and choose Duplicate from the Edit menu.

To rename a style, do one of the following:

- Change the name in the Project window.
- Perform a Save As operation as described in **"Working with Titles on Systems with 24p or 25p Support" on page 323** and change the name in the Style Sheet text box.

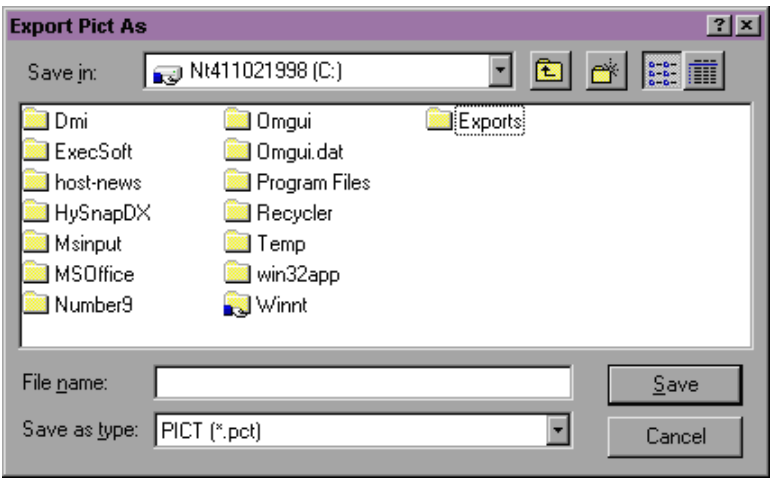
Exporting a Title as a Graphics File

To export a title as a PICT graphics file:

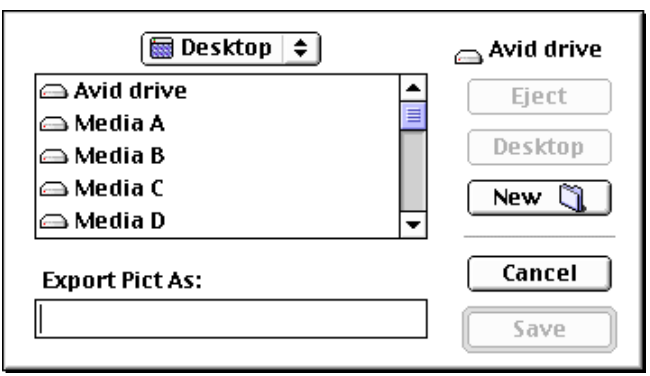
1. Choose Export Title from the File menu.

   The Export Pict As dialog box appears.

Windows



Macintosh



2. Select the location where you want to export the file, type a file name, and click Save.

   Your Avid editing system saves the title.

CHAPTER 7

Editing with Titles

Editing with titles involves placing Title Effect clips in a sequence and then adjusting parameters or revising the title in the Title tool. The following sections provide guidelines for editing with title media.

About Editing with Titles

The following is an overview of the tasks you perform to edit a title into a sequence:

- **Editing a Title into a Sequence.** You can load a title into the Source monitor or drag the Title Effect icon from the bin to a segment in the Timeline. Title effects play in real time, using the Avid system's downstream key (DSK) capabilities.
- **Adjusting Title Effect Parameters.** With a title edited into a sequence, you can use the Effect Editor to alter the appearance or position of the title. You can also open the title again in the Title tool at any time to revise the title elements.
- **Revising a Title in a Sequence.** After editing the title and adjusting parameters, you can revise elements of the title in the Title tool or replace fill tracks to create various effects.

These basic procedures are described throughout this chapter. For information on creating titles, see **Chapter 6**.

Before You Begin

The following sections provide guidelines for working effectively with DSK titles, non-DSK titles, and Title effect media.

Downstream Keying of Titles and Graphics

By default, the Avid system creates all titles using its DSK capabilities. Graphic elements imported with an alpha channel are also created as DSK clips.

Downstream keying allows you to add uncompressed titles or graphics over multiple streams of compressed or uncompressed media and continue to play the sequence in real time. The benefits of downstream keying include:

- **High-quality images:** Because the DSK title or graphic is uncompressed, the image retains its full quality.
- **Real-time adjustment of keyframes and title parameters:** When you adjust keyframes or effect parameters for the DSK Title effect, the title continues to play back in real time.
- **Layering of titles over real-time or rendered effects:** You can apply a DSK title over a rendered effect or a real-time effect such as a transition, and all effects continue to play back in real time.
- **Smooth motion:** Downstream keying uses subpixel placement for smooth motion in rolling titles. Subpixels are units smaller than pixels.

Restrictions of Downstream Key Titles

The following are a few restrictions to keep in mind with DSK titles:

- Rolling titles are always DSK titles unless you render them. You can convert a still DSK title to a non-DSK title. See **"Converting Downstream Key Titles" on page 338**.
- You can play in real time only one static DSK title or one rolling DSK title at a time.
- You can play in real time only one rolling DSK title and one static DSK title at a time in a nested effect. The DSK titles must be on the top layers of the nested tracks.
- Titles promoted to 3D are no longer DSK. Keep a copy of the original title if you want to continue using the DSK version. For more information, see **"Promoting a 2D Title to 3D" on page 362**.
- DSK titles become non-DSK titles when you replace the fill track. For more information, see **"Replacing Fill Tracks" on page 355**.

- Rolling titles might jitter slightly at certain speeds. You can adjust the duration by a few frames to fix the problem.
- Rolling titles cannot play back at a rate greater than one page per second. This situation occurs when you edit a lengthy title roll into a short segment in the sequence.

If you experience a playback problem with a DSK title, do one or more of the following:

- Render the DSK or underlying effects. See **"Rendering Titles" on page 356**.
- Slow the roll by extending the duration of the clip. See **"Trimming the Duration of Rolling Titles" on page 348**.
- Separate DSK clips in the sequence.
- Store title and video media on separate drives, or use faster drives.

Converting Downstream Key Titles

All newly created titles and graphics imported with alpha channel are DSK clips by default. You can convert static DSK titles and graphics to non-DSK titles and Matte Key effects.

Titles converted to non-DSK are still real-time effects and will play back successfully in real time under most circumstances. For more information, see **"Restrictions of Non-Downstream Key Titles" on page 340**.

You might want to convert a DSK title to a non-DSK title in situations like the following:

- If you want to replace the fill track (the color fill) with a graphic or video.
- If you want to play two titles simultaneously. The top title can remain DSK, but the bottom title or titles must be non-DSK.

- If you want to resize a 2D Title effect. Scale, Position, and Crop parameters are available only for non-DSK titles.
- If you want to play a title that causes a "DSK_image_too_large" error message. For more information, see **"Troubleshooting Titles" on page 362**.

You cannot convert rolling titles to non-DSK. You can render them, as described in "Rendering Titles" on page 356.

To convert a DSK title to a non-DSK title:

1. Move the position indicator to the DSK title or graphic in the Timeline.
2. Click the Effect Mode button to open the Effect Editor.
3. Deselect the Downstream Key button.

   The Downstream Key button changes from pink to gray, and the effect is now a non-DSK effect.

4. To re-enable the DSK capabilities, open the Effect Editor and click the Downstream Key button again.

If you replace the fill track of a non-DSK title, you cannot restore the DSK capabilities.

In regard to the above caution, you *can* use the Undo command to remove the fill track (choose Undo from the Edit menu). However, once you save the title or reach the undo limit, you must edit in a copy of the title and start over again to restore the DSK capabilities.

Restrictions of Non-Downstream Key Titles

DSK titles and non-DSK titles have different real-time playback capabilities during editing and adjustment of keyframe parameters. For more information, see ***"Playback Capabilities of Title Effects" on page 341***.

Depending on the complexity of the title and the video it is keyed over, not all non-DSK titles can be played in real time.

If your system has the Uncompressed option, a non-DSK title keyed over uncompressed video will not play back in real time if the fill track has been replaced with a graphic or video.

When you attempt to play too complex a title, the following conditions might occur:

- Background video might jitter.
- Title might flash.
- Title might display a gray slide.
- Video might shift left or right.
- Video might display a gray slide.
- Video underrun error might occur.
- Audio underrun error might occur.
- Rolling title underrun error might occur.

If you encounter any of these conditions, try one or more of the following:

- Render the title or underlying effects.
- Simplify the title by removing text or drop shadows or by selecting different colors.

It is possible that a title with background video might be so complex that you can neither play it in real time nor render it.

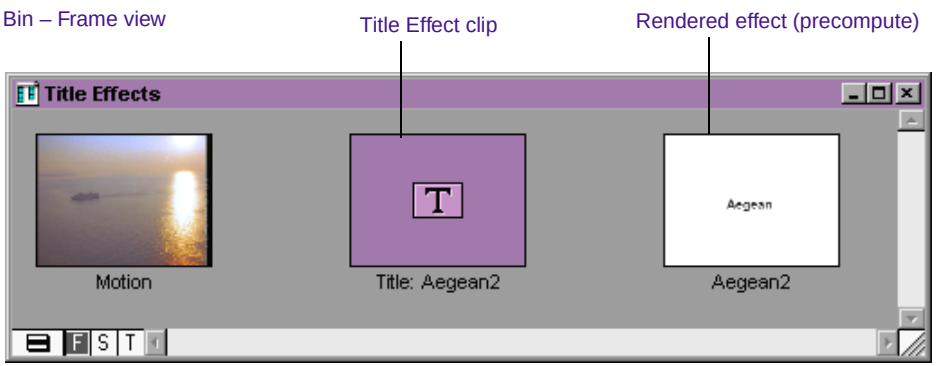
Playback Capabilities of Title Effects

Playback Capabilities for Titles with One Video Stream

The following are the playback capabilities for Title effects when you are working with uncompressed media on a system with the single-stream uncompressed option.

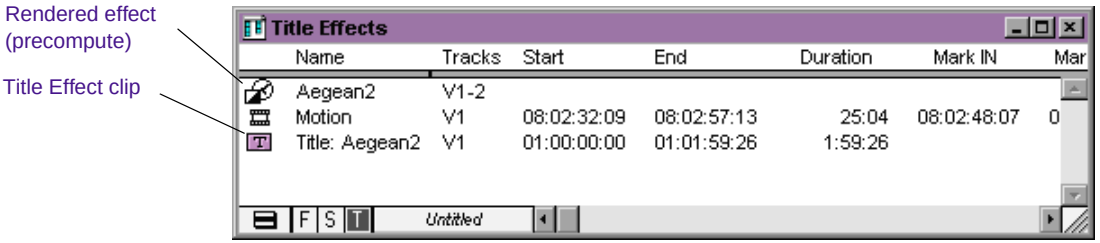
About Title Effect Clips

When the Avid editing system saves a title, it creates a Title Effect clip and saves it in the selected bin. One media object, referred to as a *precompute*, has references to the RGB and alpha channel information. Every time you make a change, your Avid system creates two additional media files. The original media files are left unchanged.



By default, the bin display does not show rendered effects. You can view rendered effects in the bin by choosing Set Bin Display from the Bin menu and selecting Rendered Effects and Show reference clips in the dialog box.

Bin – Text view



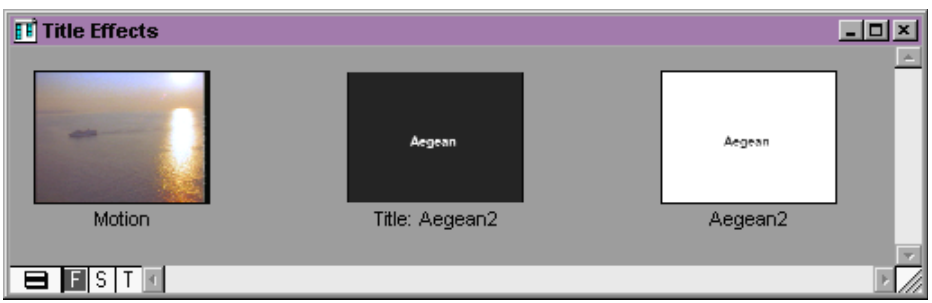
For more information, see **"Managing Effect Media Files" on page 165**.

Displaying Title Frames in the Bin

With your bin in Frame view, you can display a frame from the title itself rather than the Title Effect icon for the clip. This is especially useful if you have many titles in the bin and want a quick visual reference.

To display a frame from the title:

1. Select one or more Title Effect clips.
2. Press the Home key on the keyboard.



Editing a Title into a Sequence

After preparing the sequence with a second track for the title, there are three basic methods for editing the title into place:

- **Edit the title into the sequence by using standard editing methods:** Mark edit points in the sequence and in the title clip, and then splice or overwrite the title into place. See **"Splicing or Overwriting a Title into a Sequence" on page 344**.
- **Drag a marked title clip directly into the sequence from a bin:** Mark IN and OUT points in the title clip, and then drag the title directly into the sequence. See **"Dragging a Marked Title into a Sequence" on page 346**.
- **Drag an unmarked title clip directly into the sequence from a bin:** Drag the title clip directly from the bin to the location of the position indicator. See **"Dragging an Unmarked Title into a Sequence" on page 347**.

About Setting Marks in Rolling Titles

By default, a rolling title clip begins with the visible title just off screen. The clip ends just after the last element disappears off screen.

You can set IN and OUT points in the Source monitor to change the start and finish points; that is, you might want the title to begin with the screen full of text rather than start off screen.

You can play and mark a title clip in the Source monitor by using standard procedures. For more information, see the *Avid Editing Guide*.

If you want to use the complete roll in the sequence, do not set marks. For information about adjusting the duration of the roll, see **"Trimming the Duration of Rolling Titles" on page 348**.

Splicing or Overwriting a Title into a Sequence

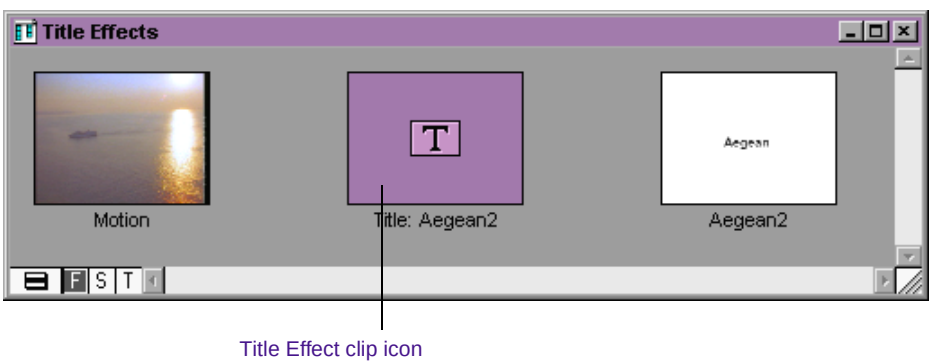
To splice or overwrite a title into a sequence:

1. Load the sequence into the Record monitor.
2. (Option) Choose New Video Track from the Clip menu.

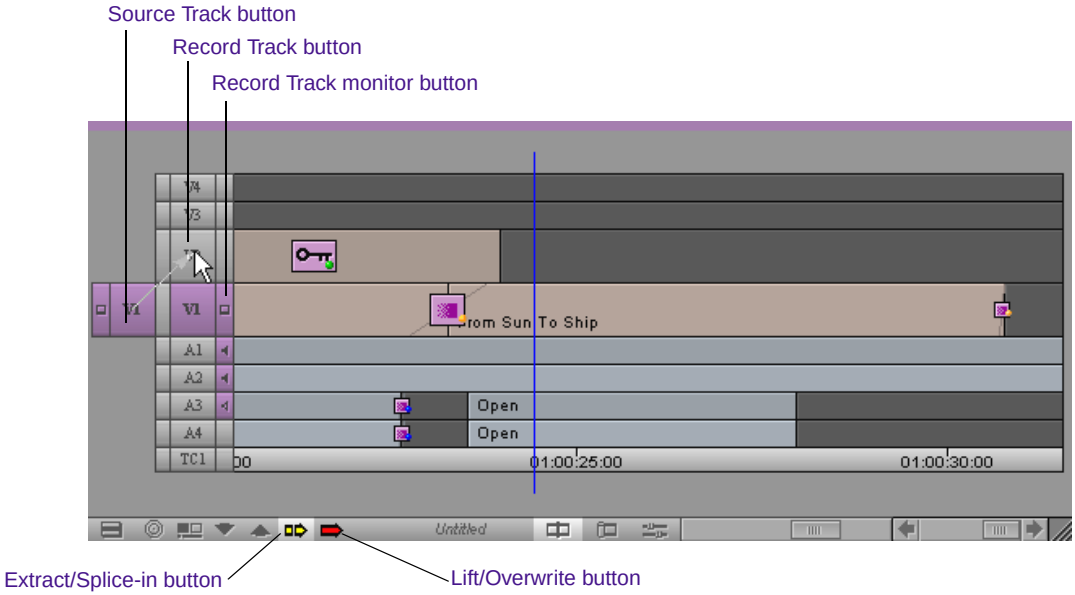
   The system adds the next video track for the sequence to the Timeline. For example, if the sequence includes only V1, the system adds V2.

Titles must be placed a track above the video that forms the background. If an upper track already exists with an open region for the title, you can skip step 2.

3. Double-click the Title Effect clip icon in the bin to load the title in the Source monitor.



4. Patch the title source to the video track in the sequence by clicking the Source Track button for track V1 in the Track Selector panel and dragging it to the Record Track button for track V2.



You can use any three-point editing method to edit a title into a sequence. The steps below are just one editing method. For other methods, see the Avid Editing Guide.

5. In the Source monitor, mark an IN point.

   You should mark the IN point toward the middle of a still title clip so you can trim the title, if necessary.

   For rolling titles, set no marks and move the position indicator to the beginning of the clip if you want to use the full roll.

6. In the Record monitor, mark IN and OUT points.

7. Make sure all other Record Track buttons are deselected in the Track Selector panel.

8. Click either the Extract/Splice-in or the Lift/Overwrite button to edit the title into the sequence.

   The Title Effect segment appears in the top video track.

Dragging a Marked Title into a Sequence

To mark a portion of a title clip and then drag the marked clip directly into the Timeline:

1. Load the sequence into the Record monitor.
2. (Option) Choose New Video Track from the Clip menu.

   The system adds the next video track for the sequence to the Timeline. For example, if the sequence includes only V1, the system adds V2.

Titles must be placed a track above the video that forms the background. If an upper track already exists with an open region for the title, you can skip step 2.

3. Double-click the Title Effect clip icon in the bin to load the title into the Source monitor.
4. In the Source monitor, mark an IN point and an OUT point to establish the duration that you want for the title.

   You should mark the IN point toward the middle of a still title clip so you can trim the title, if necessary.

   For rolling titles, set no marks and move the position indicator to the beginning of the clip if you want to use the full roll. The system uses the position indicator to determine the IN point on rolling titles.
5. Clear the Source monitor by choosing Clear Monitor from the Clip Name menu.
6. Click either the Extract/Splice-in or the Lift/Overwrite button, depending upon how you want to insert the Title effect.
7. Click the Title Effect icon in the bin, and drag it to the Timeline.

   As you drag the Title effect in the Timeline, a white outline of the title clip indicates location in the sequence.

8. When you find the right position for the title on the correct track, release the mouse button.

   The Title effect appears in place in the sequence.

Dragging an Unmarked Title into a Sequence

If you are not concerned about the OUT point for your title, or if you plan on trimming the Title effect later, you can quickly drag the unmarked Title effect directly into the Timeline.

To apply a Title effect to a sequence without adding marks:

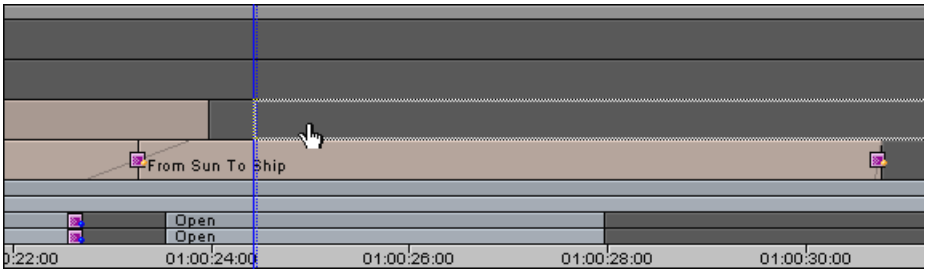
1. Load the sequence into the Record monitor.
2. (Option) Choose New Video Track from the Clip menu.

   The system adds the next video track for the sequence to the Timeline. For example, if the sequence includes only V1, the system adds V2.

Titles must be placed a track above the video that forms the background. If an upper track already exists with an open region for the title, you can skip step 2.

3. Move the position indicator to the location where you want the Title effect to begin.
4. Click either the Extract/Splice-in button or the Lift/Overwrite button, depending upon how you want to insert the Title effect.
5. Click the Title Effect clip in the bin, and drag it to the Timeline.

   As you drag the Title effect in the Timeline, a white outline of the title clip indicates location in the sequence.



6. When you find the right position for the title on the correct track, release the mouse button.

   The Title effect appears in place in the sequence.

Trimming the Duration of Rolling Titles

When you edit the title clip into a marked segment of a sequence, the clip plays back from beginning to end regardless of the duration of the segment. In other words, the entire roll shrinks to fit within the duration of the marked segment in the sequence.

Once the clip is edited into the sequence, you can trim the duration of the segment at any time, and the rolling title adjusts to fit.

Unlike trimming other segments, trimming a rolling title does not remove any part of the title contents. As a result, the duration of the title determines how fast it plays. For example, the shorter you trim the title, the faster it rolls.

Rolling titles might jitter slightly at certain speeds. You can trim the duration slightly to fix the problem.

To trim the duration of a rolling title:

1. Enable the track containing the title and disable all other tracks by using the Track Selector panel.
2. Click the Trim Mode button to enter Trim mode.
3. Select either the head or the tail of the title segment for trimming.
4. Trim the title segment to the duration you want by using standard trim procedures.

   The entire roll plays back within the new duration.

If you trim your rolling title very short, it scrolls very fast and cannot display in real time; it must be rendered. The maximum speed it can scroll is one screen per second.

Removing a Title

To remove a title segment:

1. Move the position indicator to the segment containing the Title effect.
2. Select the track containing the Title effect and deselect all other tracks.
3. Click the Mark Clip button.

   IN and OUT points appear surrounding the Title effect.
4. Click the Extract/Splice-In or Lift/Overwrite button to remove the segment.

The Title effect remains in the bin. To remove the Title effect from the bin, select the effect in the bin and press the Delete key.

Replacing a Title

To replace a title in a sequence:

1. Click the Lift/Overwrite button.
2. Click the title segment currently in the sequence to select it.
3. Click the Mark Clip button to mark an IN point at the beginning of the title segment and an OUT point at the end of the segment.
4. Drag the new Title Effect clip from the bin to the marked segment.

   The new title replaces the old title.

Fading a Title

You can use the Fade Effect button to fade a title. A dialog box appears that allows you to enter the number of frames to fade up and fade down without opening the Effect Editor.

Rather than adding Dissolve effects that require rendering, you can use the Fade Effect button to quickly create keyframes in the title with the proper level settings for playback in real time. You can access the keyframes in the Effect Editor. For more information, see **"Using the Fade Effect Button" on page 71**.

Adjusting Title Effect Parameters

After editing a title into a sequence, you can open the Effect Editor and refine the title with keyframe control over effect parameters.

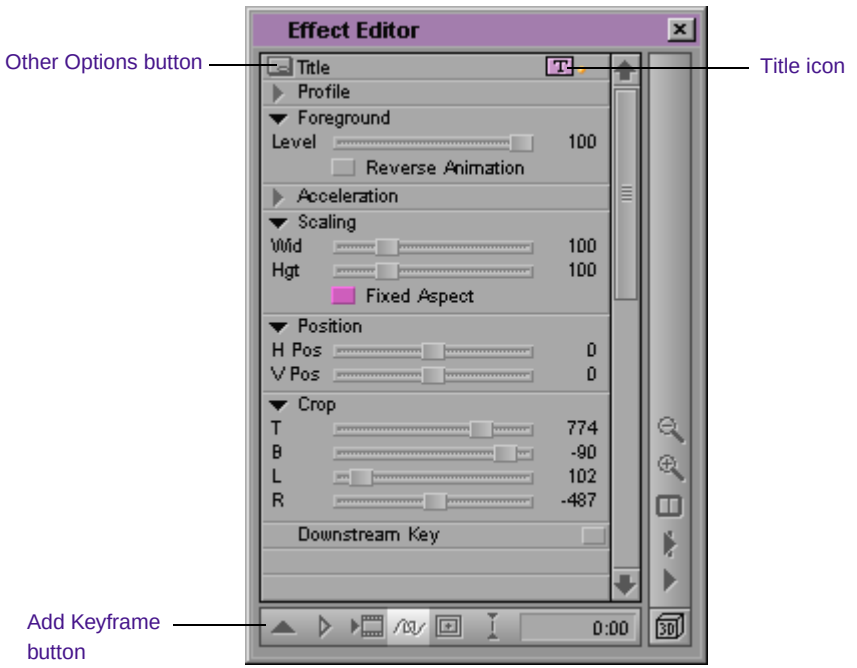
To access the effect parameters for a Title effect:

1. Click the Effect Mode button.

   The Effect Editor opens.

2. Click the Title Effect segment in the sequence to select it.

   The Effect Editor displays the parameter controls.



To work with the Title effect parameters:

- Adjust Title effect parameters by using basic techniques described in **"Using the Effect Editor" on page 117**.

*For information on specific Title effect parameters, see **"2D Effects Parameters" on page 456**.*

- Use multiple keyframes to gradually change keyframeable parameters over time. For more information, see **"Using Keyframes" on page 129**.
- Save effect templates of Title effect parameter adjustments to a bin for use in other sequences or projects as described in **"Using an Effect Template" on page 136**.

*For DSK Title effects, you must convert the title to non-DSK in order to adjust the Scaling, Position, and Crop parameters. For more information on converting a DSK title, see **"Converting Downstream Key Titles" on page 338**.*

Revising a Title in a Sequence

If you want to revise a title after you have edited it into a sequence, you must reopen the title in the Title tool directly from the sequence rather than revising the Title Effect clip in the bin.

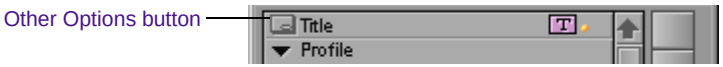
To change a title in a sequence:

1. Click the Title Effect segment in the sequence to select it.

2. Click the Effect Mode button.

   The Effect Editor opens.

3. Click the Other Options button in the Effect Editor.



The Title tool opens.

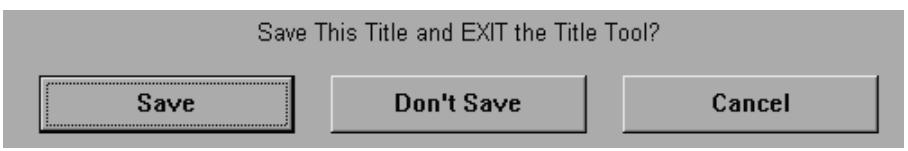
4. Revise the title by using techniques described in **Chapter 6**.
5. Save the title by using one of the following procedures.

Use this procedure to save the title with the same name (numbered incrementally) and media parameters (bin, target drive, resolution, and formats).

To save the title with the same name and media parameters:

1. Choose Save Title from the File menu.

   A message box appears.



2. Click Save.

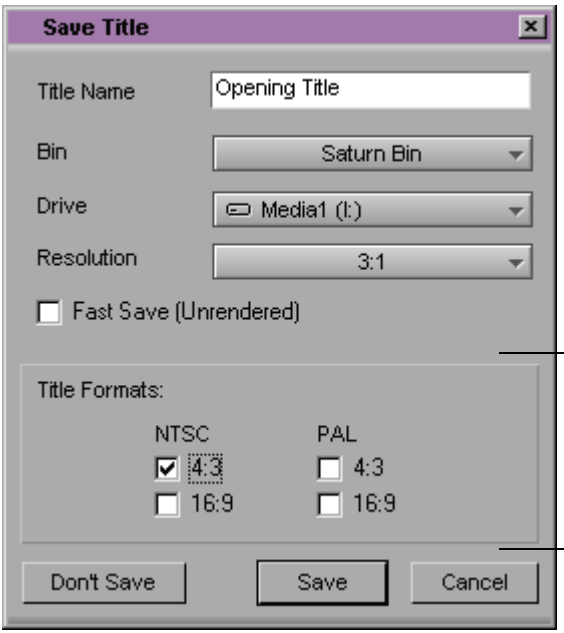
   The Title tool closes, and the revised Title Effect clip replaces the previous clip in the sequence, the bin, and the Source monitor.

Use this procedure to rename the title or change any of the media parameters (bin, target drive, resolution, and formats).

To save the title with a new name or parameters:

1. Choose Save Title as from the File menu.

   The Save Title dialog box appears.



2. Rename the title or choose other options from the Bin, Target Drive, and Resolution pop-up menus and the Title Formats area.

You cannot select Fast Save when revising a title in a sequence.

3. (Option) If you are working on a system that supports 24p or 25p projects, select the title formats you want to save.

   For more information, see **"Working with Existing Multiformat Titles" on page 355**.

4. Click OK to save the title and exit the Title tool.

   The Title tool closes, and the revised Title Effect clip replaces the previous clip in the sequence. The new clip also appears in the

Source monitor, and in the bin with its new name. The previous Title Effect clip is preserved in the bin.

Working with Existing Multiformat Titles

If your system includes support for 24p or 25p projects, the following restrictions apply when you move multiformat titles between projects or edit them into a sequence.

- You cannot move a title created in one video format into a project in the other video format. For example, you cannot create a title in an NTSC project and then edit it into a PAL project.
- If you need to revise a title that has been edited into a sequence, you must be working in the same aspect ratio in which the project was originally created. You cannot, for example, revise a title at 16:9 if it was created at 4:3. If you are working in a different aspect ratio than that used to create the title, a message box alerts you to the problem and asks you to change the aspect ratio.

When a title edited into a sequence is revised, the system selects all the formats that already exist in the title as the defaults. If you need to change the formats, choose Save Title as from the File menu. You can then create a new title with the formats you need, and the title will replace the previous version in the Timeline.

Replacing Fill Tracks

You can replace the fill track of Title effects with video or graphics. The moving video or graphic effect then appears inside the title itself, keyed over the background.

All newly created titles and graphics imported with alpha channel are DSK clips by default. When you replace the fill track with a graphic or video, the title is converted automatically to a non-DSK title.

After replacing the fill track, you cannot restore the DSK capabilities of a title. Also, you cannot replace the fill track on a rolling title.

To replace the fill track:

1. Click the Step In button in the Timeline to step into the effect.
2. Load the video you would like to use as replacement filler into the Source monitor.
3. Drag the Source Track button in the Track Selector panel to the Record Track button for the fill track to patch the new source video to the title fill track.
4. Using standard editing methods, edit the video from the Source monitor onto the fill track.

   A message box appears, warning you that the DSK capabilities of the title will be disabled.
5. Click OK to replace the fill track and convert the title to a non-DSK title; or, click Cancel to cancel the operation and retain the DSK capabilities of the title.

Rendering Titles

The following are a few situations in which you might want to render titles:

- If you want to layer DSK rolling titles in a sequence
- If you want to layer multiple effects, particularly more than one layer of DSK titles

- If you want to place other effects over a DSK title
- If you encounter a message box with a message about audio or video underrun when playing a complex layered effect

For more information on rendering Title effects, see **"Rendering Effects" on page 140**.

Re-creating Title Media

You can use the Re-create Title Media command to:

- Regenerate title media that is offline
- Generate title media for unrendered (Fast Saved) titles in a bin
- Change the resolution of a title
- Generate multiple formats for titles, if your system includes support for 24p or 25p projects

If you have batch digitized a sequence at a resolution different from the resolution at which the sequence was originally created, for example, you can use this command to re-create the titles at the new resolution. This procedure is required when conforming an offline sequence with titles for online editing and output at uncompressed resolution.

You can re-create title media that is edited into a sequence in the Timeline, or you can create media for unrendered (Fast Saved) titles in a bin. For more information on Fast Save for titles, see **"Using the Fast Save Option" on page 318**.

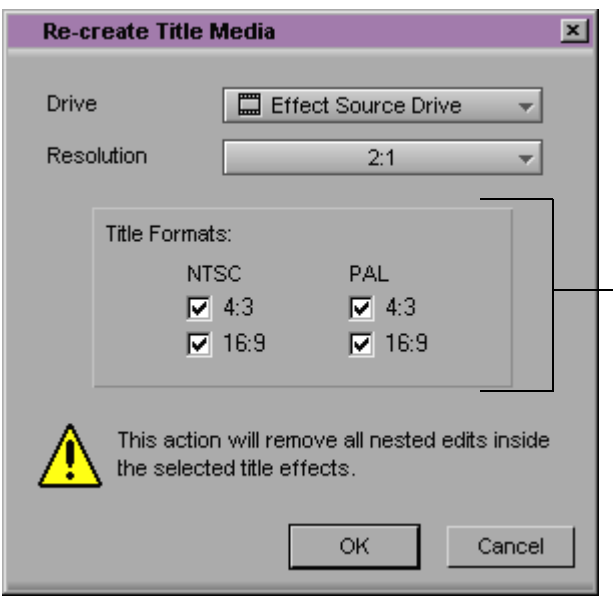
The Re-create Title Media command removes any nested edits made inside a title, replacing the edits with the new title's graphic and alpha tracks.

Re-creating Title Media from the Timeline

To re-create title media from the Timeline:

1. Load the sequence containing the titles into the Record monitor.
2. Mark IN and OUT points in the sequence surrounding all the titles that you want to re-create.
3. In the Track Selector panel, select the Record Track button for each track that contains titles you want to re-create.
4. Choose Re-create Title Media from the Clip menu.

   The Re-create Title Media dialog box appears.



Multiformat check boxes (appear only on systems that support 24p or 25p projects)

5. Choose a drive on which to store the re-created titles.

6. Choose a resolution for the re-created titles.

The default drive and resolution are defined in the Titles tab of the Media Creation Settings dialog box. For more information, see the chapter "Preparing to Digitize" in the input and ouput guide for your system.

7. (Option) If you are working on a system that supports 24p or 25p projects, select the title formats you want to create.

   For more information, see **"Re-creating Title Media on Systems with 24p or 25p Support" on page 361**.

8. Click OK.

   The Avid system recreates the title media file.

Creating Media for Unrendered Titles in a Bin

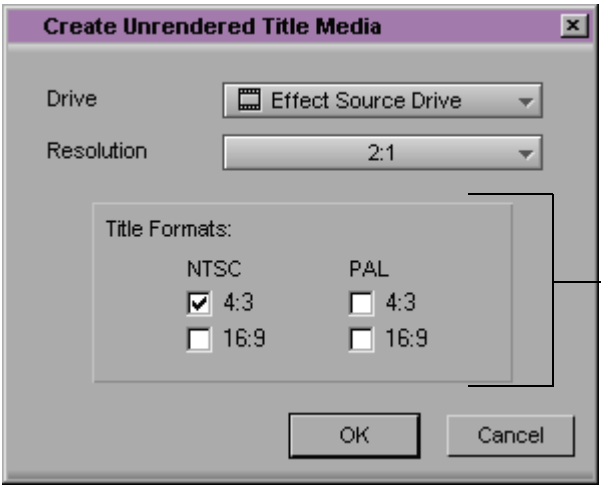
To create media for unrendered titles in a bin:

1. In the bin, select the titles for which you want to generate media.

   To quickly select all the unrendered titles in the active bin, choose Select Unrendered Titles from the Bin menu.

2. Choose Create Unrendered Title Media from the Clip menu.

   The Create Unrendered Title Media dialog box appears.



3. Choose a drive on which to store the title media.
4. Choose a resolution for the title media that is compatible with the sequence, such as a two-field resolution for a sequence containing two-field media.

The default resolution is the resolution specified at the time the titles were originally saved with the Fast Save option.

5. (Option) If you are working on a system that supports 24p or 25p projects, select the title formats you want to create.

   For more information, see **"Re-creating Title Media on Systems with 24p or 25p Support" on page 361**.

6. Click OK.

   The title media file is generated, and the title clip appears in the bin without the (unrendered) label in the name field.

Re-creating Title Media on Systems with 24p or 25p Support

You can use the Re-create Title Media command to re-create title media with different formats just as you can use it to re-create title media at different resolutions. An efficient workflow for multiformat titles involves creating titles and saving them initially in the native format, and then generating any other necessary formats by using Re-create Title Media when editing is complete. The Re-create Title Media operation for multiformat titles is subject to the same kinds of restrictions as other editing and saving procedures:

- When you mark titles in a sequence and choose Re-create Title Media, the Re-create Title Media dialog box displays the same multiformat check boxes as the Save Title dialog box. You can create all the formats you need (with the same restrictions described in **"Saving Titles on Systems with 24p or 25p Support" on page 324**).
- You can re-create titles only when the aspect ratio in which you are working is the same as that used when the title was created.
- When you use Re-create Title Media to create new formats for a 24p or 25p title, all formats are re-created. The system cannot add a format to an existing multiformat title file. Even if three of the four formats have been saved previously, the system will re-create all four formats when you add the fourth.

When you first use the Re-create Title Media command to generate media for unrendered titles in a bin, the system selects the native format as the default. Once you choose a combination of formats in the Create Unrendered Title Media dialog box, that combination becomes the default when you reopen the Create Unrendered Title Media dialog box while the application is running.

When you first use the Re-create Title Media command to regenerate titles in the Timeline, the system selects all four formats as the default. Once you choose a combination of formats in the Re-create Title Media dialog box, that combination becomes the default when you reopen the Re-create Title Media dialog box while the application is running.

Promoting a 2D Title to 3D

If your system is equipped with 3D effect capabilities, you can promote a Title effect to 3D to create additional effects with the title. Title effects promoted to 3D are no longer DSK but remain real-time effects.

For more information, see **"Promoting 2D Effects to 3D Effects" on page 225**.

Troubleshooting Titles

This section describes several errors that might occur when working with Title effects and includes recommendations for resolving the problems.

Downstream Key Error Messages

When you edit with DSK titles or graphics, you might experience an underrun error message because the graphic key could not be loaded in time.

Possible causes include the following:

- Insufficient drive speed
- Title rolling too fast
- Several DSK graphics too close together

Possible solutions include the following:

- Render the DSK clip and underlying video.
- Slow down the rolling title.

- Store the DSK clip media on a drive other than the drive containing the underlying media.
- Add filler between sequential DSK clips.
- Use faster drives.

Wrong Title Format

If you see an image in a monitor that says Wrong Format, it means that the resolution of the Title effect is not compatible with the resolution of video clips used in the sequence. You will have to determine the resolution of the video clip. Then, you must regenerate the title at the same resolution as the video clip.

To determine the resolution of the current video clip:

1. Open the bin containing the sequence.
2. Choose Set Bin Display from the Bin menu.
3. Select the option "Show reference clips."

   The master clips used in the sequence appear in the bin.
4. Check the resolution for any of the master clips in the Video column when viewing the bin in Text view.

To correct a title's resolution to match the resolution used in the video clips in the sequence, use the procedure described in **"Re-creating Title Media" on page 357**.

CHAPTER 8

Intraframe Editing

This chapter describes the Intraframe Editing features available on some Avid systems. Intraframe editing refers to the ability to perform various paint or animated matte effect operations within an individual frame or series of frames in a clip. Intraframe editing frees you from having to export images from the Avid system, edit them in third-party applications, and import them back into the system. Intraframe editing also allows you to quickly remove scratches and flaws in your video material.

Intraframe editing is done with the Paint Effect and the AniMatte effect, or with the Scratch Removal effect in the specialized case of scratch removal. These effects share many of the same concepts, which are described in the following sections:

About the Intraframe Effects

While many of the tools and parameters are the same for all the Intraframe effects, the result of applying each effect is different.

The **Paint Effect** allows you to draw or paint and apply special effects within individual frames or across all the frames in a segment. The Paint Effect includes the following features:

- Customizable paint brushes with preset templates and parameters for adjustable softness and rotation
- Creation of vector-based objects that you can animate and edit
- A variety of paint modes including Erase, Clone, Colorize, Darken, Lighten, Blur, Unsharp Mask, Emboss, Scratch Removal and more
- Object selection with rescale, lock/unlock, and group/ungroup capabilities
- Z-rotation of painted objects
- Outline feathering with bias control
- Magic Mask™ for quick and easy colorization

The **AniMatte effect** allows you to generate custom matte effects that you can apply to a segment or transition in a sequence. The AniMatte effect includes the following features:

- Modes for keying in and keying out images
- Keyframeable animation of matte effects

- Creation of mattes as vector-based objects that allow you to move, rescale, and reshape the mattes during a segment or transition
- Freehand painting ability to create organic matte wipes
- Magic Mask, brush shapes, Z-rotation, feathering, and more
- Export of mattes to create keys in third-party applications
- No additional hardware required

The **Scratch Removal effect** allows you to remove scratches or other flaws by replacing them with clean material from elsewhere in the same frame or from another nearby frame. The Scratch Removal effect includes the same tools for drawing objects and painting brush strokes found in the Paint Effect, together with specific controls for selecting clean replacement material. For more information, see **"Scratch Removal" on page 423**.

When you use the Intraframe Editing tools, the Avid system draws vector-based objects on the screen. Vector-based objects are composed of mathematically described lines and Bézier curves. You can edit the lines, curves, and other attributes of vector-based graphics with greater control and efficiency than you can with bitmapped objects, which are drawn on the screen as a pattern of dots, or pixels. For more information, see **"Working with Vector-Based Objects" on page 393**.

Additionally, any changes you make to an Intraframe effect is not limited to an individual frame. Instead, any object you paint and any changes you make to it appear for the duration of the entire segment or clip. In most cases, you can change the parameters of the effect between keyframes.

You can create multiple paint or matte shapes within a single effect. You can also add keyframes and apply effects separately to each of the shapes.

Rendering Intraframe Effects

Intraframe effects are not real-time effects. While working in Effect mode, you can see the object as you step through each frame in the segment. To view the painted object in the Effect Preview monitor, choose Render-On-The-Fly from the Special menu. You also can use the Play Preview function to see an off-speed preview of a Paint Effect while you are working in Effect mode. For more information, see **"Effect Editor Buttons" on page 119**.

When you have finished painting or drawing a matte on a segment, you must render the effect to play it in real time. Regardless of how many objects you add to an individual segment, the Avid system plays back the effect as a single stream of video.

Rendering Paint Effects

Painted objects are rendered to the screen starting with the bottom layer (*closest* to the video background). Keep this concept in mind as you use different paint modes in combination and layer painted objects to generate new effects in a sequence. You also can combine the Paint Effect with the AniMatte effect to create custom effects.

Rendering AniMatte Effects

A multitrack AniMatte effect is rendered to the screen starting with the top video track (*farthest* from the video background and appearing closest to you in three-dimensional space). For example, if the video background is on track V1, and the AniMatte effect is applied to track V2, the system renders the effect starting with the image on track V2.

However, if you draw multiple mattes in the *same segment*, these mattes are all objects that appear in the same foreground space; they interact with each other much like multiple painted objects do in the

same segment. For more information, see **"Layering with the Paint Effect" on page 416**.

Keep these concepts in mind as you use different key modes in combination and layer them to generate new effects in a sequence. You also can combine the AniMatte effect with the Paint Effect to create custom effects.

Getting Started with the Paint and AniMatte Effects

When you apply the Paint or AniMatte effect to a segment and enter Effect mode, the Effect Editor opens. The cursor is an arrow when you select tools and options from the Effect Editor. When you select a paint or editing tool and position the cursor over the Effect Preview monitor, the cursor becomes a crosshair. The crosshair indicates that you can begin to paint or draw a matte on the frame.

After you use the Rectangle, Oval, Polygon, and Curve tools, your Avid editing system reverts to the Selection tool, and the cursor becomes an arrow. After you use the Brush tool, it remains the active tool, and the cursor remains a crosshair.

The painting and editing tools enable you to paint shapes or draw mattes, quick masks, and other vector-based objects on frames in a sequence. When you apply an Intraframe effect to a segment, the object or matte appears for the duration of the entire segment, not just for an individual frame.

Applying the Paint or AniMatte Effect to a Sequence

For information on creating keys and wipes, see **Chapter 4**.

You can apply an AniMatte effect to segments for multilayered effects or to transitions to create matte key wipes with your own custom shapes. A Paint Effect is a segment effect only; you cannot apply a Paint Effect to a transition in a sequence.

The Paint Effect is located in the Image category in the Effect Palette. The AniMatte effect is in the Key category.

To apply the Paint Effect or AniMatte effect to a sequence:

1. Load a sequence into the Record monitor.
2. Choose Effect Palette from the Tools menu.
3. Do one of the following:
   - Click the Image category if you want to apply the Paint Effect.
   - Click the Key category if you want to apply the AniMatte effect.

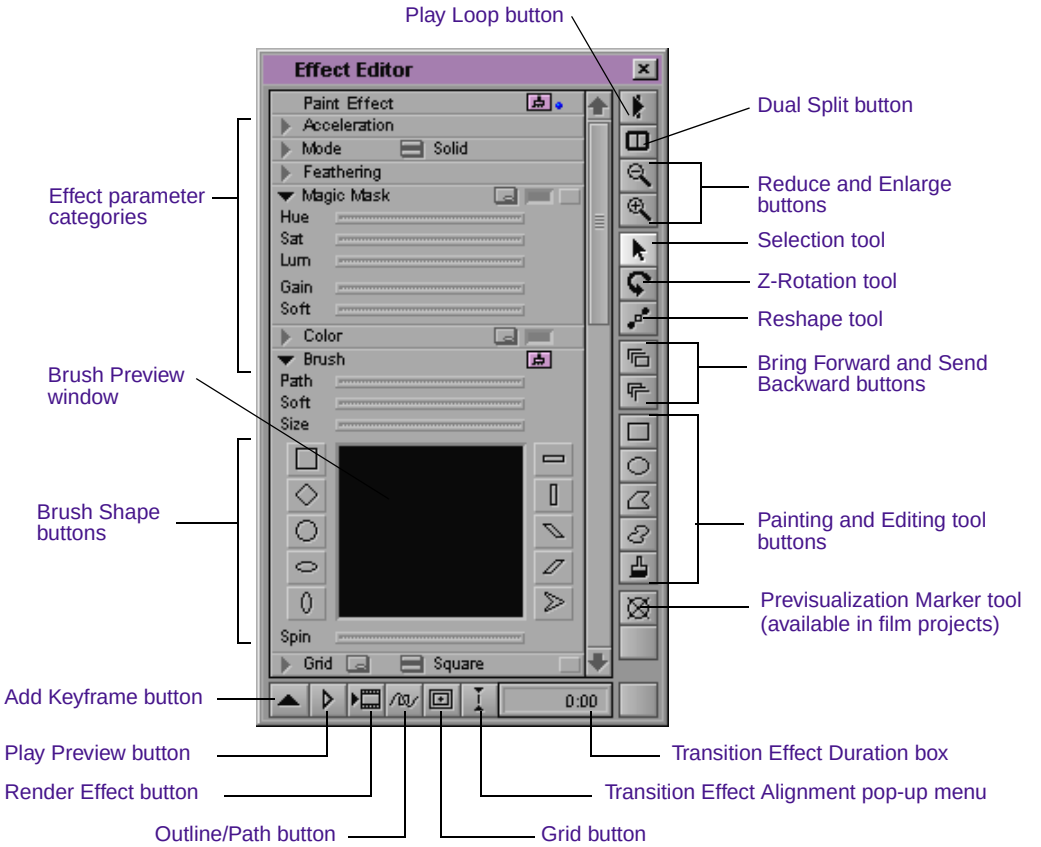
4. Click the Paint Effect icon or the AniMatte icon, drag it to a segment (or transition in the case of an AniMatte effect) in the sequence, and release the mouse button.
5. Click the Effect Mode button to enter Effect mode.

   The Effect Editor opens with the default settings for the effect.

Using the Effect Editor with the Paint Effect

For more information on working with the Effect Editor, see **"Using the Effect Editor" on page 117**.

The following illustration identifies the different sections of the Effect Editor that are available when you apply a Paint Effect to a segment and enter Effect mode.



The following tables briefly describe the functions of the Effect Editor for the Paint Effect.

Tool	Description
Effect parameter categories	Enable you to change the parameters of an effect.
Brush Preview window	Displays the brush head with the parameters you have selected, such as color and shape. You also can use the window to reshape the brush head by dragging its control points.
Brush Shape buttons	Change the shape of the brush.

The following buttons appear on the right side of the Effect Editor for the Paint Effect.

Button	Description
Play Loop button	 Plays back a transition or a segment effect in Effect mode.
Dual Split button	 Splits the screen in half to show the image with and without effects applied to it.
Reduce and Enlarge buttons	 Zoom in and out on objects. 
Selection tool	 Selects an object so you can change its parameters, move it, or delete it. With the Shift key pressed, selects multiple objects.
Z-Rotation tool	 Rotates an object around the Z axis.
Reshape tool	 Reshapes objects by manipulating anchor points at locations where new curves begin or straight lines intersect. Inserts additional control points.

Button	Description
Bring Forward and Send Backward buttons	  Bring a painted object *one* layer forward on the screen or send an object *one* layer backward on the screen. With the Alt key (Windows) or Option key (Macintosh) pressed, bring a painted object to the front or send an object to the back.
Painting and Editing tools	 Enable you to paint shapes or draw mattes on frames in a sequence with freehand capability or with preset shapes.
Previsualization Marker tool	 Available in film projects.

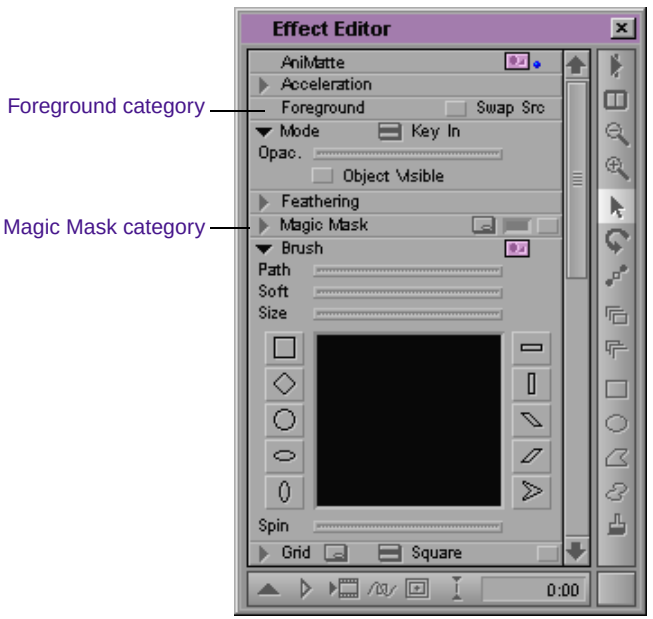
The following buttons and box appear at the bottom of the Effect Editor for the Paint Effect.

Button	Description
Add Keyframe button	 Adds a keyframe to an effect at the location of the position indicator in the effect's Timeline.
Play Preview button	 Plays back a preview of an unrendered effect in the Effect Preview monitor.
Render Effect button	 Renders effects on selected tracks at the location of the position indicator in the effect's Timeline.
Outline/Path button	 Displays wire-frame representations of the painted object. Illustrates the movement of an object from the first keyframe through the last keyframe.
Transition Effect Alignment pop-up menu	 Enables you to choose whether a transition effect starts, ends, or is centered on a cut; not applicable to the Paint Effect.

Button	Description
Transition Effect Duration box	0:00 Enables you to enter the length of a transition in seconds and frames; not applicable to the Paint Effect.

Using the Effect Editor with the AniMatte Effect

The following illustration shows the Effect Editor as it appears when you apply an AniMatte effect to a segment in a video project and enter Effect mode.



When you are working with the AniMatte effect, the categories that are available in the Effect Editor are the same as those for the Paint Effect with the following exceptions:

- The Swap Src option in the Foreground category enables you to swap the foreground and background video images for matte keys composed of multiple video tracks. When you are building a single-track wipe, the Swap Src button enables you to swap the incoming and outgoing segments in the sequence.
- With the AniMatte effect, you use Magic Mask to choose a key color when you create a matte. (With the Paint Effect, you use Magic Mask or the Color category to make color selections.)

Editing with Single-Field Step

To locate defects on individual fields of a frame for correction with the Paint and AniMatte effects, use the single-field step feature. For information on using single-field step, see **"Using Single-Field Step" on page 117**.

Using Effect Templates with the Intraframe Effects

As you can do with many other effects, you can save a template of a Paint or AniMatte effect and apply it to other video segments in a sequence at a later time. For more information on saving and applying an effect template, see **"Using an Effect Template" on page 136**.

Using the Intraframe Drawing Tools

The Intraframe effects include the following five drawing tools:

- Brush tool
- Rectangle tool

- Oval tool
- Polygon tool
- Curve tool

You can use these tools for creating preset shapes or for creating freehand, vector-based objects and mattes with editable lines and Bézier curves. Additionally, the Selection tool enables you to select painted objects and mattes to move them, rescale them, and change their parameters.

Understanding Intraframe Modes

The Paint Effect includes a wide variety of *modes* that offer many creative and corrective possibilities. You use the modes to control the nature and appearance of the objects that you create with the drawing tools. Available modes include Solid (for traditional brush strokes), Erase, Clone, Colorize, Emboss, and more.

For example, if you create an oval shape with the Solid mode selected, a solid color oval appears in the frame. (The color is determined by the current selection in the Color parameter category.) If you create the same oval shape and select the Lighten mode, the oval will not be a solid color that masks part of the image beneath. Instead, it will define an area of the image that is lightened by an amount you specify.

The AniMatte effect provides two modes, Key In and Key Out. These modes enable you to key in or key out an image in a sequence.

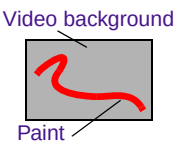
For a complete listing of the characteristics of each Paint Effect mode as well as the Key In and Key Out modes in the AniMatte effect, see ***"Mode" on page 460****.*

Using an Optional Pen Tool

The Avid system supports the addition of a pen tool and graphics tablet for use with the Intraframe Editing option. For installation and configuration instructions, see the documentation that ships with your pen tool and tablet.

Using the Brush Tool

With the Brush tool, you can use the mouse or a pen tool with a tablet to paint objects or mattes with precision directly on the images in a sequence. You also can change and customize the brush shape, as well as determine the opacity of the paint or matte, adjust the outline feathering and softness values, and, for the Paint Effect, define the color.



When you paint an object in a sequence, you paint on the frame displayed in the Effect Preview monitor. The painted object is superimposed over the video background, appearing closer to you in three-dimensional space. Each object you paint creates a foreground layer that you can work with individually or group with other painted objects in the segment.

Choosing a Color

You can choose the color you want to paint with by using the eyedropper, the parameter sliders, the Windows Color dialog box or the Macintosh Color Picker. You can select the color before you begin painting or after you have painted an object.

Shortcut for Selecting a Color with the Brush Tool

When you use the Brush tool to paint an object, you can select a color quickly from a video segment as follows:

1. Click the Brush tool to make it the active paint tool.
2. Choose Solid from the Fast menu in the Mode category.

3. Press and hold the Alt key (Windows) or Option key (Macintosh), and drag the cursor to the Effect Preview monitor.

   The cursor becomes an eyedropper.

4. Position the eyedropper over the color you want to select and click it.

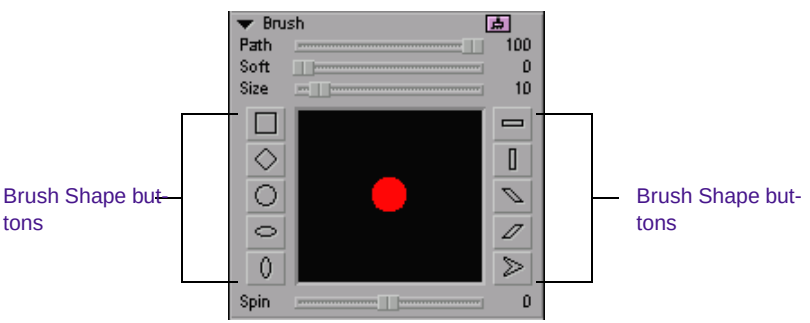
   The color you picked becomes the new default color shown in the Color Preview window.

Painting with the Brush

To begin painting:

1. Apply the Paint Effect to a segment in the sequence as described in **"Applying the Paint or AniMatte Effect to a Sequence" on page 368**.

2. Click the Brush tool in the Effect Editor.
3. Select a paint mode or key mode and parameters in the Effect Editor.
4. Click one of the Brush Shape buttons in the Brush parameter category of the Effect Editor.



   The default shape of the brush head changes to your selection.

5. Position the cursor over the image in the Effect Preview monitor.

   Notice that the cursor becomes a crosshair.

6. Press and hold the mouse button, and drag to paint freehand style on the video background.
7. Release the mouse button when you have finished painting the object.

Creating a Custom Brush Head from a Template

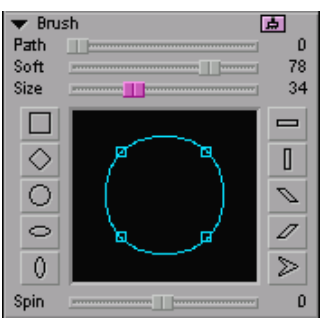
You can change the brush head to a custom shape by modifying the brush head in the Brush Preview window.

To create a custom brush head:

1. Click the Brush tool in the Effect Editor.
2. Click a brush shape that will provide the basis for your custom brush head.

   The shape appears as the brush head in the Brush Preview window.
3. Click the brush head in the Brush Preview window.

   Control points appear on the brush head where curves merge or straight lines intersect.



4. Click a control point, and drag it to change the shape of the brush head.
5. Repeat step 4with other anchor points as needed.

For brush shapes with rounded edges and curves, such as the oval, the ellipse, and the circle, clicking an anchor point creates direction bars and handles that enable you to edit the Bézier curve. For information on working with Bézier curves, see ***"Working with Vector-Based Objects" on page 393****. You can use the direction bars and handles, and you can drag the object's control points, but you cannot use the modifier key variations.*

To rotate the brush head:

1. Click the Brush tool if the brush is not already active.
2. Click the button for the template as needed.

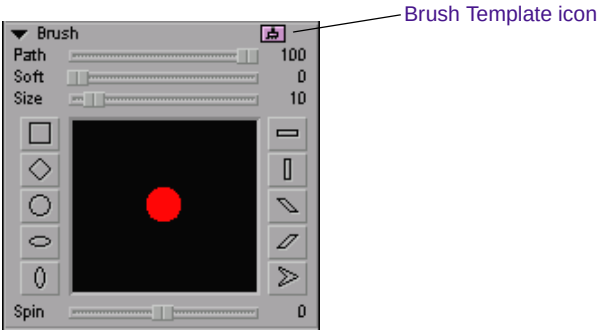
   The shape appears in the Brush Preview window.
3. Do one of the following:
   - Drag the Spin slider to the right (clockwise rotation) or to the left (counterclockwise rotation) to rotate the brush head to the desired position.
   - Click the Spin slider, and use the keyboard to type a value from –360 to 360.

Saving a Brush Template

You can save a template of a custom brush to a bin so that you can reuse the parameters of the brush with an Intraframe effect.

To save the brush template:

1. Click the Brush Template icon in the Brush category, and drag it to a bin.



A brush template appears in the bin, and the name of the template defaults to Brush.

2. Click the name of the template in the bin, type a unique name for the template, and press Enter.
3. To use the template later, click the template in the bin, drag it to the Brush Preview window, and release the mouse button.
4. The brush in the Brush Preview window assumes the same parameters as the brush template you saved to the bin.

Using Path to Create a Signature Effect

The Path parameter slider is useful for creating a “signature” effect with the Paint Effect, in which a signature gradually appears on the screen as if written with an invisible pen.

To create the signature effect:

1. Apply the Paint Effect to a segment.
2. Click the Brush tool in the Effect Editor.

3. Choose Solid from the Fast menu in the Mode category.
4. Press and hold the mouse button, and drag the cursor in the Effect Preview monitor to paint a signature or other string of text.
5. Release the mouse button when you are satisfied with the text.
6. Click the first keyframe in the segment to select it.

7. Select the painted object if it is not selected already.
8. Click the Path slider, type 0, and press Enter (Windows) or Return (Macintosh).
9. Click the last keyframe in the segment to select it.
10. Click the Path slider, type 100, and press Enter (Windows) or Return (Macintosh).

Alternatively, you can add keyframes at different locations in the effect's Timeline and change the percentage of the Path parameter at each keyframe to modify how the effect appears over the course of the segment.

11. Render the Paint Effect to play it back in real time.

Using the Selection Tool

The Selection tool is one of the most frequently used tools. You use this tool to select a painted object or matte on the screen when you want to make changes to it. After you select an object, you can move it in the frame, rescale it, and change its parameters.

To select an object:

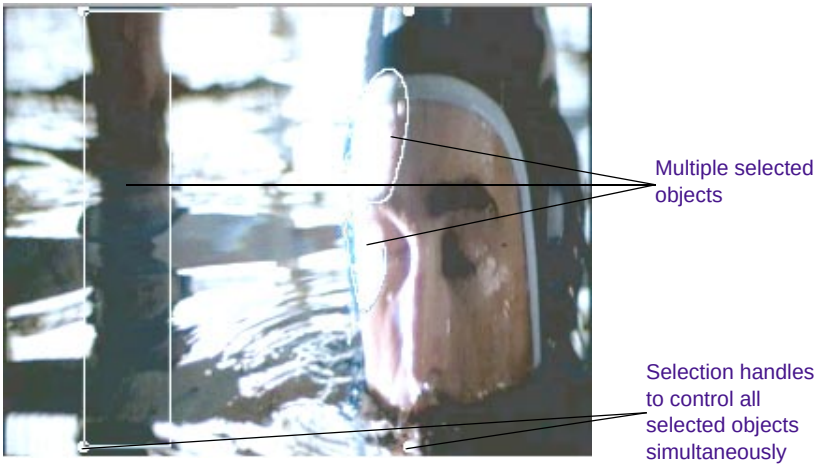
- Choose the Selection tool and click an object.

Selection handles appear around the object.

To select multiple objects do one of the following:

- Shift+click the additional objects with the Selection tool.
- Press and hold the mouse button and drag the cursor to draw a lasso around the objects.

When you select multiple objects, one set of selection handles appears around all the objects, which enables you to move, rescale, or otherwise change the parameters of all the selected objects simultaneously.



When a segment contains multiple objects, you can change your selection from one object to another by clicking one of the following buttons: Fast Forward, Rewind, Go to Next, or Go to Previous. To use these buttons in Effect mode, you must map them to your keyboard. For more information on these buttons, see your Avid system's quick reference card.

Creating Rectangular Shapes

With the Rectangle tool, you can paint rectangular shapes or mattes on images in a sequence. All the paint modes and parameters in the Effect Editor are accessible to the Rectangle tool with the exception of the Brush category.

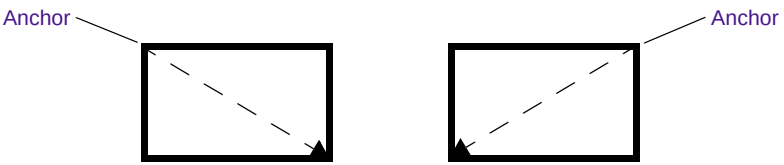
To paint with the Rectangle tool:

1. Click the Rectangle tool in the Effect Editor.
2. Select a paint mode or key mode and parameters in the Effect Editor.
3. Position the cursor where you want to begin painting in the frame.

4. Press and hold the mouse button, and drag the cursor to create the rectangle.

Press the Alt key (Windows) or Option key (Macintosh) and drag the mouse to constrain the shape to a square.

As you drag, you describe the diagonal of the rectangle. For example, if you drag to the right and in a downward fashion, the rectangle is anchored to its upper left corner.



5. Release the mouse button to complete the rectangle.
6. Adjust the object's parameters if needed.

Creating Oval Shapes

With the Oval tool, you can paint oval shapes or mattes on images in a sequence. All the paint modes and parameters in the Effect Editor are accessible to the Oval tool with the exception of the Brush category.

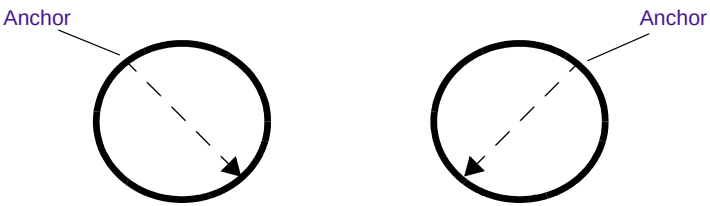
To create oval shapes:

1. Click the Oval tool in the Effect Editor.
2. Select a paint mode or key mode and parameters in the Effect Editor.
3. Position the cursor where you want to begin painting in the frame.

4. Press and hold the mouse button and drag the cursor to create an oval.

Press the Alt key (Windows) or Option key (Macintosh) and drag the mouse to constrain the shape to a circle.

As you drag, you describe the diameter of the oval. For example, if you drag to the right and in a downward fashion, the oval is anchored to its upper left corner.



5. Release the mouse button to complete the oval.
6. Adjust the object's parameters if needed.

Drawing Polygons

With the Polygon tool, you can paint a variety of geometric objects and trace images in a frame. All the modes and parameters in the Effect Editor are accessible to the Polygon tool with the exception of the Brush category. You can use the Polygon tool to create objects and mattes composed of straight-line segments, curved segments, or a combination of both.

To take full advantage of the power of the Polygon tool, you should be familiar with the concepts behind vector-based graphics. If you are not familiar with these principles, see **"Working with Vector-Based Objects" on page 393** for more information.

It is helpful to visualize the shape and the position of the polygon within the frame before you begin painting. By visualizing the object first, you will gain more control over the objects's attributes when you edit it later.

The general workflow for working with the Polygon tool is:

1. Visualize the object you want to create.
2. Determine a location in the frame to begin painting and click that location to create the initial control point.
3. Click additional control points as you continue to define the shape of the object.
4. Double-click to create the final control point or click the initial control point to create the closed polygon.

Try to create the object with as few control points as possible. Fewer control points will eliminate more work if you need to modify the object later.

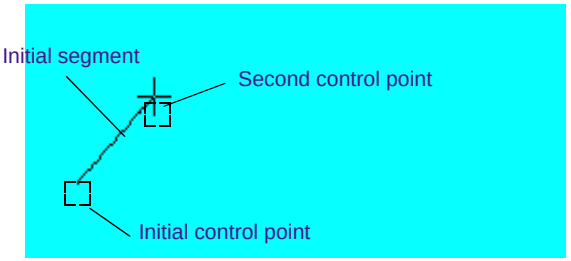
Creating Polygons with Straight-Line Segments

To create a polygon with straight-line segments:

1. Click the Polygon tool in the Effect Editor.
2. Select a paint mode or key mode and parameters in the Effect Editor.
3. Click in the frame where you want to place the initial control point.

The control points do not appear as tiny rectangles while you are painting the object.

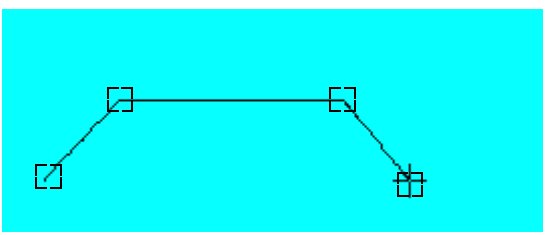
4. Click in the frame where you want to place the next control point.



A straight-line segment is drawn between the initial control point and the control point you just created.

Segments appear as wire frames until you finish painting the object.

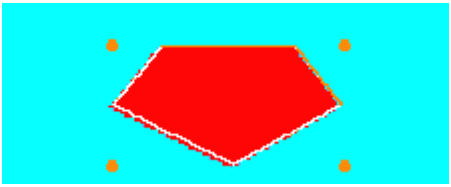
5. Click in the frame to create additional control points that further define the shape of the object.



A straight-line segment appears between each pair of adjacent control points.

6. When you are satisfied with the shape of the object, double-click in the frame to create the final control point or click the initial control point.

   The object becomes a closed polygon.



7. Adjust the parameters of the polygon if needed.

Creating Polygons with Curved Segments

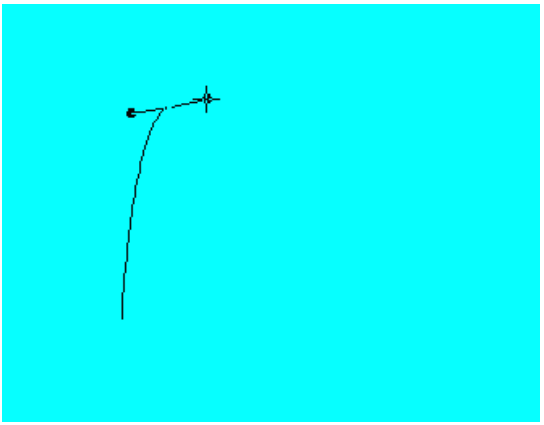
To create a polygon with curved segments:

1. Click the Polygon tool in the Effect Editor.
2. Select a paint mode or key mode and parameters in the Effect Editor.
3. Click in the frame where you want to place the initial control point, and release the mouse button.

The control points do not appear as tiny rectangles while you are painting the object.

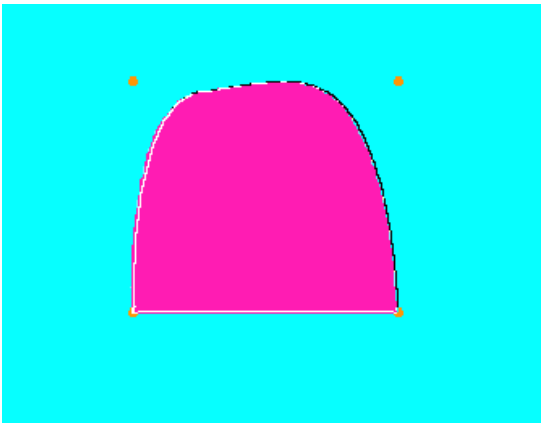
4. Drag the cursor to the location where you want to place the next control point.
5. Click *and hold* the mouse button to begin creating the first curved segment.

   Direction bars with handles appear as a tangent to the curved segment. The cursor "leads" the direction handle that you will use to determine the direction and height of the curve.



6. Drag the cursor, which is attached to the direction handle, to adjust the direction and height of the curved segment.
7. Release the mouse button when you are satisfied with the height and angle of the curved segment.
8. Drag the cursor to the next location where you want to create a curved segment.
9. Repeat steps 3 to 8 to create additional curves if needed.
10. When you are satisfied with the shape of the object, double-click in the frame to create the final control point or click the initial control point.

    The object becomes a closed polygon.

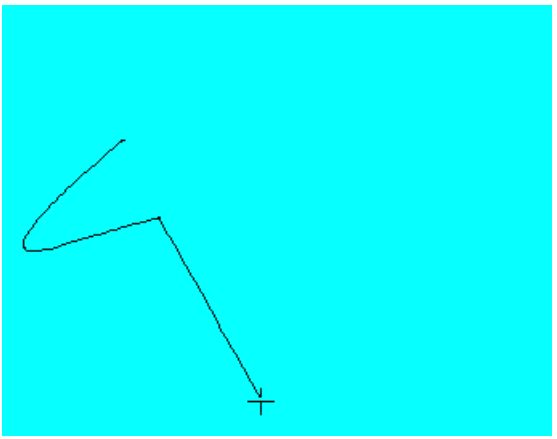


11. Adjust the parameters of the polygon if needed.

Creating a Straight Line Following a Curve

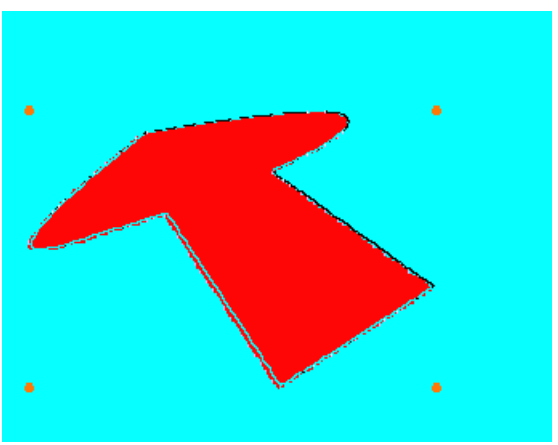
To create a straight line following a curved segment:

1. Create one or more curved segments as described in **“Creating Polygons with Curved Segments” on page 387**.
2. Drag the cursor to the location where you want to begin painting the straight line.
3. Click and then release the mouse button to create the control point.
4. Drag the cursor to the location where you want the straight-line segment to end.
5. Click and then release the mouse button to create the control point.



6. Continue to create additional lines and curves.
7. When you are satisfied with the shape of the object, double-click in the frame to create the final control point or click the initial control point.

   The object becomes a closed polygon.



8. Adjust the parameters of the polygon if needed.

Creating Curved Objects

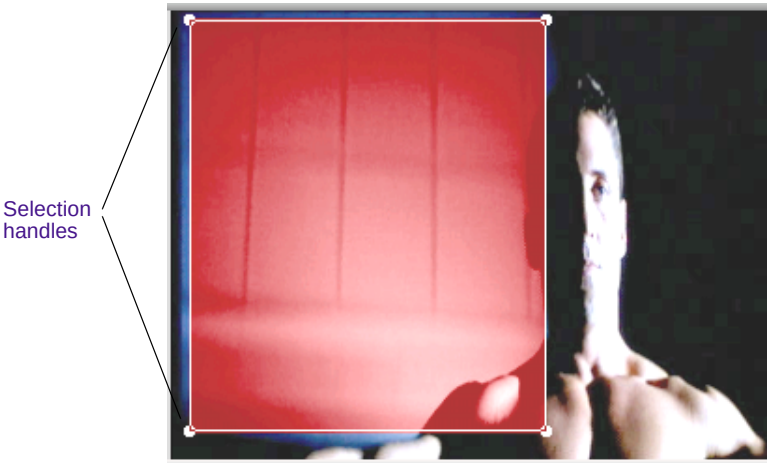
With the Curve tool, you can trace curved objects with freehand capability. All the paint modes and parameters in the Effect Editor are accessible to the Curve tool with the exception of the Brush category.

To paint with the Curve tool:

1. Click the Curve tool in the Effect Editor.
2. Select a paint mode or key mode and parameters in the Effect Editor.
3. Position the cursor where you want to begin painting in the frame.
4. Press and hold the mouse button, and drag the cursor as you paint a freehand curved shape on the frame.
5. When you are satisfied with the shape of the object, release the mouse button to complete the curved object.
6. Adjust the object's parameters if needed.

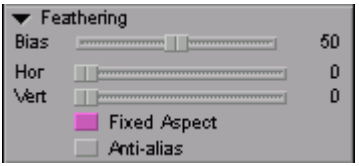
Changing the Parameters of a Painted Object

To change the parameters of an object you already have painted, click the object with the Selection tool and do one of the following:



- To move the object, click anywhere *within* the outline and drag the object to a new location.
- To rescale the object, do one of the following:
  - Click one of the selection handles and drag
  - Press and hold the Alt key (Windows) or Option key (Macintosh) to rescale the object from its center
- To change the color, click the triangular opener next to the Color category and adjusting the Hue, Sat (saturation), and Lum (luminance) sliders.

- To add feathering to the object's edges, click the triangular opener next to the Feathering category and adjusting the sliders.



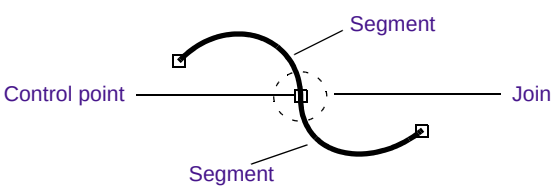
- To delete the object, press the Delete key.
- To undelete the object, choose Undo from the Edit menu.

Working with Vector-Based Objects

Before you begin working with the paint and editing tools included in the Intraframe effects, you must understand the basics of working with vector-based objects and Bézier curves. The vector-based graphics technology of the Intraframe Editing option enables you to create and edit objects and mattes with a precision that you cannot achieve when you work with bitmapped objects. Vector-based objects are not subject to problems such as artifacting when you rescale them.

The Elements of Vector-Based Objects

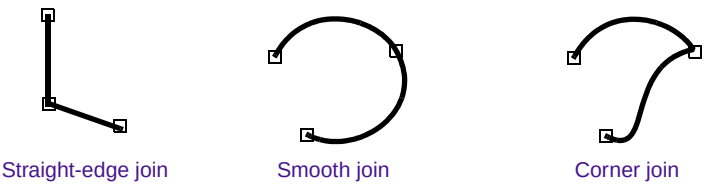
The objects you paint, the matte keys you draw, and the brush templates that appear in the Brush Preview window include a control point at the midpoint of each line or curve, also known as a *join*. The portion of the line or curve on each side of the control point is called a *segment*. The control point controls the direction of each segment as it passes through the join.



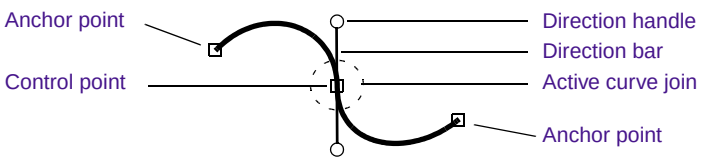
Control points for a painted object are visible when you select an object with the Selection tool and then click the Reshape tool. Also, when you click a brush template in the Effect Editor, the brush head displays visible control points in the Brush Preview window.

A painted object can include three types of joins that describe its shape:

- Straight-edge join
- Smooth join
- Corner join



A control point associated with a smooth join or a corner join describes a Bézier curve. Clicking a control point makes it the active join. Tangents called *direction bars* appear on each side of the control point associated with a Bézier curve. At the end of each direction bar is a direction handle. Dragging a direction handle changes the way the segments pass through the control point to define the curve.



When you drag a direction handle, you change the height and angle of the curve. The curve responds as if you were gently tugging it like a piece of string. The segments remain anchored to the control points on either side of the active join.

In contrast, straight-edge joins do not display direction bars and handles when you click them.

To reshape an object composed of one or more straight edges:

- Select the object with the Selection tool, click the Reshape tool, and then drag one or more control points. For information on control points, see **"Moving Control Points Manually" on page 406**.
- Convert straight-edge joins to Bézier curves, and manipulate the curves as described in the following sections.

Getting Started with Bézier Curves

If you have never worked with Bézier curves, learning how to work with them requires a willingness to experiment. As you practice working with Bézier curves, you will gain greater control over painted objects and mattes, and the process will become more intuitive. The following sections describe how to paint a rectangular object with the Paint Effect and use the Reshape tool to convert corners into Bézier curves. You then will modify the curves to change the shape of the object.

Transforming a Rectangle into a Circle

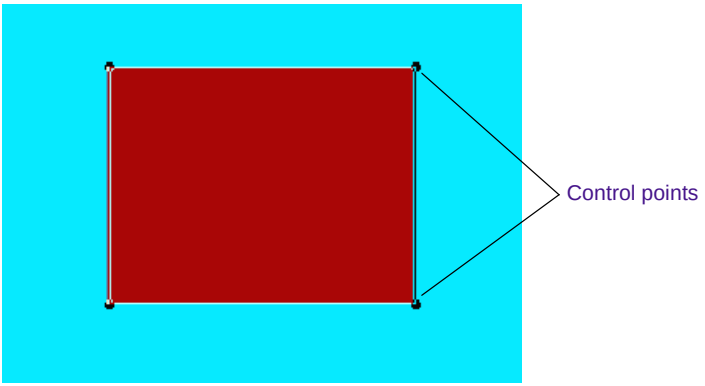
To create a rectangle and transform it into a circle with Bézier curves:

1. Apply the Paint Effect to a segment in a sequence and enter Effect mode.

2. Click the Rectangle tool in the Effect Editor.
3. Choose Solid from the Fast menu in the Mode category.
4. Press and hold the mouse button, and drag in the Effect Preview monitor to paint a rectangular object. Do not worry about picking a color or other parameters for this exercise.

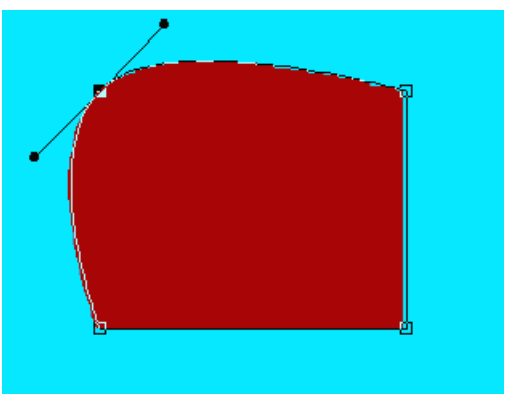
5. Click the Selection tool and select the object you just painted.
6. Click the Reshape tool or double-click the object.

   Notice that each corner of the rectangle displays a control point.



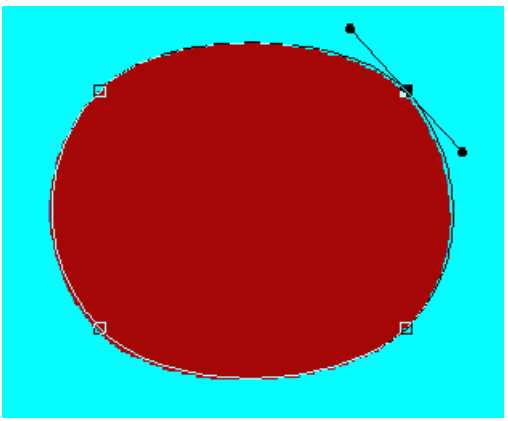
7. Alt+click (Windows) or Option+click (Macintosh) the control point at the top left corner of the rectangle.

   Notice that the straight-edge join becomes a smooth join with direction bars and handles.



8. Working in a counterclockwise direction, Alt+click (Windows) or Option+click (Macintosh) each control point until they have all been transformed into smooth joins.

   The resulting shape is a circle. The control point at the top right of the circle is the active join and displays direction bars and handles.

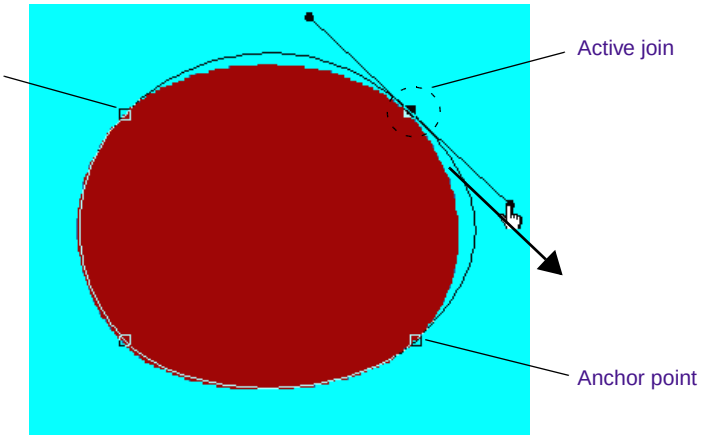


Experimenting with Direction Handles

To experiment with the direction handles:

1. Click the bottom direction handle and drag *away* from the control point to increase the length of the direction bar.

   Notice how the curve changes. Also, the direction bar and segment on the opposite side of the control point move in unison with the direction bar you are dragging. The control points adjacent to the active join serve as anchor points for the segments that compose the curve.

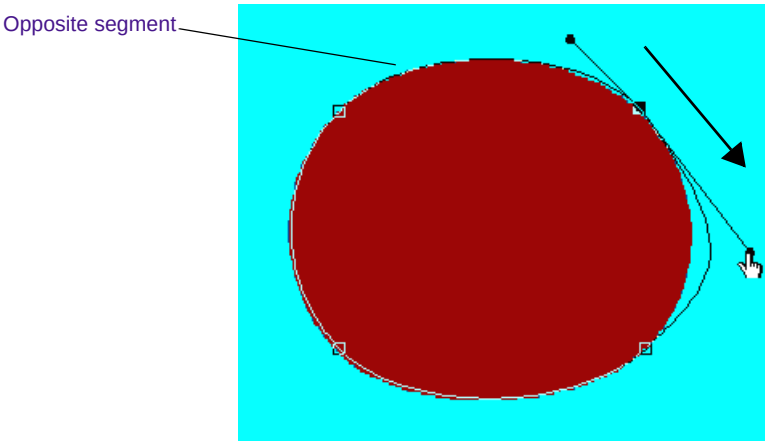


2. Drag the direction handle toward the control point to shorten the direction bar.

   Notice how the curve changes as you shorten the direction bar.

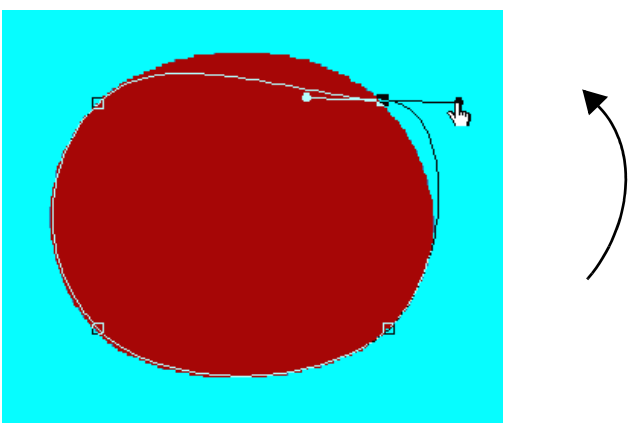
3. Shift+click the direction handle and drag it *away* from the control point.

   Notice that the length of the direction bar on the opposite side of the control point does not change; this prevents the height of its associated segment from changing. However, the opposite direction bar *does* move in unison with the direction handle you are dragging, thereby changing the angle of the segment in unison.



4. Shift+click the direction handle to revert the direction bars to their previous functionality.
5. Click the bottom direction handle, and drag it in a counterclockwise direction.

   Notice how the curve changes as you drag the direction bar.



6. When you have finished experimenting, adjust the direction bar so that the object again resembles a circle.

Creating a Corner Join

The painting tools do not create corner joins by default; you can change an existing smooth join into a corner join as described in this section.

If you want to transform a straight-edge join into a corner join, you must transform the straight-edge join into a smooth join first.

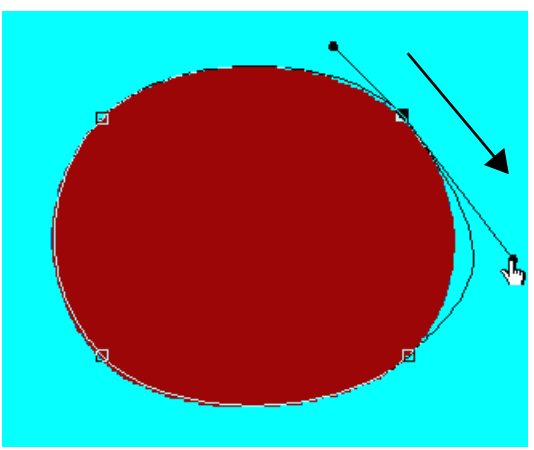
To transform a smooth join into a corner join:

1. Alt+click (Windows) or Option+click (Macintosh) the bottom direction handle.

   Although you might not notice it immediately, the smooth join is transformed into a corner join.

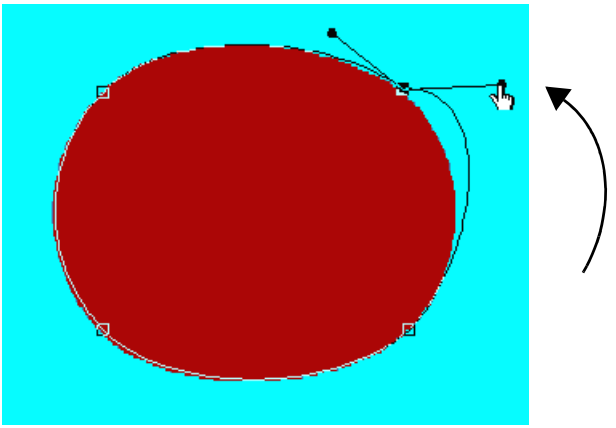
2. Drag the direction handle *away* from the control point.

   Notice how the active segment behaves as you lengthen the direction bar. The direction bar and segment on the opposite side of the control point do not move in unison with this direction handle. Also, notice that the active segment remains anchored to the adjacent control point.



3. Drag the direction handle in a counterclockwise direction.

Notice how the segment changes as you drag the direction bar.



4. When you are finished experimenting, Alt+click (Windows) or Option+click (Macintosh) the direction handle.

   The control point reverts to a smooth join.

Modifying Lines and Curves Summarized

Table 8-1 summarizes how you can modify lines and Bézier curves (smooth joins or corner joins) by using the mouse and the modifier keys on the keyboard.

Table 8-1 Methods of Modifying Lines and Curves

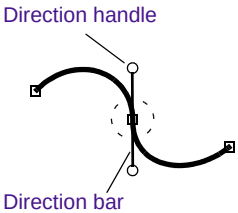
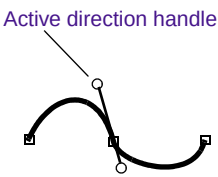
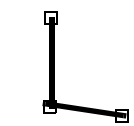
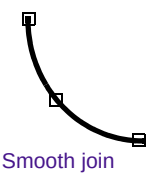
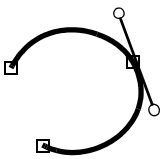
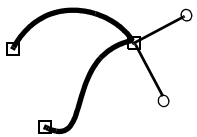
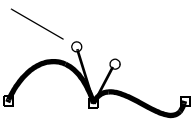
Illustration	Description	Action
	Smooth join: Drag one direction handle so that the direction bar on the opposite side of the control point moves and changes length in unison.	You do not have to press any of the modifier keys. Click one of the direction handles and drag it.
	Smooth join: Drag one direction handle so that the direction bar on the opposite side of the control point moves in unison but does *not* change in length.	Shift+click a direction handle. To change it back, Shift+click the direction handle.
	Transform a straight-edge join into a smooth join.	Alt+click (Windows) or Option+click (Macintosh) the control point. To change it back to a straight-edge join, Alt+click (Windows) or Option+click (Macintosh) the smooth join.
		

Table 8-1 Methods of Modifying Lines and Curves (Continued)

Illustration	Description	Action
 Smooth join  Corner join	Transform a smooth join into a corner join.	Alt+click (Windows) or Option+click (Macintosh) one of the direction handles. To change it back to a smooth join, Alt+click (Windows) or Option+click (Macintosh) the direction handle.
Active direction handle 	Corner join: Drag one direction handle so that the direction bar on the opposite side of the control point moves independently of the bar on the opposite side of the control point.	You do not have to press any of the modifier keys. Click one of the direction handles and drag it.

Painting a New Object with Bézier Curves

When you paint a freehand object to mask, colorize, or otherwise modify an image in a frame, you can achieve extraordinary precision when you know how to control Bézier curves. Being able to visualize curves and where you need to place their associated control points before you begin painting can make the process of tracing shapes easier.

The following tools paint new objects composed of Bézier curves:

- Oval tool
- Polygon tool
- Curve tool

For information on how to use these tools to paint new objects with Bézier curves, see the description for each tool in **"Layering with the Paint Effect" on page 416**. Keep in mind that you are not limited to using these tools to create curved objects because you can transform the straight-edge joins in any painted object into Bézier curves as described in **"Modifying Lines and Curves Summarized" on page 401**.

Adding a Control Point

Placing more control points on an object enables the object to trace more detailed images. For example, if a segment of an object does not follow a curved section on a frame as well as you would like, and adjusting the control points and direction bars do not help, you can add a new control point.

To add a control point:


1. Click the object with the Selection tool.
2. Click the Reshape tool or double-click the object.
3. Click the selected object where you want to add a new control point.

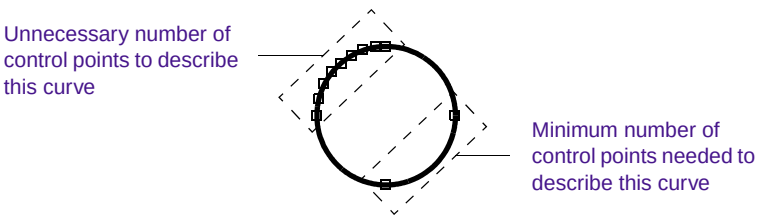
   A new control point appears and is calculated so that the original object, as you drew it, does not change dramatically in shape. The new control point appears as part of the object for all keyframes in the segment.

   Any changes you make to a control point, such as moving it or changing the angle of the associated curve, affects the keyframes you have selected in the segment. If you change a control point at

a selected keyframe or add a keyframe to make changes, the changes are interpolated between the selected keyframe and adjacent keyframes.

Removing a Control Point

Avid recommends that you remove a control point if the object does not need the control point to adequately define its shape. It is better to have fewer control points and to manipulate the direction bars to gain the same effect because fewer control points mean less work if you need to modify an object later.



To remove a control point:

- Click the control point and press the Delete key.

You also can Shift+click multiple control points and then delete them.

The Avid system attempts to reconstruct the object so that it does not change. The results you see might vary because of the internal mechanics and geometry of Bézier curve technology. However, adding and then removing the same control point should not dramatically change the curve of that section of an object.

Moving to Adjacent Control Points

You can move from a control point to an adjacent control point without having to click the mouse. To use this feature, you must map the Fast Forward and Rewind buttons to your keyboard or a user-selectable button palette.

For more information on mapping buttons, see the Avid *Media Composer and Film Composer* Editing Guide.

To move to an adjacent control point:

1. Select a control point.
2. Move to an adjacent control point:
   - Click the Fast Forward button to move in a clockwise fashion to the next control point.
   - Click the Rewind button to move in a counterclockwise fashion to the next control point.

Moving Control Points Manually

You can move control points manually by simply clicking them and then dragging. You can move one control point at a time or several control points at once. Before you select control points for moving, first click an object with the Selection tool to display the control points.

To move control points manually:

- **Single control points:** Drag an individual control point to its new location. The control point's direction bars do not change orientation.
- **Multiple control points:** Click one control point, and then Shift+click or lasso additional control points that you want to move. Drag one of the selected control points. All other selected

control points move in unison. To deselect the group, click any unselected control point.

- **All control points:** Press Ctrl+A (Windows) or ⌘+A (Macintosh) to select all control points. Drag one of the selected control points. All other control points move in unison. To deselect the group, click outside the object to deselect it.

Moving Control Points and Objects in Small Increments

You can "nudge" selected control points or an entire object in one-pixel increments by using keys on the keyboard.

To move or "nudge" control points in one-pixel increments:

1. Click a control point to select it, or Shift+click additional control points to move them as a group.
2. Nudge the control point or points by using one of the following techniques:
   - Press the Left Arrow key or the Trim Left key to nudge selected control points to the left.
   - Press the Right Arrow key or the Trim Right key to nudge selected control points to the right.
   - (Windows) Press the Alt key and the Left Arrow key or the Trim Left key to nudge selected control points up.
   - (Macintosh) Press the Option key and the Left Arrow key or the Trim Left key to nudge selected control points up.
   - (Windows) Press the Alt key and the Right Arrow key or the Trim Right key to nudge selected control points down.
   - (Macintosh) Press the Option key and the Right Arrow key or the Trim Right key to nudge selected control points down.

The Effect Preview monitor must be the active window for this feature to work. Additionally, if you have remapped the arrow keys on your keyboard, this feature might not function properly.

Previsualization Marker Tool for Film Projects

The Previsualization Marker tool enables you to place a marker in a segment to represent an effect that will be processed at an optical facility. This tool is applicable to 24-fps projects only and appears in the Effect Editor only when you are working in a film project with the Paint Effect.

When you create an optical list, each marker, along with its position in the segment on a keyframe-by-keyframe basis, appears as an optical event. The editor at the optical facility can refer to the event as a cue for creating a visual effect, such as a rotoscoped object.

You generate optical lists with Avid FilmScribe. For general information on using Avid FilmScribe, see the Avid FilmScribe User's Guide.

For example, the optical editor's assignment is to create an airplane that flies through the scene. The editor can use keyframe information from the optical list to plot the exact path of the effect as it moves through the scene. The marker's position at each keyframe is described with coordinates derived from the Effect Grid. Position is described in terms of compass coordinates and X, Y coordinates.

Additionally, you can add multiple markers to a single scene to represent different effects, and you can use a unique color for each marker. The resulting optical list will display each marker and its unique color values to enable the optical editor to distinguish each marker.

Applying a Previsualization Marker Effect

To add a Previsualization Marker effect to a sequence:

1. Enable the Effect Grid and set the appropriate parameters for image scan size, aspect ratio, and film format.

2. Click the Previsualization Marker Tool button in the Effect Editor.
3. Adjust the sliders in the Color parameter category to determine the color of the marker.
4. Move the cursor to the location in the frame where you want to place the marker, and click the mouse.

   A marker appears in the frame.
5. Use keyframes to move the marker throughout the segment.
6. To add more markers, repeat steps 2 to 5.

To delete a marker:

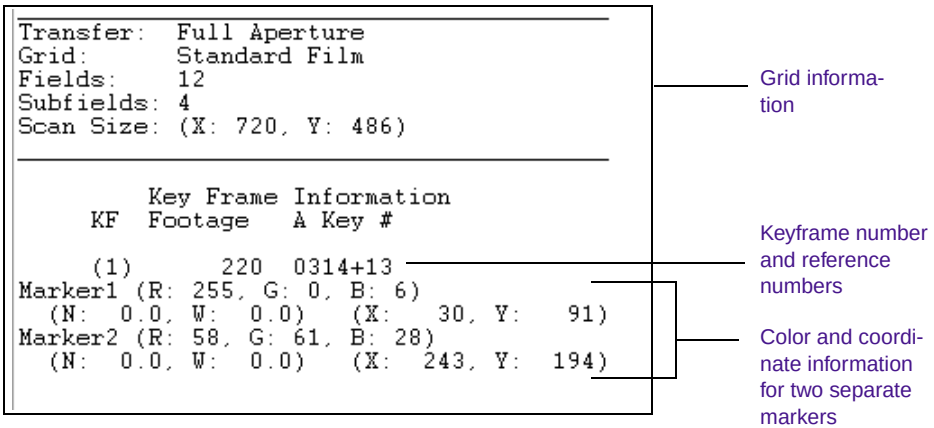
- Click the marker to highlight it, and then press the Delete key.

Creating a Cut List with Previsualization Marker Information

To include the Previsualization Marker coordinate information in a cut list:

1. In the Cut List tool within Avid FilmScribe, select Optical from the Lists pane.
2. Select the Key Frames check box in the Options pane for the optical list.

The following illustration shows the presentation of Previsualization Marker information in a cut list.



Manipulating Intraframe Objects

The Intraframe effects include editing tools and additional parameters that enable you to perform the following operations:

- Move objects individually or in groups
- Reshape objects
- Rotate objects
- Scale objects
- Apply keyframed changes over time

Moving Intraframe Objects

The Selection tool also enables you to drag objects or mattes around the screen and in relation to the screen when you zoom out from a frame.

To move a painted object or matte:

1. Click the Selection tool in the Effect Editor.
2. Click the object you want to move.

   The object outline becomes highlighted, and four selection points appear around the object.
3. Click the center of the object and drag it to a new location.
4. Release the mouse button when the object is positioned in the location you want.

Reshaping Intraframe Objects

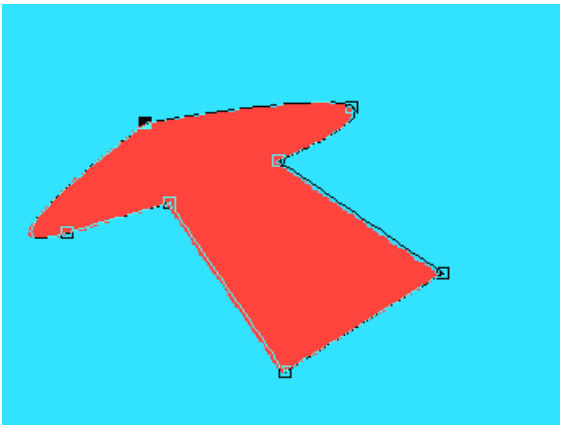
The Reshape tool enables you to modify the shape of a painted object or matte on the screen by using several different techniques. These procedures require some familiarity with vector-based graphics. For more information, see **"Working with Vector-Based Objects" on page 393**.

The shape of an intraframe object can be changed over time by using keyframes. For more information, see "Changing Intraframe Object Parameters over Time" on page 415.

To reshape an object:

1. Select an object or matte with the Selection tool.
2. Click the Reshape tool in the Effect Editor, or double-click the selected object.

   The outline of the object becomes highlighted, and control points appear.



If you want to drag the control points only, Alt+click (Windows) or Option+click (Macintosh) the Reshape tool to hide the direction handles.

3. Edit the shape of the object or matte:
   - Click one or more of the object's control points and drag. For information on moving control points, see **"Moving Control Points Manually" on page 406**.
   - Edit the object by manipulating the direction bars at one or more control points. For information on editing straight-line segments and curved segments, see **"Modifying Lines and Curves Summarized" on page 401**.

Reshaping Objects Created with the Curve Tool

The default behavior of control points in an object or matte created with the Curve tool differs slightly from those created with the Polygon tool. When you drag one of the direction handles, the direction bar on the opposite side of the control point moves in unison but the length does not change in unison. The dimensions of the curved segments on each side of the control point are not equal because the Curve tool creates curves with freehand capability, not with a mathematical formula that describes a Bézier curve in the way that the Polygon tool does.

You can transform the direction bars at a control point so that their lengths change in unison when you drag one of the direction handles. To do so, Shift+click one of the direction handles. For more information, see **"Modifying Lines and Curves Summarized" on page 401**.

Rotating Intraframe Objects Along the Z Axis

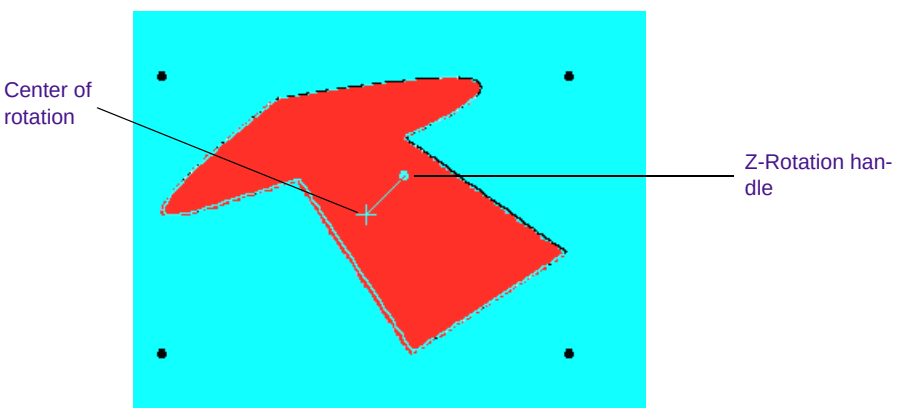
With the Z-Rotation tool, you can select an object or matte and rotate it around the Z axis (clockwise or counterclockwise direction). You also can change the rotation of an object over time by rotating the object on an individual keyframe basis.

The rotation of an intraframe object can be changed over time using keyframes. For more information, see ***"Changing Intraframe Object Parameters over Time" on page 415***.

To rotate an object or matte around the Z axis:

1. Click the Z-Rotation tool in the Effect Editor.
2. Click the object you want to rotate.

   The object outline becomes highlighted, and a rotation handle appears within the object.



The X on the rotation handle marks the default center of the Z axis for the object. You can click the X and drag it anywhere on the screen to change the center of the object's rotation.

3. Click the rotation handle and drag the mouse to rotate the object in either a clockwise or a counterclockwise direction.

Scaling Intraframe Objects

You can rescale any object or matte that you create. Rescaling increases or decreases all dimensions of the object proportionately.

The scale of an intraframe object can be changed over time using keyframes. For more information, see ***"Changing Intraframe Object Parameters over Time" on page 415****.*

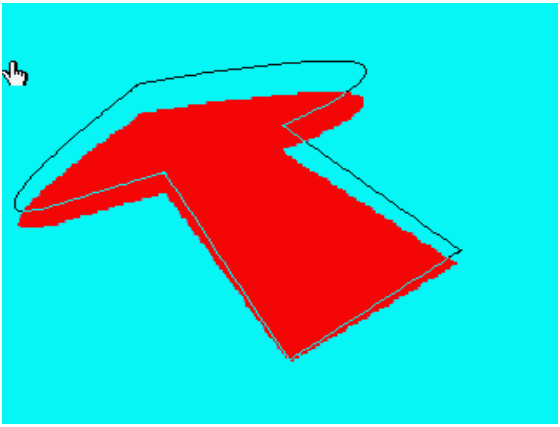
To rescale an object or matte:

1. Click the Selection tool in the Effect Editor.
2. Click the object you want to rescale.

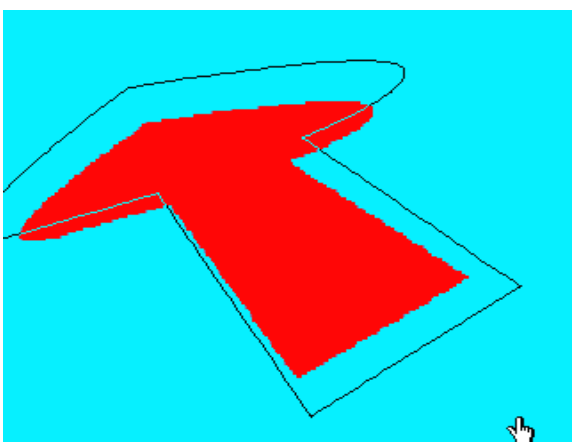
   The object outline becomes highlighted, and four selection points appear around the object.
3. Rescale the object by using one of the following methods:

   - Click any of the selection points and drag.

     Dragging toward the center of the object decreases the overall size, while dragging away from the center increases the overall size. When you drag a selection point, the object is anchored by the selection point that is diagonal to the one you are dragging.



- Alt+click (Windows) or Option+click (Macintosh) any of the selection points and drag to rescale the object using the center of the object as the anchor.



Changing Intraframe Object Parameters over Time

You can animate an intraframe object by changing parameters on an individual keyframe basis. The following parameters are keyframeable:

- Position of an object on screen (see **“Moving Intraframe Objects” on page 410**)
- Shape of an object (see **“Reshaping Intraframe Objects” on page 411**)
- Z-axis rotation of an object (see **“Rotating Intraframe Objects Along the Z Axis” on page 413**)
- Scale or relative size of an object (see **“Scaling Intraframe Objects” on page 414**)
- Feathering (see **“Feathering” on page 470**)
- Foreground level (see **“Foreground” on page 489**)
- Magic Mask (see **“Magic Mask” on page 472**)

For more information on using keyframes with parameters, see **“Using Keyframes” on page 129**.

Layering, Grouping, and Locking Intraframe Objects

The Intraframe effects include tools for navigating and adjusting layers of intraframe objects, grouping objects for performing operations on several objects at once, and locking objects to prevent further changes.

Layering with the Paint Effect

When you paint on a frame, the paint appears as an object in the foreground, seeming closer to you in three-dimensional space than the video frame. You can change the parameters of each painted object independently, including the object’s orientation in relation to another object. For example, if you have three painted objects, you can stack or

cascade them over each other to create three separate layers of objects in the foreground.

All compositing of painted objects takes place in the foreground and is not destructive to the video background. Keep in mind that when you composite various Paint Effects on a frame, the Avid system renders the Paint Effects to the screen beginning with the bottom layer.

Layering with the AniMatte Effect

Layering with the AniMatte effect works much as it does with the Paint effect, but the image that appears in the foreground is the video that you have chosen to key in or key out. Even though the Avid system renders matte keys starting with the highest track in a multilayer matte key, compositing of multiple AniMatte effects in the same segment occurs in the foreground and is not destructive to the video background.

Locating Layered Objects with the Outline/Path Button

You can use the Outline/Path button to locate an object or matte that might be obscured by others on the screen. The Outline/Path button creates a wire-frame representation of each object, which enables you to locate, select, and manipulate the object. Clicking the Outline/Path button switches the Path on or off.

To locate objects or mattes with the Path function:

1. Click the Outline/Path button in the Effect Editor.

   Each object painted on the frame appears as a wire frame.

2. Select an object and change its location or parameters.
3. Click the Outline/Path button to return to default viewing mode.

Bringing Objects and Mattes Forward by One Layer

You can use the Bring Forward function to bring a single object or matte forward by one layer (appearing *closer* to you in three-dimensional space).

To bring an object or matte forward by one layer:

1. Select an object on the screen with the Selection tool.

   If the object is obscured by other objects, use the Outline/Path feature to locate it as described in **"Locating Layered Objects with the Outline/Path Button" on page 417**.

2. Click the Bring Forward button, or choose Bring Forward from the Object menu.

   The object moves one layer forward in the foreground.

Sending Objects and Mattes Backward by One Layer

You can use the Send Backward function to send a single object or matte backward by one layer (appearing *farther* away from you in three-dimensional space).

To send a painted object or matte backward by one layer:

1. Select an object on the screen with the Selection tool.

   If the object is obscured by other objects, use the Outline/Path feature to locate it as described in **"Locating Layered Objects with the Outline/Path Button" on page 417**.

2. Click the Send Backward button, or choose Send Backward from the Object menu.

   The object moves one layer backward into the layers of objects that appear in the foreground.

Bringing Objects and Mattes to the Front

You can use the Bring To Front function to bring a single object or matte to the front of the foreground layers (appearing *closest* to you in three-dimensional space).

To bring a painted object or matte to the front:

1. Select an object on the screen with the Selection tool.

   If the object is obscured by other objects, use the Outline/Path feature to locate it as described in **"Locating Layered Objects with the Outline/Path Button" on page 417**.

2. Alt+click (Windows) or Option+click (Macintosh) the Bring Forward button, or choose Bring To Front from the Object menu.

   The object becomes the top layer in the foreground.

Sending Objects or Mattes to the Back

You can use the Send To Back function to send an object or matte to the bottom layer (appearing *farthest* away in three-dimensional space).

To send a painted object or matte to the back:

1. Select an object on the screen with the Selection tool.

   If the object is obscured by other objects, use the Outline/Path feature to locate it as described in **"Locating Layered Objects with the Outline/Path Button" on page 417**.

2. Alt+click (Windows) or Option+click (Macintosh) the Send Backward button, or choose Send to Back from the Object menu.

   The object becomes the bottom layer in the layers of painted objects that make up the foreground.

Grouping and Ungrouping Intraframe Objects

The Avid system enables you to group objects or mattes so that they behave as a single object. You then can move the new group and change its parameters as if it were a single object. If you want to separate the group and revert to working with the individual objects, you can do so by using the UnGroup function.

To group and ungroup painted objects or mattes:

1. Select an object on the screen with the Selection tool.

   If the object or matte is obscured by other objects, use the Outline/Path feature to locate it as described in **"Locating Layered Objects with the Outline/Path Button" on page 417**.

2. Shift+click any additional objects you want to include in the group.

3. Choose Group from the Object menu.

   The objects become grouped together, and you can manipulate the group as if it were a single object.

4. To ungroup the objects, select the group and choose UnGroup from the Object menu.

You also can group together groups of objects. If you then select the new group and choose UnGroup, all objects become ungrouped completely.

Locking and Unlocking Intraframe Objects

By using the lock feature, you can lock an object or a group in place on the screen. When you lock an object, the Avid system prevents you from moving the object accidentally while you add more effects and make additional edits to your sequence.

To lock and unlock a painted object or matte:

1. Select an object or group on the screen with the Selection tool.

   If the object is obscured by other objects, use the Outline/Path feature to locate it as described in **"Locating Layered Objects with the Outline/Path Button" on page 417**.

2. Choose Lock from the Object menu.
3. To unlock the object at any time, select the object and choose Unlock from the Object menu.

Exporting a Matte PICT File

You can create a matte with the AniMatte effect and export it from the Avid system as a high-contrast matte — without having to leave Effect mode. The exported image is a high-contrast 32-bit PICT file that includes an alpha channel.

You can use the exported PICT file in the following ways:

- Import the file back into the Avid system to create a real-time Matte Key clip that you can edit into a sequence. You can use this clip as a garbage matte, or, if your system has 3D effects capabilities, promote the clip to 3D.
- Open the file in a third-party graphics application, edit the file, and import the file back into the Avid system.
- Use the file as a graphic in an application other than your Avid system.

When you import the PICT file back into the Avid system, the system creates a Matte Key clip in the bin that you select. You can load the Matte Key clip into the Source monitor and edit it into a sequence as you can with any other imported matte key. The Matte Key clip appears as a high-contrast matte with transparent (black) and opaque (white) components.

For more information on creating matte keys, see ***"Creating Key Effects" on page 173****. For more information on editing a Matte Key clip into a sequence, see* ***"Editing with Imported Matte Key Clips" on page 183****.*

When you open the high-contrast PICT file in a third-party application that supports alpha channels, select the file's alpha channel to view the high-contrast components of the matte. However, if you open the PICT file in an application that does not support alpha channels, the image appears completely white.

To export a matte key created with the AniMatte effect:

1. Create a matte key using the AniMatte effect in Effect mode.

To follow the remaining steps in this procedure, you must be working in Effect mode.

2. Move the position indicator in the Effect Preview monitor's position bar to the frame you want to export.
3. Choose Export Matte PICT from the File menu.

   A dialog box appears.
4. Choose the location where you want to save the PICT file, and then click Save.

   The system saves the PICT file to the location you chose.
5. If necessary, open the PICT file in a third-party application and make changes to the file.
6. Select the bin into which you will import the PICT file, and choose Import from the File menu.

   The Import file(s) into bin dialog box appears.
7. Click Options.
8. To use the existing alpha channel, deselect Ignore Existing Alpha.

   Depending on your needs, you might have to select Invert Existing Alpha; in a high-contrast matte key with an alpha channel on an Avid system, the white regions are opaque, and the black

regions are transparent. For more information on importing a matte key, see the chapter "Importing Files" in the *Avid Media Composer and Film Composer Input and Output Guide.*

9. When you have finished selecting the options you need, click OK.
10. Continue with the instructions in the chapter "Importing Files" in *the Avid Media Composer and Film Composer Input and Output Guide* to complete the import of the file into the bin.

    The PICT file appears as a Matte Key effect clip in the bin you chose.
11. Click the Source/Record Mode button.
12. Load the Matte Key effect clip into the Source monitor.

    The clip appears in the Source monitor as a black-and-white, high-contrast image.
13. Edit the matte key into the sequence as described in **"Editing with Imported Matte Key Clips" on page 183**.

Scratch Removal

Some Avid editing systems include tools for fixing flaws such as dropout in video frames or defects in film-originated footage. You can replace a flaw with clean material from the same frame or field or from other nearby frames or fields.

Understanding Scratch Removal Options

The basic workflow for removing a flaw involves the following main steps:

1. Isolate the flawed material in a new segment.
2. Apply an Intraframe effect.

3. Use the Intraframe drawing tools and effect parameters to draw a shape that covers the flaw and fill the shape with clean replacement material.
4. (Option) If the flaw persists over several frames or fields, you might need to adjust the covering shape by using keyframes so that it continues to cover the flaw as the footage moves.

Before you correct a flaw, you should make some basic decisions about how you want to make the correction. The following sections provide an overview of the differences between correcting within the same frame or field and correcting using nearby frames or fields; they also provide guidance on deciding exactly what material you need to isolate when you make the correction.

Removing a Flaw Within a Frame

You can often remove a flaw by replacing it with a clean area from the same frame or field. For example, a flaw on a uniformly colored background such as sky can be replaced by copying another portion of the sky over the flaw.

The advantage of removing a flaw by using material from the same frame that contains the flaw is that you can see both the flaw and all the available clean material as you work. This can be helpful for certain kinds of footage, making it easy to choose the exact portion of the image that allows for the best replacement.

Removing a Flaw by Using Nearby Frames

You can correct flaws on a wider range of footage types by using replacement material from a nearby frame or field.

This method provides an alternative for dealing with uniform areas such as sky since you can replace a flaw with the same area from a nearby clean frame.

Replacing with material from a nearby frame or field also allows you to correct flaws in more complex footage. For example, a flaw on an image such as a face might be very difficult to cover by using material from the same frame or field — there might be no other area of the face in that image that shows similar tones, textures, and highlights. In this situation, it is better to replace the flaw by copying the same part of the face from an earlier or later frame that does not contain the flaw.

When you replace a flaw by using material from a nearby frame, you cannot see the whole of the nearby frame as you work. Instead, you see the replacement area in the shape you draw to cover the flaw, and you adjust which portion of the nearby frame appears by using parameter sliders in the Effect Editor.

Selecting Material to Use When Correcting Flaws

When you isolate a flaw as a new segment in order to correct it, you must also include enough clean material to make the correction. The Intraframe tools you use for removing flaws cannot reference frames outside the segment that you isolate.

In some cases, you can take all the clean material you need from the same frames that contain the flaw. In other situations, you need to include one or more completely clean frames along with the flawed frames in the segment you isolate.

For example, if a flaw persists across several frames in footage that includes no motion, the simplest way to correct the flaw is to include one clean frame before or after the flawed frames and use replacement material from the clean frame to cover the flaw in all the other frames. For more information on using replacement material from different points in your footage, see **“Examples Of Scratch Removal Parameter Settings” on page 435**.

Isolating a Flaw

If you need to correct a flaw on a single frame, you can use the Scratch Removal button to quickly create a two-frame segment and apply the Scratch Removal effect.

If a flaw persists over several frames, do one of the following:

- Use the Scratch Removal button to create a two-frame segment, and then trim the segment to extend it by using standard Trim mode methods.
- Insert add edits and apply a Scratch Removal effect manually.

You cannot access frames outside the segment you have marked when you are working with the Scratch Removal tools. When you isolate a flaw, you must include in the segment both the flawed frames and sufficient clean material to correct the flaws successfully. For more information on the relationship between flaws and clean material, see ***"Understanding Scratch Removal Options" on page 423*** *and* ***"Examples Of Scratch Removal Parameter Settings" on page 435****.*

Isolating a Flaw by Using the Scratch Removal Button

If the flaw you need to fix is on one frame, you can isolate the flaw on a new segment and apply the Scratch Removal effect simply by clicking the Scratch Removal button. The button creates a two-frame segment that isolates the flawed frame and the clean frame immediately before it, which you will use to make the correction.

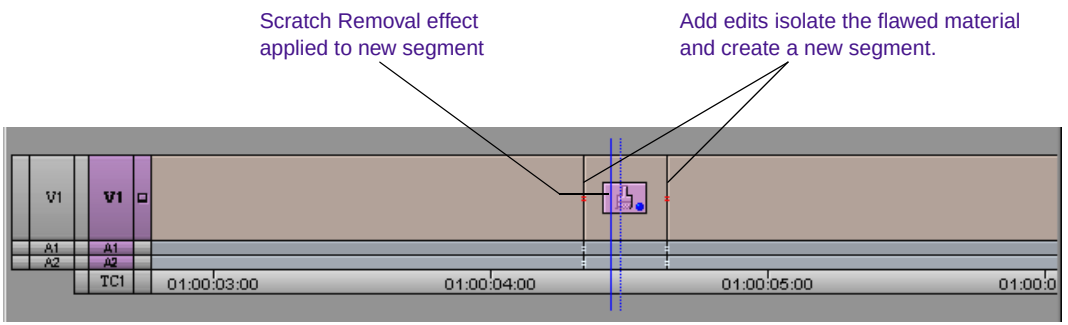
For information on finding flaws in 24p or 25p material, see ***"Detecting Video Dropout in 24p or 25p Material" on page 428****.*

To isolate a flaw by using the Scratch Removal button:

1. Find the frame containing the flaw:
   - Use the Step Forward or the Step Backward button to carefully cue the frame containing the flaw.
   - (Option) Press and hold the Alt key while clicking the Step Forward or the Step Backward button to step through one *field* at a time.
2. Move the position indicator to the frame containing the flaw.
3. Make sure that the Record Track button for the track containing the flaw is the highest selected track button in the Track Selector panel.

4. Click the Scratch Removal button.

   The system creates a two-frame segment ending at the frame marked by the position indicator and applies the Scratch Removal effect to that segment. If an effect is already present at that point in the sequence, the system auto-nests the Scratch Removal effect on top of the existing effect.



The Scratch Removal button appears by default in the Tool palette. You can also map the Scratch Removal button from the Command palette to the keyboard or to the Composer window.

Isolating a Flaw by Using Add Edits

If you need to remove a flaw that persists across more than two frames or that requires more than two frames for successful correction, you can isolate the flaw manually by using add edits.

For information on finding flaws in 24p or 25p material, see ***"Detecting Video Dropout in 24p or 25p Material" on page 428***.

To isolate a flaw by using add edits:

1. Find the series of frames or fields containing the flaw:
   - Use the Step Forward or the Step Backward button to carefully cue the frames containing the flaws.
   - (Option) If you are working with two-field media, press and hold the Alt key while clicking the Step Forward or the Step Backward button to step through one *field* at a time if necessary.
2. Isolate the flawed frames, together with sufficient clean material to make your correction, by placing add edits before and after the frames to create a new segment.
3. Apply one of the following effects to the segment:
   - Paint Effect
   - Scratch Removal effect

You can use either the Paint Effect or the Scratch Removal effect. The difference is that the Scratch Removal effect provides only those effect parameters specific to fixing flaws, while the Paint Effect provides Scratch Removal as one of many available Paint modes.

Detecting Video Dropout in 24p or 25p Material

Because of the way your system handles the display of 24p or 25p material, you might not be able to see video dropout when you use the default Fast Frame Display mode.

To ensure that you can see dropout when you are working with 24p or 25p material, turn off Fast Frame Display mode by choosing Fast Frame Display from the Special menu. (When Fast Frame Display is deselected, there is no check mark beside it in the menu.) You can then see every line of the full 24p or 25p frame.

For more information on how your system displays 24p or 25p material, see the chapter "Film-to-Tape Transfer Methods" in the *Avid Media Composer and Film Composer Input and Output Guide.*

When you turn off Fast Frame Display, you slow down the system's display capabilities. If you turn off Fast Frame Display to check for flaws, you should turn it on again before you proceed with other editing operations.

Removing a Flaw by Using Intraframe Tools

Once you have isolated the flaw and have applied an Intraframe effect to it, you can remove the flaw by replacing it with a clean area of video. The best way to do this in most circumstances is to draw a shape that covers the flaw and fill the shape with replacement material. An alternative method is to draw a shape over your chosen replacement material and then drag the replacement over the flaw. This works well when you are taking replacement material from the same frame that contains the flaw.

Drawing a Shape over a Flaw

To remove a flaw by drawing a shape over it and filling the shape with replacement material:

1. Isolate the flaw and apply the Paint Effect or Scratch Removal effect by using the procedures described in **"Isolating a Flaw" on page 426**.
2. Enter Effect mode and select the segment if it is not already selected.

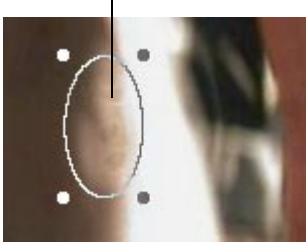
3. (Option) If you are working with the Paint Effect, choose Scratch Removal from the Fast menu in the Mode category.
4. Click the triangular opener next to the Mode parameter category (Paint Effect) or the Scratch parameter category (Scratch Removal effect).
5. Select a shape tool or a brush from the Effect Editor.
6. Click the image and drag to create an object that covers the flaw.

In most circumstances, you should make the object as small as possible while still covering the flaw completely.

7. Make sure that the Object Visible button is selected (pink) in the Mode parameter category (Paint Effect) or the Scratch parameter category (Scratch Removal effect) of the Effect Editor.
8. Use the Horizontal, Vertical, and Frame or Field sliders in the Effect Editor to select an area of replacement material to fill the object in the image and replace the flaw.

   The replacement material appears in the object, replacing the flaw. For more information on using the Horizontal, Vertical, and Frame or Field parameter sliders, see **"Using the Scratch Removal Positioning Parameters" on page 434**.
9. (Option) Use the Feathering parameters to help blend the replacement material into the surrounding area.

Original flaw:
Flaw seen with a shape drawn around it.



Final effect:
Clean material from a nearby frame appears within the shape.

10. Render the effect to play it back in real time.

If necessary, you can animate the shape that contains the replacement material by using keyframes to follow movement and changes in the frames of footage. For example, you can resize, reshape, and reposition the shape over time, or you can use the Object Visible button to control when the shape is visible. For more information, see **"Animating the AniMatte Effect" on page 451** and **"AniMatte and Paint Effects" on page 459**.

A standard Intraframe geometric shape such as an oval or a rectangle renders considerably faster than a series of brush strokes. In most cases of a single small flaw, a brush might be the easiest correction tool. If you need to correct several flaws that are close together, however, you will save rendering time if you can cover them with a single shape rather than use several different brush strokes.

Dragging Replacement Material over a Flaw

To remove a flaw by selecting replacement material and then dragging it over the flaw:

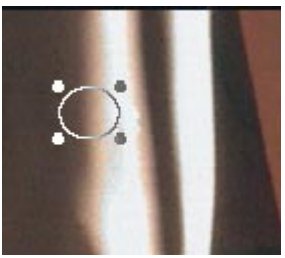
1. Isolate the flaw and apply the Paint Effect or Scratch Removal effect by using the procedures described in **"Isolating a Flaw" on page 426**.
2. Enter Effect mode and select the segment if it is not already selected.
3. (Option) If you are working with the Paint Effect, choose Scratch Removal from the Fast menu in the Mode category.
4. Click the triangular opener next to the Mode parameter category (Paint Effect) or the Scratch parameter category (Scratch Removal effect).
5. Select a shape tool or a brush from the Effect Editor.
6. Click a clean area of the image, and drag to create a selection that is appropriately sized for covering the flaw.

In most circumstances, you should make the object as small as possible while still covering the flaw completely.

7. Drag the replacement selection over the flaw.
8. (Option) Use the Feathering parameters to help blend the replacement material into the surrounding area.

Original flaw and selection

Selection dragged over flaw



Final effect

9. Render the effect to play it back in real time.

If necessary, you can animate the selection by using keyframes to follow movement and changes in the frames of footage. For example, you can resize, reshape, and reposition the shape over time, or use the Object Visible button to control when the shape is visible. For more information, see **"Animating the AniMatte Effect" on page 451** and **"AniMatte and Paint Effects" on page 459**.

Scratch Removal Using IN and OUT Points

You can use IN and OUT points to define multiple frames or fields of video that contain a scratch and then use the Scratch Removal button to quickly create a Scratch Removal effect that covers the scratched frames or fields together with the clean frame or field immediately before them. When you draw a shape to cover the scratch, the system will fill that shape with clean material in every frame or field of the effect.

This method is useful in any situation where a scratch is repeated across several frames or fields. In particular, it allows for quick correction of a scratched frame in film-originated material that has been duplicated by the pulldown process in telecine transfer to video.

To remove a scratch covering more than one frame or field:

1. Mark an IN point at the first scratched frame or field.
2. Mark an OUT point at the last scratched frame or field.
3. Move the position indicator to one of the following locations:
   - Between the marked IN and OUT points
   - On the frame or field immediately before the marked IN point
4. Click the Scratch Removal button.

   The system applies a Scratch Removal effect that covers the scratched frames or fields and the clean frame or field immediately before them.

The position indicator must be between the marked IN and OUT points or on the frame or field immediately before the marked IN point. If the position indicator is at any other location, the system creates the Scratch Removal effect at that location and ignores the marked IN and OUT points.

5. Select a shape tool or a brush from the Effect Editor.
6. Click the image and drag to create a shape that covers the scratch.

   The system replaces the material in the shape with material from the clean frame or field. The same clean material covers the scratch on every scratched frame or field within the effect.

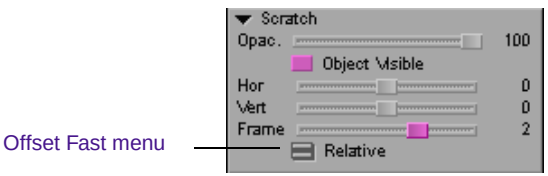
The Scratch Removal positioning parameters are set by default to reference the part of the clean frame that corresponds to the shape you draw. In most cases, you do not need to make any adjustments to these parameters to cover the scratch successfully.

7. (Option) Use the Feathering parameters to help blend the replacement material into the surrounding area.

8. Render the effect to play it back in real time.

In some unusual circumstances, you might need to animate the shape that contains the replacement material by using keyframes together with positioning adjustments to follow movement and changes. For example, if the image is changing rapidly from frame to frame and the scratch covers several frames, the clean material might not match the later scratched frames without repositioning.

Using the Scratch Removal Positioning Parameters



The Hor (horizontal), Vert (vertical), and Frame or Field sliders in the Scratch Removal mode of the Paint Effect or in the Scratch category of the Scratch Removal effect allow you to control exactly which material you use from elsewhere in the same frame or in nearby frames to replace flawed material.

The Hor (horizontal) and Vert (vertical) sliders define the position of the replacement material relative to the shape you have drawn on the horizontal and vertical axes of the frame.

The Frame or Field slider defines which nearby frame or field is being used as the source of the replacement material. Values represent an offset from the reference point defined in the Offset Fast menu. The default settings for Frame or Field offset are:

Frame/Field: 0

Offset: From Start

These settings correctly reference the clean frame or field whenever you apply the Scratch Removal effect using the Scratch Removal button. The settings reference the clean frame when you use the Scratch Removal button without marking IN and OUT points to remove a scratch on a single frame or field. They also reference the clean frame when you use the Scratch Removal button with IN and OUT points to remove a scratch or other flaw that repeats across more than one frame or field.

For more information on these parameters, see **"Scratch" on page 509**.

You cannot access frames more than 5 frames (or fields more than 10 fields) from the zero point as defined by the Offset Fast menu, regardless of the length of the segment.

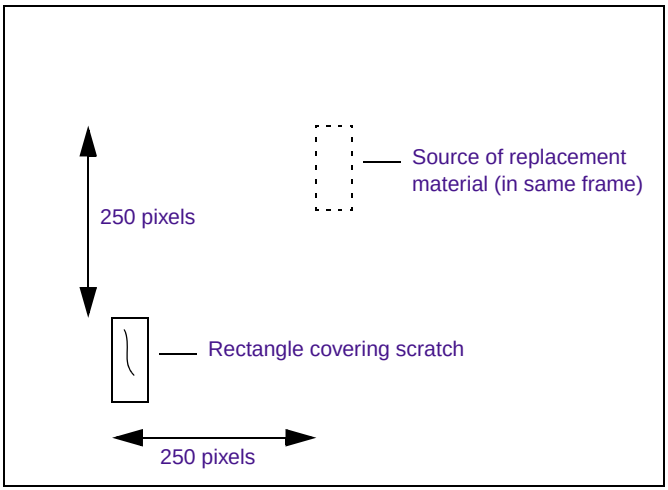
You cannot access frames or fields outside the segment that contains the effect. If you are positioned six fields from the end of the segment, and you set the Field slider to 10 and the Offset to Relative, you reference the last field of the segment (six fields ahead of your position).

Examples Of Scratch Removal Parameter Settings

The following examples illustrate several different settings for the Scratch Removal positioning parameters.

Example 1: Replacement Material in the Same Frame

Parameter Settings
Vertical: –250
Horizontal: +250
Frame/Field: 0
Offset: Relative



In this example, the effect replaces the area of the rectangle covering the scratch with material from the area of the dotted rectangle in the same frame or field. Each frame or field in the segment will use replacement material from the same relative position in its own frame or field.

Example 2: Replacement Material from a Two-Frame Relative Offset

Parameter Settings
Vertical: 0
Horizontal: 0
Frame: +2 (*Field:* +4)
Offset: Relative

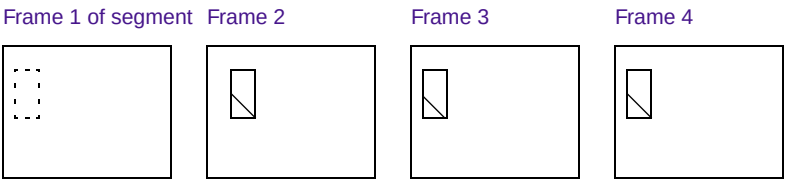
Rectangle covering scratch in frame *n*

Source of replacement material in frame *n+2* — two frames (four fields) ahead

In this example, the area of the rectangle covering the scratch is replaced by the same coordinate area of the frame two frames (four fields) ahead. Each frame or field in the segment will use replacement material from two frames (four fields) ahead.

Example 3: Replacement Material from a Single Clean Frame

Parameter Settings
Vertical: 0
Horizontal: 0
Frame/Field: 0
Offset: From Start



In every frame, the rectangle covering the scratch is replaced by the material from the dotted rectangle area in Frame 1.

In this example, the area of the rectangle covering the scratch is replaced by the area of the dotted rectangle in the first frame of the segment. If the same parameter settings are used throughout the segment, then *every* frame in the segment will reference the first frame of the segment.

You can choose From Start or From End from the Offset Fast menu in this way to cover a flaw in several frames with clean material from a single frame. In this example, the flaw first appears in frame 2, and it is replaced in every frame in which it appears by clean material from frame 1.

Common Intraframe Editing Techniques

The following sequence contains examples of basic Intraframe editing techniques — from simple Paint Effects to animated matte keys.

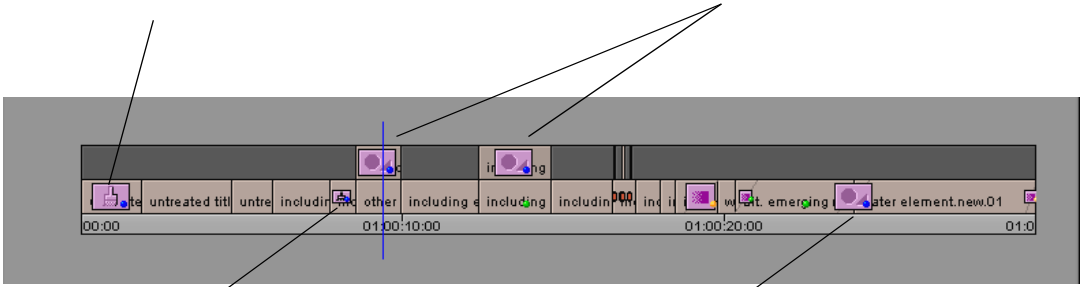
You can double-click the following image to view the entire sequence in the PDF version of this guide, available on the Avid Media Composer and Film Composer Online Publications CD-ROM.

The Timeline for this sequence is shown in the following illustration. The callouts present several Intraframe editing examples and the sections that describe them.

Intraframe Editing Examples

Magic Mask used to colorize a chosen region of the image: See **“Colorizing with Magic Mask” on page 440**.

Two-layer animated matte effects: See **“Creating Animated Matte Key Effects” on page 448**.



Blur effect applied to a traced area of the clip: See **“Applying the Paint Effect to Regions of a Clip” on page 445**.

Custom-built wipe using the AniMatte effect: See **“Creating a Single-Layer Organic Matte Wipe” on page 452**.

Colorizing with Magic Mask

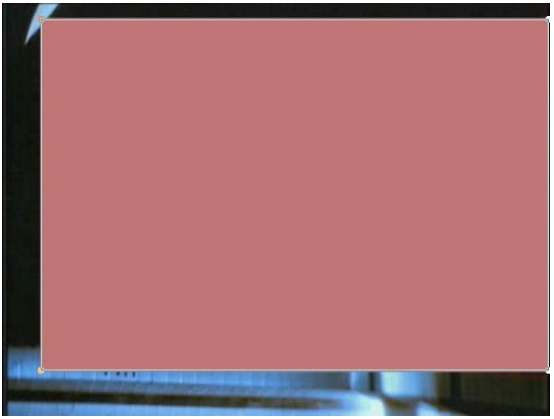
Magic Mask is used for applying effects across a series of frames by using the chroma and luma values as the criteria for edge detection. While you can use Magic Mask in conjunction with any of the paint modes to generate custom effects, the primary benefit of this feature is localized colorization, which enables you to create garbage mattes and various chroma effects. For example, this can be used to change the color of a white shirt to another color without having to create a detailed matte.

In this example, the goal is to colorize the window area through which we see the athletes walking to the pool. The odd shapes in the window area would normally make this task extremely time consuming; but because the region is high contrast with a consistent off-white color, Magic Mask makes the job simple.

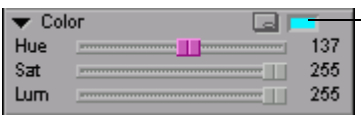
To colorize the image:

1. Open the Effect Palette, and apply the Paint Effect from the Image category to the segment of footage in the sequence.
2. Enter Effect mode and select the segment if it is not already selected.

   The Paint Effect parameters appear in the Effect Editor.
3. Choose Solid from the Fast menu in the Mode category for this example. In other applications of Magic Mask you might choose another mode such as Lighten, Darken, or Colorize.
4. Click the Rectangle tool (or another shape tool) in the Effect Editor, click in the Effect Preview monitor, and drag to draw a box surrounding the window region.

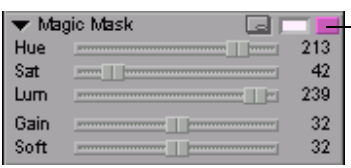


5. Open the Color category, and, by using standard methods, choose a color to apply to the window region . For more information on choosing a color, see **"Adjusting a Color Parameter" on page 125**.



Select a color from the image with the eyedropper, click the Other Options button to use the Windows Color dialog box or the Macintosh Color Picker, or adjust the sliders to choose a color.

6. (Option) Click the Outline/Path button so you have an unobscured view of the object you want to colorize. Adjust the size and shape of the box as necessary.
7. Click the Enable button in the Magic Mask category.

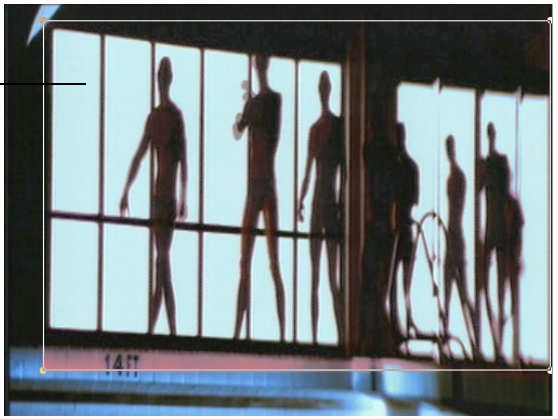


Enable button

The Avid system activates the Magic Mask.

The default key color for Magic Mask might not match the color in your selection, so the color is not yet applied to the white area of the window.

Effect applied before choosing Magic Mask key color: the color effect does not appear.



8. Click in the Color Preview window of the Magic Mask category, drag the cursor to the off-whitearea of the window in the image, and release the mouse button.

   The Avid system sets the Magic Mask key color to the color you selected, and applies the effect.

9. Click the Outline/Path button to switch between viewing the image with or without the effect.

10. Adjust the Magic Mask parameters, such as Gain and Soft (softness), to fine-tune the effect.

The Avid system applies the colorization effect to areas where the rectangle shape extends beyond the window area in the image. You can quickly convert the rectangle to a polygon and adjust its shape around the window.

To reshape the rectangle:

1. Click the rectangle to select it.
2. Double-click the rectangle to display its control points.
3. Drag the control points at the corners of the rectangle one at a time to surround the window area.

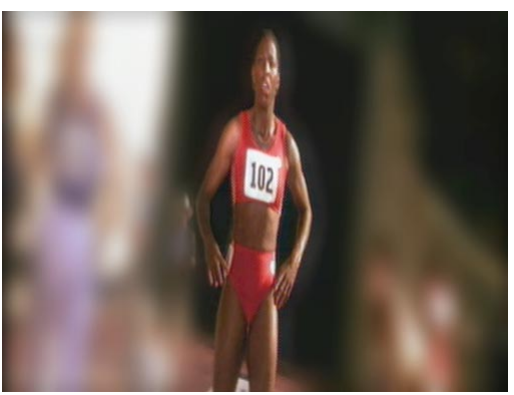
New shape restricts the Magic Mask effect to the window area.

Applying the Paint Effect to Regions of a Clip

The Paint Effect includes a number of modes for applying special effects to traced regions of an image. This example describes the gradual application of the Blur mode to a region of the clip using keyframes. The effect gives the impression that the background is losing focus while the rest of the image is unaffected.

Blur effect – before

Blur effect – after



To apply the blur:

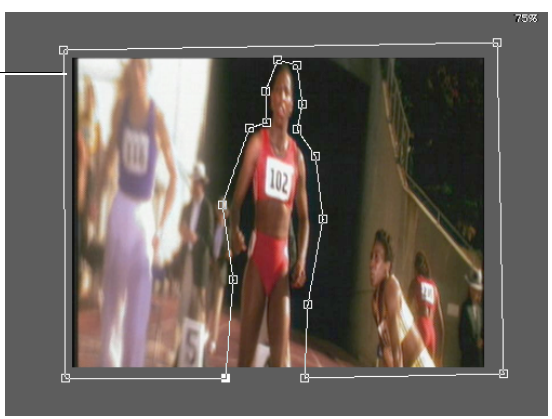
1. Open the Effect Palette, and apply the Paint Effect from the Image category to the segment of footage in the sequence.
2. Enter Effect mode and select the segment if it is not already selected.

   The Paint Effect parameters appear in the Effect Editor.

The next task is to trace the background region around the woman in the foreground in order to apply the effect. Because the woman moves during the clip, you must animate the traced shape using keyframes.

3. Press the Home key to go to the beginning of the clip. Make sure both the first and last keyframes are selected.
4. Click the Reduce button in the Effect Editor to view the image in the Effect Preview monitor at 75 percent. (This makes it easier to include the outer edges of the footage in the traced area.)

5. Click the Curve tool.
6. Click on the image and drag to draw a matte with freehand capability. Trace an outline around the woman and surrounding the background.
7. When you are satisfied with the shape of the matte, release the mouse button.



Complex polygon shape traced around woman and background

8. Click the last keyframe in the Effect Preview monitor to select it. Check the shape of the traced area around the woman, and adjust control points as necessary to make an accurate outline.
9. Before creating new keyframes to further animate the traced outline, apply the blur to the first and last keyframes to ensure a smooth effect across all keyframes:
    a. Click the first keyframe in the Effect Preview monitor to select it.
    b. Choose Blur from the Fast menu in the Mode category.

    c. Drag the Hor (horizontal) and Vert (vertical) sliders all the way to 0.
    d. Click the last keyframe in to select it.
    e. Drag the Hor (horizontal) and Vert (vertical) sliders to 50.

    The Blur mode effect is applied.

10. Click elsewhere in the Effect Preview monitor's position bar to check the traced outline. Make adjustments as necessary.

As you adjust control points, the system automatically creates new keyframes.

11. (Option) To soften the edges of the blurred outline around the woman, adjust the Feathering parameters. For more information, see **"Feathering" on page 470**.
12. Render the effect to play it back in real time.

Creating Animated Matte Key Effects

When you apply the AniMatte effect and create a matte key, the shape and location of the matte remain fixed over the course of the segment. The parameters of the matte are the same at both the first and last keyframes in the segment.

When you have moving video, you must change the shape and location of the matte in order to follow the changes of the video over the course of the segment.

Foreground image on upper layer

Background image on lower layer

In this example, the matte shape is animated to follow the movement of the men in the foreground footage.

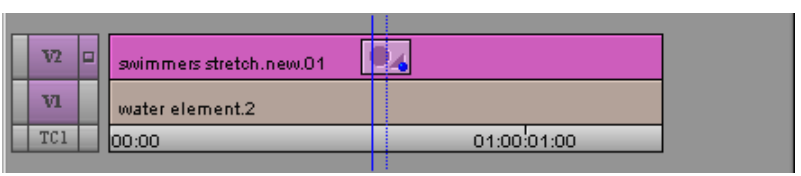
Composite image

Applying the Matte Key Effect

To apply a two-layer matte key:

1. For this two-layer effect, edit the image you want to use as the background onto one track and the image you want to use as the foreground onto the track above.
2. Open the Effect Palette.
3. Click the Key category.
4. Drag the AniMatte Effect icon from the Effect palette to the upper track in the Timeline.

In this example, the background is on track V1 and the foreground is on track V2.



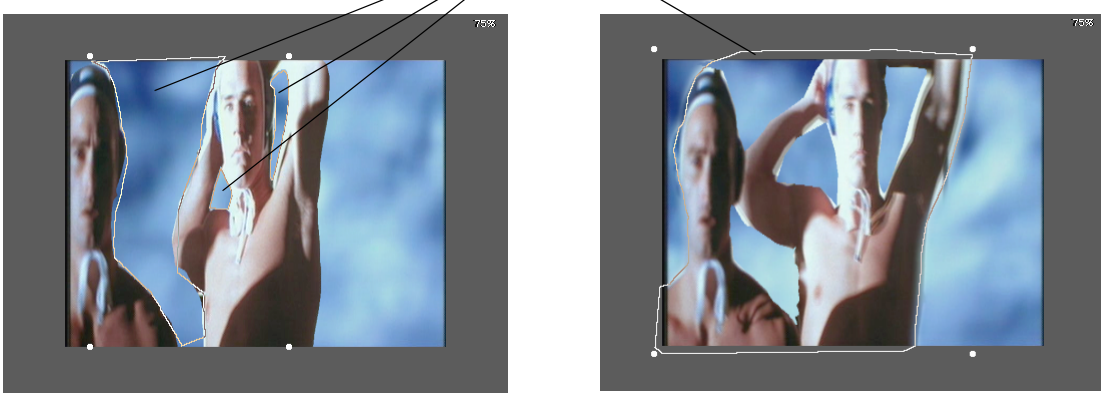
5. Press the Home key to go to the beginning of the clip. Make sure both the first and last keyframes are selected.

6. Click the Reduce button in the Effect Editor to view the image in the Effect Preview monitor at 75 percent. (This makes it easier to include the outer edges of the footage in the traced area.)

7. Click the Curve tool.
8. Choose Key In from the Fast menu in the Mode category.
9. Click on the image and drag to draw a matte with freehand capability.
10. When you are satisfied with the shape of the matte, release the mouse button.

    The area outside the border of the matte reveals the underlying image on the lower track (V1 in the example), and the area inside the border of the matte displays the image on the upper track (V2).

In this example, a series of shapes are drawn to key out all areas of the foreground image.



11. To check the traced outline, click the Swap Src (swap sources) button in the Foreground category.

The foreground and background footage are reversed in the key. This allows you to easily spot areas where the outline encroaches on the foreground image.

In this example, swapping sources on one of the shapes reveals edges from the foreground image.

12. Click the Swap Src button to restore your effect to a matte that keys in your selection.

Animating the AniMatte Effect

To animate a Matte Key effect:

1. Click the Step Forward button or the Step Backward button as many times as necessary to park on a frame in which the matte no longer provides a clean key due to the motion of the foreground or background image.
2. Adjust the matte outline as follows:

- Click the Reshape tool and drag control points to change the shape. You can also Shift+click multiple control points for repositioning as a group. For information, see **“Removing a Control Point” on page 405**.

- Edit the object by manipulating the direction bars at one or more control points. For information, see **“Modifying Lines and Curves Summarized” on page 401**.
- Click the Swap Src button if necessary to swap the view of the foreground and background images to examine edges.

- Reposition the matte if necessary by selecting the shape and dragging it with the Selection tool.

As you adjust control points, the system automatically creates new keyframes.

3. Repeat the procedure as needed to create a matte that keys the images cleanly over the course of the segment.
4. (Option) To soften the edges of matte key, adjust the Feathering parameters. For more information, see **“Feathering” on page 470**.
5. Render the effect to play it back in real time.

Creating a Single-Layer Organic Matte Wipe

You can use the AniMatte effect to create a custom matte wipe. Additionally, you can create soft edges and other useful variations by adjusting the parameters of the AniMatte wipe. Multiple video tracks are not necessary. You apply the AniMatte effect to a transition on a single track of video and then draw the matte wipe as described in this section.

To create an organic matte wipe:

1. Create a sequence that contains a transition (an incoming and an outgoing segment).

Outgoing segment

Incoming segment

2. Apply the AniMatte effect to a transition as described in **"Applying the Paint or AniMatte Effect to a Sequence" on page 368**.

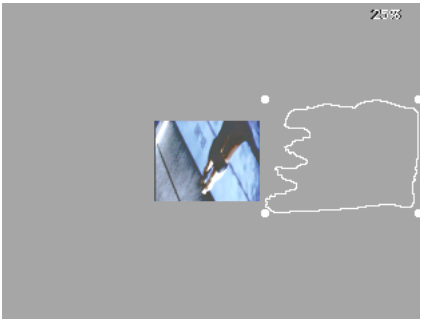
3. Click the Effect Mode button to enter Effect mode.
4. Choose Key In from the Fast menu in the Mode category.

5. Click the Reduce button three times to reduce the image to 25 percent of its normal viewing size.
6. Click the first keyframe in the Effect Preview monitor's position bar.

   The first keyframe is highlighted, and the last keyframe is deselected.

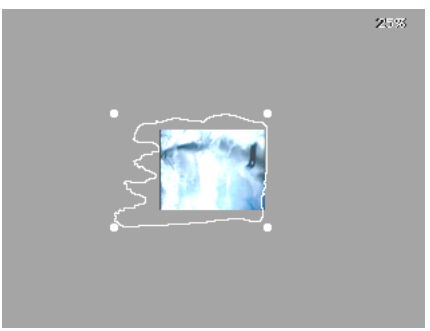
7. Click the Curve tool.
8. Press and hold the mouse button, and drag to draw a custom shape to the right of the image displayed in the Effect Preview monitor.

Draw a matte that is at least as wide as the frame in the Effect Preview monitor.



9. When you are satisfied with the shape of the object, release the mouse button to complete the matte wipe.
10. Click the last keyframe in the Effect Preview monitor's position bar.

    The Avid system highlights the last keyframe, and deselects the first keyframe.
11. Click the matte wipe within its borders and drag it so that it covers the frame in the Record monitor. Make sure to position the leading edge of the wipe so that it is beyond the left border of the frame.



12. Click the Enlarge button three times to restore the video image to 100 percent.
13. Click in the middle of the Effect Preview monitor's position bar to view the edge of the wipe.

14. (Option) To soften the edges of the wipe, adjust the Feathering parameters. For more information, see **“Feathering” on page 470**.
15. Render the effect to play it back in real time.

CHAPTER 9

2D Effects Reference

This chapter describes all 2D effects parameters and then summarizes all 2D effects in alphabetical order within each effect category. For information on effects editing, see **Chapter 2**, "**Basics of Effects Editing**."

2D Effects Parameters

This section provides a general description of all 2D parameters, in alphabetical order. Some parameters have corresponding 3D versions. The 3D versions are described in **Chapter 10**, "**3D Effects Reference**."

Effect parameters are grouped in the following categories:

- **Background** (see 3D version on **page 642**)
- **Blowup**
- **Border** (see 3D version on **page 643**)
- **Color Effect Parameters**
- **Crop** (see 3D version on **page 645**)
- **Downstream Key**
- **Foreground** (see 3D version on **page 649**)
- **Key Control Parameters** (see 3D version on **page 650**)
- **Matrix Parameters**
- **Motion Effect Parameters**
- **Position** (see 3D version on **page 658**)
- **Profile**
- **Scaling** (see 3D version on **page 661**)
- **Scratch**
- **Transition Parameters**

For an explanation of how to change a parameter, see **"Changing a Parameter" on page 123**.

Global and Keyframeable Parameters

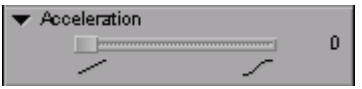
The effects parameters are divided into two logical groups:

- **Global parameters**: Changes apply to all keyframes. When you change a global parameter, the Avid system automatically sets the value for all keyframes in the effect.
- **Keyframeable parameters**: Changes can be applied to individual keyframes. You can use keyframe parameters to alter an effect over time.

This distinction is noted throughout this section for each parameter.

Acceleration

Parameter type: Global



Acceleration adjusts the effect's speed over time by having the effect ease in and ease out of every keyframe. This gives the effect a more natural appearance.

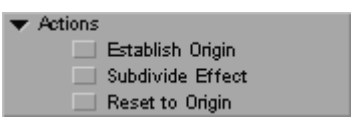
Acceleration is not recommended for rolls or other DSK titles with vertical motion, due to anti-aliasing effects, which cause flicker.

The overall speed of an effect is determined by the duration of the effect, which is determined by the length of the clip in the sequence. If you want to slow down or speed up the movement of an effect, you will need to change the length of your effect or use add edits to limit the portion of the clip affected by the effect.

If your system has the 3D Effects option, see the 3D version on ***page 640****.*

Actions

Parameter type: Global

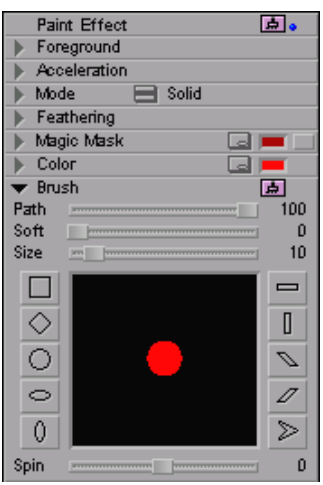


The Actions parameter allows you to control certain aspects of the Pan and Scan effect.

Table 9-1 Actions Parameters

Parameter	Description
Establish Origin	Saves the current Scaling and Position values as a customized default setting. For more information, see **"Setting an Origin in the Pan and Scan Effect" on page 199**.
Subdivide Effect	Divides a Pan and Scan effect into a series of segments based on the segment boundaries on the video tracks below the Pan and Scan track. For more information, see **"Subdividing the Pan and Scan Effect" on page 200**.
Reset to Origin	Resets the Scaling and Position values to the current customized Origin values. If you have not established an origin, Reset to Origin resets the values to the default values for the current Target aspect ratio. For more information, see **"Setting an Origin in the Pan and Scan Effect" on page 199**.

AniMatte and Paint Effects



Most of the effect parameters used for Intraframe editing are available for both the AniMatte effect and the Paint Effect. The following sections describe the parameters that they have in common, while indicating those that function differently, depending upon whether you are using the AniMatte or Paint Effect.

The Foreground and Acceleration parameters function similarly for Intraframe editing effects as they do for other effects. For more information, see ***"Foreground" on page 489*** *and* ***"Acceleration" on page 458****.*

Mode

Parameter type: Global

Central to the Intraframe editing process, Mode parameters and options affect the overall nature of the Intraframe editing you perform using either the Paint Effect or the AniMatte effect.

Table 9-2 Mode Parameters

Parameter	Description
Fast menu	The Fast menu provides different mode options for Intraframe editing with either the AniMatte effect or the Paint Effect: - For AniMatte effect modes, see **"AniMatte Modes" on page 462**. - For Paint Effect modes, see **"Paint Effect Modes" on page 463**.

Table 9-2 Mode Parameters (Continued)

Parameter	Description
Opac. (opacity)	Opacity, which appears in the Mode category for the Paint Effect only, refers to the transparency level of: - A painted object created with the Paint Effect - The image within the border of a matte or wipe created with the AniMatte effect For the Paint Effect, a level of 0 makes a painted object completely transparent; a level of 50 makes an object 50 percent transparent; and a level of 100 makes an object opaque. For the AniMatte effect, a level of 0 makes a keyed image completely transparent; a level of 50 makes a keyed image 50 percent transparent; and a level of 100 makes a keyed image opaque.
Object Visible	The Object Visible button in the Mode parameter category enables you to add a keyframe to a segment or transition and have a painted object or matte suddenly "pop" onto the screen at the position marked by the keyframe. You must have at least three keyframes to create this effect.
Hor (horizontal)	The Hor slider is available for several of the Paint Effect modes. When used with the Clone and Scratch Removal modes, the Hor slider controls the horizontal position of the painted object in the frame relative to its original position. When used with the Mosaic, Blur, and Unsharp Mask modes, the Hor slider controls the extent of the tiling, blurring, or sharpening effect in the horizontal direction.
Vert (vertical)	The Vert slider is available for several of the Paint Effect modes. When used with the Clone and Scratch Removal modes, the Vert slider controls the vertical position of the painted object in the frame relative to its original position. When used with the Mosaic, Blur, and Unsharp Mask modes, the Vert slider controls the extent of the tiling, blurring, or sharpening effect in the vertical direction.
Amt (amount)	The Amt slider is available for the Darken and Lighten modes. Use the Amt slider to control the extent of the darkening or lightening effect.
Angle	The Angle slider is available for the Gradient and Emboss modes. Use the Angle slider to control the direction of the gradient or the extrusion effect.

Table 9-2 Mode Parameters (Continued)

Parameter	Description
Frame/Field	Controls which frame or field is used as the source for clean replacement material when you are working in Scratch Removal mode. For more information, see **"Scratch" on page 509**.
Offset Fast menu	Defines the position from which the Frame or Field parameter is measured when you are working in Scratch Removal mode. For more information, see **"Scratch" on page 509**.

AniMatte Modes

Parameter type: Global

There are two basic modes for Intraframe editing with the AniMatte effect.

Table 9-3 AniMatte Modes

Mode	Description
Key In	Displays the image on the higher track (foreground) within the matte selection while revealing the image on the lower track (background) outside the matte selection for two-track video effects; displays the incoming segment within the matte selection for single-track matte wipes.
Key Out	Displays the image on the lower track (background) within the matte selection while revealing the image on the higher track (foreground) outside the matte selection for two-track video effects; displays the outgoing segment within the matte selection for single-track matte wipes.

Paint Effect Modes

Parameter type: Global

The Paint Effect provides twenty-two modes that you can use to paint with a variety of styles. When you click a painting tool for the first time, the default setting is Solid mode, which enables you to paint an opaque object on the video background with a brush stroke.

Table 9-4 describes the Paint Effect modes and includes illustrations to help you understand how the modes alter the image.

The illustrations show the same image in every case. This enables you to compare the different modes easily but does not necessarily illustrate the most common use of each mode.

Table 9-4 Paint Effect Modes

Mode	Description	Illustration
Solid	Applies paint as a solid color superimposed on the video background. The illustration shows Solid mode with Opacity set to 75%.	

Table 9-4 Paint Effect Modes (Continued)

Mode	Description	Illustration
Erase	Removes paint from a frame. Can also be used to invert the key in an AniMatte effect. The illustration shows a rectangular object in Erase mode that removes paint from the oval object beneath it.	
Outline	Creates an outline that is useful for tracing images in a frame.	
Clone	Duplicates an area from a frame and applies it to another area of the frame. The illustration shows an oval object in Clone mode. The oval has been moved from higher in the image, taking an area of the upper part of the image with it.	
Colorize	Tints the selected area with the color currently selected in the Color parameter category.	

Table 9-4 Paint Effect Modes (Continued)

Mode	Description	Illustration
Hue	Changes the hue in a selected area to the hue currently set with the Hue slider in the Color parameter category without affecting the saturation and luminance levels.	
Saturation	Changes the saturation in a selected area to the saturation level currently set with the Sat slider in the Color parameter category without affecting the luminance levels and the hue.	
Luminance	Changes the luminance in a selected area to the luminance level currently set with the Lum slider in the Color parameter category without affecting the saturation levels and hue.	

Table 9-4 Paint Effect Modes (Continued)

Mode	Description	Illustration
Darken Only	Reduces the luminance levels in a selected area only if the result would be darker than the background color. In the illustration, the light areas have been darkened in the selected oval while darker areas of the trees remain unaltered.	
Lighten Only	Increases the luminance levels in a selected area only if the result would be lighter than the background color. The illustration shows the reverse of the effect seen for Darken Only. Dark areas in the selected oval have been lightened while light areas, mainly the dirt roads, remain unaltered.	
Darken	Reduces the luminance levels in a selected area by the amount specified by using the Amount slider. In the illustration, luminance in the selected oval is reduced by 50.	

Table 9-4 Paint Effect Modes (Continued)

Mode	Description	Illustration
Lighten	Increases the luminance levels in a selected area by the amount specified by using the Amount slider. In the illustration, luminance in the selected oval is increased by 50.	
Add	Adds more of the color value currently selected in the Color parameter category to the colors in a selected area.	
Subtract	Removes the color value currently selected in the Color parameter category from the color in a selected area.	

Table 9-4 Paint Effect Modes (Continued)

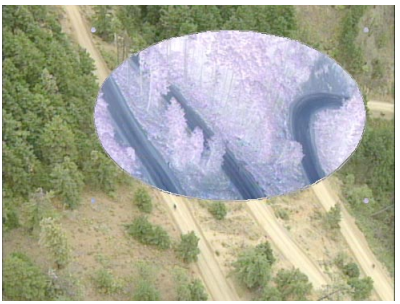
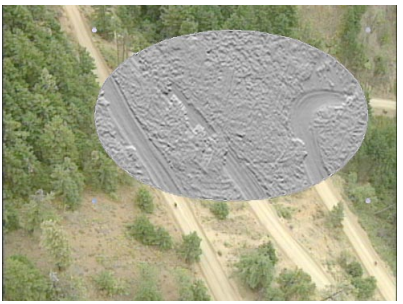
Mode	Description	Illustration
Invert	Inverts the RGB values of the colors in a selected area.	
Mosaic	Applies a tile effect to a selected area with horizontal and vertical controls. This is useful for distorting or disguising part of an image.	
Blur	Blurs a selected area with horizontal and vertical controls. This is useful for distorting or disguising part of an image.	

Table 9-4 Paint Effect Modes (Continued)

Mode	Description	Illustration
Median	Takes the nine values surrounding each pixel, ranks them, and replaces the pixel with the value in the middle. This results in a slight softening effect. Median filters are often used to remove noise from an image.	
Unsharp Mask	Sharpens a selected area of an image to create more defined edges with horizontal and vertical controls.	
Gradient	Dissipates the paint in a gradient with controls to establish the direction of dissipation using the Angle slider. 100% of the currently selected color appears at one end of the gradient, 0% at the other end.	

Table 9-4 Paint Effect Modes (Continued)

Mode	Description	Illustration
Emboss	Creates a three-dimensional extrusion effect in a selected area. You can adjust the direction of the extrusion with the Angle slider.	
Scratch Removal	Replaces scratched or otherwise flawed areas of a frame with clean material from a nearby source. For more information, see **"Scratch Removal" on page 423**.	

Feathering

Parameter type: Keyframeable

Feathering adds soft edges to a painted object or a matte key. Adding a soft edge can make a composited object look more natural against the background.

Table 9-5 Feathering Parameters

Parameter	Description
Bias	Increases control over the dissipation of pixels around the edges of a painted object or matte. Adjusting bias is especially effective when you trace an element on the screen with the Paint Effect. A Bias setting of 0 feathers pixels starting at the outside edge; a setting of 50 starts feathering at the center portion of the edge; and a setting of 100 starts feathering at the inner portion of the edge. The default setting for Bias is 50.
Hor (horizontal) and Vert (vertical)	Enables you to choose the dominant direction in which feathering of an object or matte appears. Increasing the horizontal parameter extends feathering in both the positive and negative directions along the X axis (right to left and left to right on the screen). The range is 0 to 255 pixels. Increasing the vertical parameter extends feathering in both the positive and negative directions along the Y axis (upward and downward on the screen). The range is 0 to 255 pixels.
Fixed Aspect	Gangs the Hor and Vert sliders together. When you drag one of the sliders, the other slider moves in unison with the first slider.  *When you enable the Fixed Aspect option, horizontal is the dominant value.*
Anti-alias	Decreases the jagged appearance of a selected Paint or AniMatte object's edges. You can use anti-aliasing in combination with feathering to improve the appearance of an object around its edges.

Magic Mask

Parameter type: Keyframeable

Magic Mask is used for applying effects across a series of frames by using the chroma and luma values as the criteria for edge detection. After you use Magic Mask to pick a color with the eyedropper for either an AniMatte or Paint Effect, you can adjust the Hue, Sat, and Lum sliders to fine-tune the color selection.

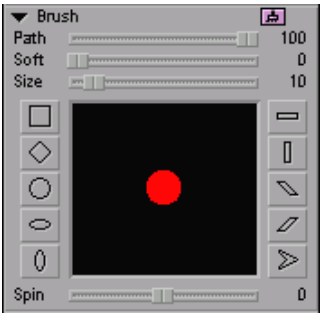
When using the Paint Effect, keep in mind that the Hue, Sat, and Lum sliders in the Magic Mask parameter category enable you to refine the color you select from the video background. Use the sliders in the Color parameter category in conjunction with one of the Paint Effect modes to colorize your selection.

Table 9-6 Magic Mask Parameters

Parameter	Description
Hue	Affects the tint of the color selection. The tint refers to the name commonly associated with a color, such as red, green, or blue. The slider values range from 0 to 255.
Sat (saturation)	Affects the purity or intensity of the color selection. The color gray has no saturation at all; a fully saturated color produces the most intense representation of that color. The slider values range from 0 to 255.
Lum (luminance)	Affects the brightness of the color selection. The color black has 0 brightness. The slider values range from 0 to 255.
Gain	When you are using the AniMatte effect, Gain increases or decreases the effect of Magic Mask on pixels that are contiguous to your color selection within the borders of a matte key. Gain applies color correction to pixels that fall within the specified color range, or tolerance, of the color you pick with the eyedropper. The tolerance you adjust with the Gain slider is relative to the RGB values of the color you picked. When you are using the Paint Effect, Gain increases or decreases the range of pixels surrounding the color you pick that Magic Mask will enable you to modify in conjunction with your chosen paint mode. Gain includes or excludes pixels surrounding the color you pick that falls within a specified color range, or tolerance. The tolerance you adjust with the Gain slider is relative to the RGB values of the color you picked. Decreasing the Gain value lessens the color range and includes fewer pixels contiguous to the matte key or color selection. Increasing the gain expands the range and includes more pixels surrounding the matte key or color selection.
Soft (softness)	Increases or decreases the amount of softness applied to a color selection and contiguous pixels that fall within a specified tolerance. The tolerance you adjust with the Soft slider is relative to the RGB values of the color picked in the selection. The range is from 0 to 63.

Brush

Parameter type: Global



The Brush parameters enable you to define the shape, size, and softness of the brush for creating brush strokes on an image. Additionally, you can customize the shape and rotate the head of the Brush tool to create a variety of new effects.

The parameters in the Brush category apply only to the Brush tool.

Table 9-7 Brush Parameters

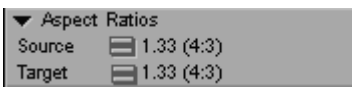
Parameter	Description
Path	Controls the percentage of paint or the matte that is visible from the initial point of pressure to the completion of the brush stroke. Path values range from 0 (no paint visible) to 100 (entire stroke visible). *Unlike other Paint Effect parameters, you can adjust Path only after you finish painting.*
Soft (softness)	Adjusts the softness of the brush head. Softness ranges from a value of 0 (hard center) to 100 (softest overall head).
Size	Adjusts the size of the brush head. Size is measured in terms of pixel width. The widths range from 0 to 100 pixels.

Table 9-7 Brush Parameters (Continued)

Parameter	Description
Shape buttons	Clicking one of the Shape buttons changes the brush head to the new shape.
Spin	Enables you to rotate the brush head 360 degrees in the clockwise and counterclockwise directions. The range of clockwise rotation is from 0 to –360 degrees, and the range of counterclockwise rotation is from 0 to 360 degrees. The default position for the brush head in the Brush Preview window is 0.

Aspect Ratios

Parameter type: Global



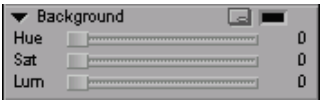
The Aspect Ratios parameter sets the Source and Target aspect ratios for a Pan and Scan or Reformat effect. For more information, see **"Selecting the Source and Target Aspect Ratios" on page 192**.

Table 9-8 Aspect Ratio Parameters

Parameter	Description
Source	Specifies the aspect ratio of the source media. Supported source aspect ratios are: 1.33 (4:3), 1.66, 1.78 (16:9), 1.85, 2.35, 15:9 anamorphic, and 16:9 anamorphic.
Target	Specifies the aspect ratio to which Pan and Scan will conform the media. Supported target aspect ratios are: 1.33 (4:3) and 16:9 anamorphic.

Background

Parameter type: Global



The Background parameter sets the color for the background in effects that display a background. For example, the background parameters determine the color to be used in a Fade to Color, Fade from Color, or Dip to Color effect.

If your system has the 3D Effects option, see the 3D version on ***page 642****.*

Table 9-9 Background Parameters

Parameter	Description
Other Options button	Opens the Windows Color dialog box or the Macintosh Color Picker for precise color selection. For more information, see **"Using the Windows Color Dialog Box" on page 125** or **"Using the Macintosh Color Picker" on page 127**.
Hue	Identifies the background color. The Hue parameter is measured as values on a color wheel ranging from 0 to 255. The start (0) and ending (255) values are both red.
Sat (saturation)	Specifies the amount or intensity of the color. Values range from 0 to 255, where 0 is no chrominance and 255 is a fully saturated color.
Lum (luminance)	Specifies the brightness of the color. Values range from 0 to 255, where 0 is black and 255 is full brightness or white.

Blowup

Parameter type: Keyframeable

The Blowup effect uses the following parameters to set the effect's position and size.

Table 9-10 Blowup Parameters

Parameter	Description
Field	Controls the size of the image. A field of 0 leaves the image size unchanged, and a field of 10 increases the image to the maximum size.
X Pos (X position)	Allows you to position the image horizontally on the screen. The X Position varies on a scale of West 20 to East 20, where 0 is unchanged. This matches the description in the cut list.
Y Pos (Y position)	Allows you to position the image vertically on the screen. The Y Position varies on a scale of North 20 to South 20, where 0 is unchanged. This matches the description in the cut list.

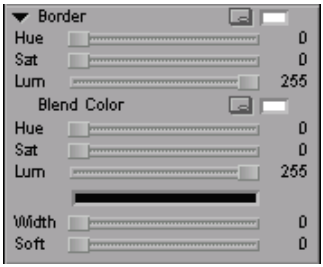
The background color for the Blowup effect remains black unless you promote the effect to 3D and use the Background parameters to choose another color. For more information, see ***"Background Color" on page 642*** *and* ***"Promoting 2D Effects to 3D Effects" on page 225****.*

Border

Parameter type: Keyframeable

Border without the Blend Color parameters

Border with the Blend Color parameters



Many effects allow you to place a border on the inner or incoming picture in the effect. The Border parameters allow you to specify the color, softness, and width of the border. Some effects also include Blend Color parameters for blending border color.

If your system has the 3D Effects option, see the 3D version on ***page 643****.*

Table 9-11 Border Parameters

Parameter	Description
Other Options button	Opens the Windows Color dialog box or the Macintosh Color Picker for precise color selection. For more information, see **"Using the Windows Color Dialog Box" on page 125** or **"Using the Macintosh Color Picker" on page 127**.
Hue	Identifies the border or blend color. The Hue parameter is measured as values on a color wheel ranging from 0 to 255. The start (0) and ending (255) values are both red.

Table 9-11 Border Parameters (Continued)

Parameter	Description
Sat (saturation)	Specifies the amount or intensity of the color. Values range from 0 to 255, where 0 is no chrominance and 255 is a fully saturated color.
Lum (luminance)	Specifies the brightness of the color. Values range from 0 to 255, where 0 is black and 255 is full brightness or white.
Width	Specifies the width of the border. Values range from 0 (no border) to 63 (widest border).
Soft (softness)	Blends the border with the background image, giving the border a soft appearance. Values range from 0 (no softness) to 63 (maximum softness).

Color Effect Parameters

The Color Effect parameters allow you to perform color correction or create certain colorization effects such as posterization or solarization.

Luma Adjust

Parameter type: Keyframeable

Table 9-12 Luma Adjust Parameters

Parameter	Description
Bright (brightness)	Changes the brightness of the picture. The parameter ranges from –100 to +100, where a value of 0 indicates no change. A value of –100 darkens the image; a value of +100 brightens the image.

Table 9-12 Luma Adjust Parameters (Continued)

Parameter	Description
Cont (contrast)	Controls the contrast of light and dark areas in the picture. Values range from –100 to +100, where a value of 0 indicates the image is unchanged. A negative value is less contrast; a positive value is more contrast.
Invert	Invert reverses the image's brightness, such that the brightest parts become the darkest and the darkest parts become the lightest.

Brightness Example

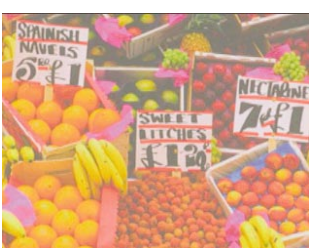
Original – Brightness 0

Brightness –50

Brightness +50

Contrast Example

Original – Contrast 0

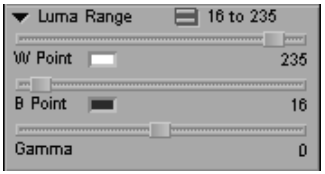


Contrast –50

Contrast +50

Luma Range

Parameter type: Keyframeable



Luma Range parameters allow you to adjust the range of brightness from black to white.

Table 9-13 Luma Range Parameters

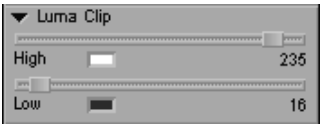
Parameter	Description
Fast menu: 16 to 235	The default for video images.
Fast menu: 0 to 255	Allows you to map normal video to alpha ranges. This is useful if you have a high-contrast image that you want to expand to the full dynamic range. For example, use this value when you want to convert video to alpha for Matte Key effects. *When you change the Luma Range to 0 to 255, the system attempts to go from 0 to 255 but will be clipped by the Low Clip and High Clip values in the Luma Clip parameter category. If it is your intent to "open up" the image to the full dynamic range, you need to change the Low Clip and High Clip values to 0 and 255, respectively.*
W Point (white point)	Allows you to set the white point in the image. All pixels with that value become white, and all pixels with higher values are also clipped to white. The default is 235 (the broadcast value for white). Raising the black point and lowering the white point values increases the contrast by reducing the number of shades of gray in an image. The number of shades are reduced because you map some to extreme black and others to extreme white.

Table 9-13 Luma Range Parameters (Continued)

Parameter	Description
B Point (black point)	Allows you to set the black point in the image. All pixels with that value become black, and all pixels with lower values are also clipped to black. For example, you could use the eyedropper to select a shadow on the floor and change it from gray to black, clipping everything below that shade to black. The default is 16 (the broadcast value for black). Raising the black point and lowering the white point values increases the contrast by reducing the number of shades of gray in an image. The number of shades are reduced because you map some to extreme black and others to extreme white.  *Black point control does not change the Black setup level. To adjust the Black setup level, use the Video Output tool.*
Gamma	Allows you to adjust the midtones in an image without affecting the extreme white or black values. Lowering the value darkens midtones and brings the image closer to black. Raising the value lightens the midtones and brings the image closer to white. For example, a person shot in front of a window in daylight may be very dark, almost in silhouette. You can use gamma correction to increase the midtones without changing the blacks or whites. Values range from –100 to +100 with 0 being no change. The number of shades of gray in an image are determined by the W Point, B Point, and Luma Clip sliders. The Gamma point allows you to move the distribution of the shades closer to black or closer to white. Negative values move the distribution closer to black. Positive values move the distribution closer to white.

Luma Clip

Parameter type: Keyframeable



Luma Clip parameters allow you to determine the levels at which the system limits the brightness or darkness in the picture.

Table 9-14 Luma Clip Parameters

Parameter	Description
High	Provides a simple clip function for brightness values. When you specify a value for High, no pixel in the image can be brighter than that value. The default is 235 (the broadcast value for white).
Low	Provides a simple clip function for darkness values. When you specify a value for Low, no pixel in the image can be darker than that value. The default is 16 (the broadcast value for black). When preparing video for broadcast, normally you do not adjust these values. They allow you to adjust the brightness and contrast (using other controls in the Color Effect) while still maintaining legal broadcast values for black and white.

Chroma Adjust

Parameter type: Keyframeable

Table 9-15 Chroma Adjust Parameters

Parameter	Description
Hue	Hue varies the tint of all colors in the image. The Hue parameter is measured as degrees on a color wheel from –180 to +180, where 0 does not change the hue. Changing the value of the Hue causes all colors in the image to rotate around the color spectrum. For example, a Hue setting of –20 causes skin tones to look more red, while a Hue setting of +20 causes skin tones to look more green.
Sat (saturation)	Saturation varies the amount of all colors in the image. The Saturation parameter has a value of –100 to +100. Zero is the default. A value of –100 displays as gray tones. Positive values display all colors with more saturation.
Invert	Invert reverses the colors in both Hue and Saturation such that all colors display as their complement.

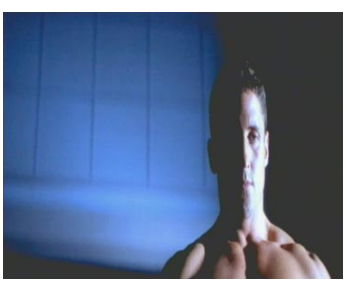
Color Style

Parameter type: Keyframeable

Table 9-16 Color Style Parameters

Parameter	Description
Post (posterization)	Posterization allows you to limit the number of colors in the image by controlling the number of luminance steps that are displayed. This gives the image a graphic appearance. The range of values is 0 to 25, where 0 displays all colors and 25 displays the least number of colors.
Solar (solarization)	Solarization allows you to make the lightest points in the image dark to achieve a partial inversion of the luminance. Values above the threshold set for the parameter will be inverted. Solarization can have a value of 0 to 255, where 0 is normal luminance and 255 inverts all luminance values in the picture. Values of 0 to 127 display the lightest points in the image as dark. Values of 128 to 255 display both the lightest points as dark and the darkest points as light, which gives the appearance of a film negative.

Posterization Example


Original image


Posterization 10


Posterization 20

Solarization Example

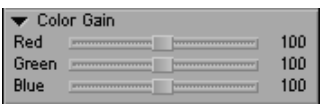
Original image

Solarization 100

Solarization 200

Color Gain

Parameter type: Keyframeable



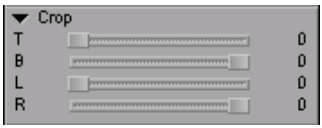
The Color Gain parameters allow individual control of the Color Gain for each of the three color components: red, green, and blue.

Table 9-17 Color Gain Parameters

Parameter	Description
Red	Changes the amount of red in the whole image. The parameter value is a percentage of the range from 0 to 200, where a value of 100 indicates that the color is unchanged.
Green	Changes the amount of green in the whole image. The parameter value is a percentage of the range from 0 to 200, where a value of 100 indicates that the color is unchanged.
Blue	Changes the amount of blue in the whole image. The parameter value is a percentage of the range from 0 to 200, where a value of 100 indicates that the color is unchanged.

Crop

Parameter type: Keyframeable



The Crop parameters remove video from the top, bottom, left, and right edges of the video.

Cropping is not available for DSK titles. To crop a Title effect, deselect the Downstream Key button in the Effect Editor.

Table 9-18 Crop Parameters

Parameter	Description
T (top)	Removes video from the top of the inner or incoming video. Values range from 0 to 999; 0 is the top of the screen, 500 is the middle of the screen, and 999 is the bottom of the screen.
B (bottom)	Removes video from the bottom of the inner or incoming video. Values range from –999 to 0; 0 is the bottom of the screen, –500 is the middle of the screen, and –999 is the top of the screen.
L (left)	Removes video from the left side of the inner or incoming video. Values range from 0 to 999; 0 is the left side, 500 is the middle, and 999 is the right side.
R (right)	Removes video from the right side of the inner or incoming video. Values range from –999 to 0; 0 is the right side, –500 is the middle, and –999 is the left side.

If your system has the 3D Effects option, see the 3D version on ***page 640****.*

Downstream Key

Parameter type: Global

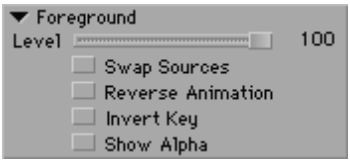
Downstream keying allows you to add uncompressed titles or graphics over multiple streams of compressed or uncompressed media and continue to play the sequence in real time. By default, all titles are created using the Avid system's *downstream key* (DSK) capabilities. Graphic elements imported with an alpha channel are also created as DSK clips.

You can convert static DSK titles and graphics to non-DSK titles and Matte Key effects by clicking the button in the Downstream Key category in the Effect Editor. For more information, see **"Converting Downstream Key Titles" on page 338**.

If you replace the fill track of a non-DSK title, you cannot restore the DSK capabilities.

Foreground

Parameter type: Keyframeable



Additional options vary, depending upon the type of effect.

The Foreground parameters are used, together with keyframes, to set the relative amount of the effect to be displayed over time. The additional options included with the Level slider vary, depending on the type of effect.

Table 9-19 Foreground Parameters

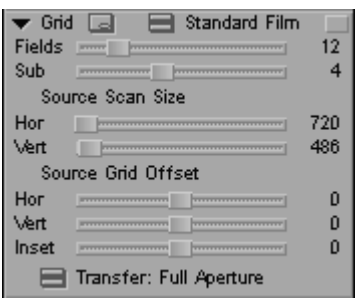
Parameter	Description
Level	Controls the opacity of the foreground image. A Level of 0 is 0 percent opacity (the foreground is transparent), a Level of 50 is 50 percent opacity, and a Level of 100 is 100 percent opacity (no transparency).
Swap Sources	This option applies to key effects (such as Chroma Key or Luma Key), 3D effects, and the PIP (Picture-in-Picture) effect only. Click Swap Sources to swap the image source for the foreground and background layers of the effect.
Reverse Animation	This option is available for all effects except the Paint Effect and the AniMatte effect. Click the Reverse Animation button to cause the entire effect to be reversed, including the direction of movement as well as the incoming and outgoing sources. This maintains the shot continuity while reversing the movement. For example, instead of the outgoing shot peeling off from the top left corner, the incoming shot peels on from the bottom right corner. This option effectively creates a mirror image of the sequence of keyframes for the effect as they appear in the Effect Preview monitor's position bar.

Table 9-19 Foreground Parameters (Continued)

Parameter	Description
Invert Key	This option applies to key effects only (such as Chroma Key or Luma Key). Select Invert Key to reverse the key. In the case of a Chroma Key effect (2D or 3D), inverting the key displays the key color regions while showing the background image source through the foreground image area. In the case of a Luma Key effect (2D or 3D), inverting the key displays the background image source through the darker areas rather than the lighter areas of the foreground image source. In the case of a Matte Key effect, inverting the key effectively reverses the black and white areas of the alpha channel so that foreground and background are reversed.
Show Alpha	This option applies to key effects only (such as Chroma Key or Luma Key). Displays the grayscale alpha channel used to apply the key effect to the foreground and background source. This allows you to examine problem areas of the key while making adjustments.

Grid

Parameter type: Global



The Grid parameters are used to define the Effect Grid associated with an effect. Grid parameters set in the Effect Editor override settings in

the Grid Settings dialog box for that effect only. **Table 9-20** describes the Grid parameters.

Table 9-20 Grid Parameters

Parameter	Description
Other Options button	Opens the Grid Settings dialog box.
Grid Type Fast menu	Use this menu to select a grid type. For video projects, use the Square grid type. The Academy grid includes a safety margin on the left that is used for adding the optical soundtrack.
Enable button	Turns the local Grid effect on or off. If you disable the local Grid effect, the system uses the global settings defined in the Grid Settings dialog box.
Fields	This option determines the number of tick marks along the grid axes as well as the number of visible grid points. Values range from 8 to 32. The default value is 12.
Sub	This option determines the snap-to-grid feature between visible grid points. The value determines how many jumps are in between each visible point. Values range from 0 to 10. A value of 1 snaps only to visible points. A value of 2 splits provides 1/2 field jumps. A value of 4 (the default value) provides 1/4 field jumps, and so on. A value of 0 turns off the snap-to-grid feature.
Source Scan Size	For film projects, where an optical house scans film for the addition of visual effects. Values range from 720 to 9999 for Horizontal and from 243 to 9999 for Vertical. The default values are 720 x 486 pixels.
Source Grid Offset	The Hor (horizontal) and Vert (vertical) sliders move the grid on the image. The Inset slider shrinks the grid proportionally. Values are set to approximately 15% of the current values in the Source Scan Size sliders. These values are intended mainly for film projects.
Transfer Fast menu	Enables you to specify how the film was transferred to video as follows: **Full Aperture:** Transferred everything that is visible in the frame **Academy:** Did not transfer the sound track area that appears on the left-hand side of the film

Key Control Parameters

Key control parameters appear only in the Chroma Key, Luma Key, and RGB Keyer effects. These parameters control the key color and allow you to fine-tune the edges of key effects and the appearance of the foreground elements.

*If your system has the 3D Effects option, see the 3D version on **page 650**.*

*For information on the workflow for applying key effects, see **"Creating Key Effects" on page 173**.*

Key

Chroma Key and Luma Key Effects

Parameter type: Global

Use the Key parameters to select the primary key color to be replaced by video.

Table 9-21 Key Parameters

Parameter	Description
Other Options button	Opens the Windows Color dialog box or the Macintosh Color Picker for precise color selection. For more information, see **"Using the Windows Color Dialog Box" on page 125** or **"Using the Macintosh Color Picker" on page 127**.

Table 9-21 Key Parameters (Continued)

Parameter	Description
Hue	Identifies the key color. The Hue parameter is measured as values on a color wheel ranging from 0 to 255. The start (0) and ending (255) values are both red.
Sat (saturation)	Specifies the amount or intensity of the color. Values range from 0 to 255, where 0 is no chrominance and 255 is a fully saturated color.
Lum (luminance)	Specifies the brightness of the color. Values range from 0 to 255, where 0 is black and 255 is full brightness or white.
Gain	Specifies how much of the foreground and the background video will be displayed. Values range from 0 to 63. A Gain of 0 shows only the foreground. A Gain of 63 replaces all the foreground video with the background video.
Soft (softness)	Determines how the bordering colors along the edge of the key are processed in the effect. Colors that border the luminance or chroma specified for the key are displayed as a blend of the foreground and the background video. The higher the Softness value, the more of the background video will be blended in the border colors. Use the Soft slider to improve the appearance of the edges of the keyed areas.

Secondary Key

Chroma Key Effect Only

Parameter type: Global

Use the Secondary Key parameters in the Chroma Key effect to key out a second background color. For example, the floor in a bluescreen or greenscreen shot might be a slightly different shade than the

background. You can choose the floor color as your secondary color and key it out. If the Chroma Key effect is normally a real-time effect on your system, enabling the Secondary Key parameter will make the effect non-real-time.

See **Table 9-21 on page 492** for a description of each parameter.

Spill Suppression

Chroma Key Effect Only

Parameter type: Global

The Spill Suppression key neutralizes the selected color for the Chroma Key effect without affecting the luminance. The Avid system changes the spill color to a grayscale, allowing it to blend more easily with the foreground image. If the Chroma Key effect is normally a real-time effect on your system, enabling the Spill Suppression parameter will make the effect non-real-time.

Use the Spill Suppression key color to fix the following problems:

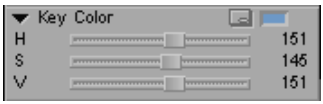
- Remove background color spill from the foreground image. Color spill occurs when the background color is present in the foreground image due to backdrop reflection.
- If the foreground object retains an outline of the chroma key color, you can use Spill Suppression to reduce the color effect in the outline.

See **Table 9-21 on page 492** for a description of each parameter.

Key Color

RGB Keyer Only

Parameter type: Global



Use the Key Color parameters in the RGB Keyer effect to select a color for the chroma key.

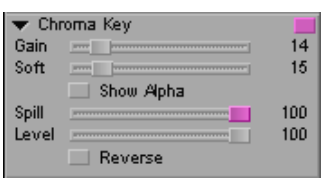
Table 9-22 Key Color Parameters

Parameter	Description
H (hue)	Specifies the hue or tint measured as values on a color wheel ranging from 0 to 255. The start (0) and ending (255) values are both red.
S (saturation)	Specifies the amount or intensity of the color. Values range from 0 to 255, where 0 is no chrominance and 255 is a fully saturated color.
V (value)	Specifies the value of the color.

Chroma Key

RGB Keyer Only

Parameter type: Global



Use the Chroma Key parameters in the RGB Keyer effect to fine-tune the key effect.

Table 9-23 Chroma Key Parameters

Parameter	Description
Gain	Adjusts the threshold of the key, with a range from 0 to 100.
Soft (softness)	Softens the edge of the key, with a range from 0 to 100.
Show Alpha	Displays the grayscale alpha channel used to apply the key effect to the foreground and background sources. Viewing the alpha channel directly allows you to examine problem areas of the key while making adjustments.
Spill	Suppresses the spill from the key color onto foreground objects that often occurs due to color reflection in the scene. The range is from 0 to 100.
Level	Controls transparency of the foreground elements against the key background.
Reverse	Inverts the key.

Matte Control

RGB Keyer Only

Parameter type: Global

Use Matte Control in the RGB Keyer effect to fine-tune the edges of the matte used in the chroma key.

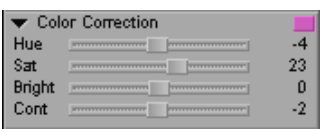
Table 9-24 Matte Controls

Parameter	Description
Blur	Blurs the matte for the key using a box filter. The range is from 0 to 100, in which 0 indicates a blurring of 0 pixels and 100 indicates a blurring of 10 pixels.
Erode	Used with blur, decreases or “erodes” the outer edges of the blurred matte key.

Color Correction

RGB Keyer Only

Parameter type: Global



Use the Color Correction parameters in the RGB Keyer effect for post-key color correction of the foreground elements in the Chroma Key effect. Because the foreground and background elements are often shot at different times and locations, post-key color correction is especially useful for maintaining the key while matching the visual characteristics of the foreground to the background.

Table 9-25 Color Correction Parameters

Parameter	Description
Hue	Specifies the hue or tint of the foreground elements. The Hue parameter is measured as values on a color wheel ranging from 0 to 255. The start (0) and ending (255) values are both red.

Table 9-25 Color Correction Parameters (Continued)

Parameter	Description
Sat (saturation)	Specifies the amount or intensity of the color. Values range from 0 to 255, where 0 is no chrominance and 255 is a fully saturated color.
Bright (brightness)	Specifies the brightness level. Values range from 0 to 255, where 0 is black and 255 is full brightness or white.
Cont (contrast)	Controls the contrast of light and dark areas in the picture. Values range from –100 to +100, where a value of 0 indicates the image is unchanged. A negative value is less contrast; a positive value is more contrast.

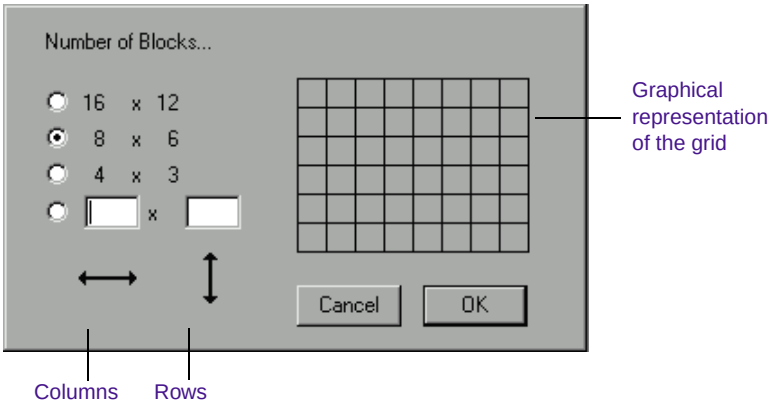
Matrix Parameters

Parameter type: Global

Matrix effects use a grid to define the position or progress of the effect over time, for example in a Matrix wipe. The Matrix parameters define the grid to be used in the effect.

Other Options

The Other Options button in the Matrix effects opens the Matrix effect's dialog box shown below.



You can select a standard grid or enter a custom number of rows and columns. The minimum number of rows and columns is 2 x 2.

Columns

Number of columns in the effect.

Rows

Number of rows in the effect.

Motion Effect Parameters

Motion effect parameters apply to Freeze Frame, Variable Speed, and Strobe Motion effects. For information about applying and editing various motion effects, see **“Creating Motion Effects” on page 82**.

Freeze Frame Parameters

Parameter type: Global

You access Freeze Frame parameters by choosing Freeze Frame from the Clip menu.

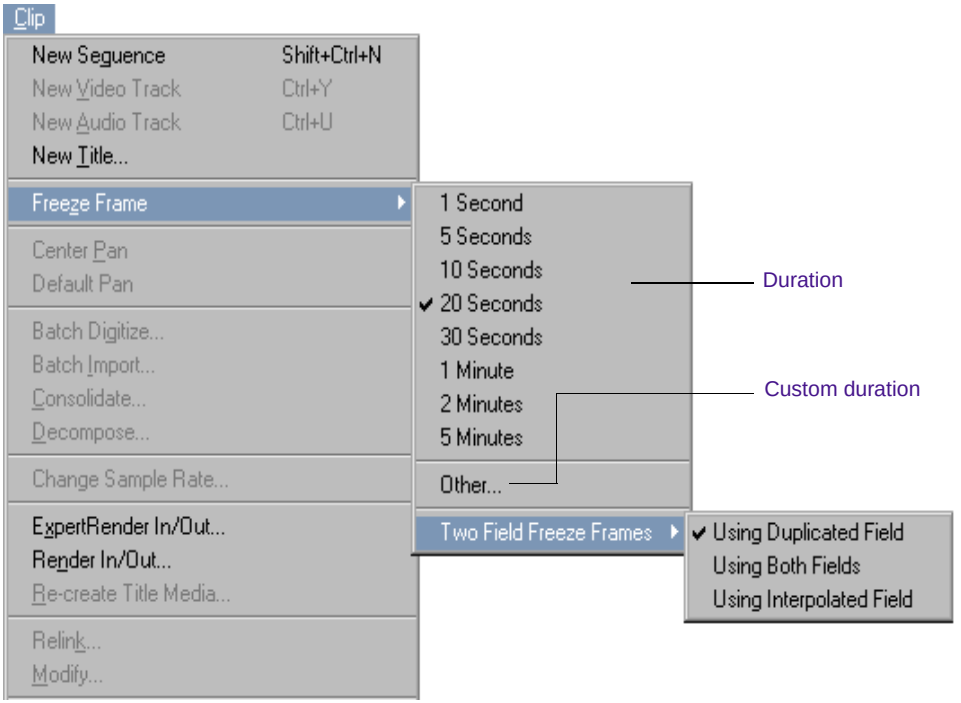


Table 9-26 Freeze Frame Menu Commands

Command	Description
Duration (in seconds)	Specifies the length of the Freeze Frame clip that will be created in the Source monitor. You can either select a duration from the Freeze Frame pop-up menu or select Other to enter a custom duration.
Other	Opens a dialog box that allows you to specify a custom duration for the Freeze Frame clip.
Two Field Freeze Frames submenu	Options below determine how the effect media is created and displayed when working in two-field resolutions (for example, 20:1, 3:1, 2:1, or uncompressed).

Table 9-26 Freeze Frame Menu Commands (Continued)

Command	Description
Using Duplicated Field	A single field is displayed in the effect. This option reduces the vertical resolution of the image by one-half, resulting in a lower-quality image.
Using Both Fields	Both fields are used to create the effect. This option is especially useful when there is motion in the footage.
Using Interpolated Field	A second field is created for the effect by combining scan line pairs from the first field in the original media. This might result in a slightly softer look to the freeze frame.

Variable Speed and Strobe Motion Parameters

Parameter type: Global

You access Variable Speed and Strobe Motion parameters by clicking the Motion Effect button in the Tool palette to open the Motion Effect dialog box.

Variable Speed effect

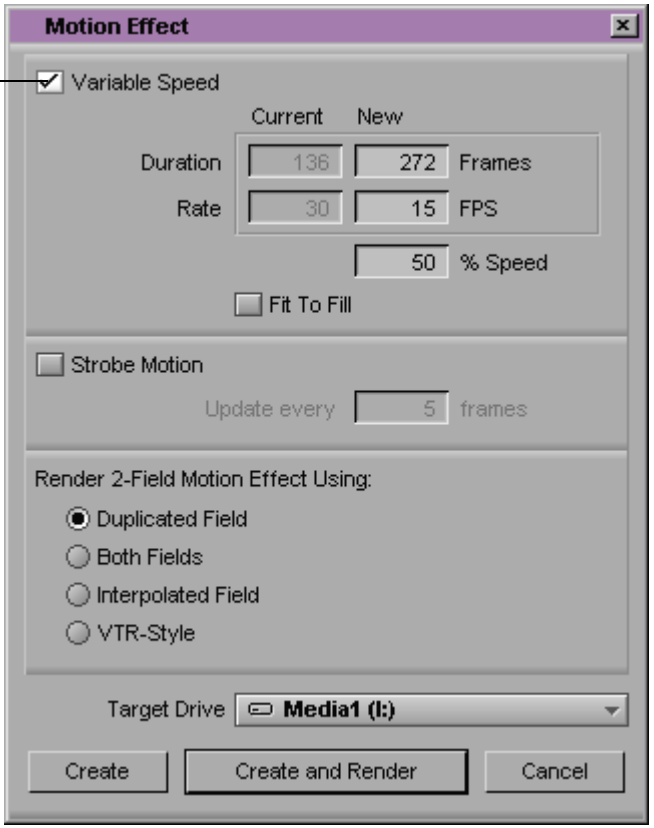


Table 9-27 Variable Speed and Strobe Motion Options

Category / Option	Description
Variable Speed	
Duration	The duration of the effect in frames. Doubling the number of frames causes the frame rate to be half the current rate.
Rate	The rate of speed in frames per second (fps) at which the video will be played. Normal speed is 30 fps for NTSC video, 25 fps for PAL video.
% speed	The percent of speed at which the video will be played. Normal speed is 100%.
Fit To Fill	Sets the Variable Speed parameters, so the duration of the motion effect will match the IN to OUT duration marked in the sequence.
Strobe Motion	
Update every __ frames	Specifies the update rate in frames for the Strobe Motion effect. For example, entering a rate of 5 causes every fifth frame to be displayed in the Strobe Motion effect.
Render 2-Field Motion Effect Using:	
Duplicated Field	A single field is displayed in the effect. For two-field media, this reduces the information stored by half because it drops one field of the image, resulting in a lower quality image. For single-field media, this is usually the best choice because of its speed (the other options do not improve effect quality for single-field media). The effects render in the shortest amount of time using this option.

Table 9-27 Variable Speed and Strobe Motion Options (Continued)

Category Option	Description
Both Fields	Both fields are displayed in the effect. For example, the first two frames of a half-speed (50%) slow motion effect repeat the original Frame 1 (both fields) twice. This option is good for shots without inter-field motion and still shots. With footage that includes inter-field motion, this method might result in minor shifting or bumping of the image because it disturbs the original order of fields: a Field 1 will appear both before *and* after the corresponding Field 2. The effect renders relatively quickly. For best results, you should use evenly divisible frame rates with this option.
Interpolated Field	A second field is created for the effect by combining scan line pairs from the first field in the original media. This option calculates the motion effect at the field level rather than the frame level. Because the system considers all fields and does not disturb the original order of fields, the smoothest effect results. This method is best for video-originated material or film-originated material transferred at 24 fps. The time needed to render effects created using this option is longer than for effects created using either Duplicated Field or Both Fields, but similar to the time needed for VTR-Style.
VTR-Style	The Avid system creates a second field for the effect by shifting selected video fields of the original media by a full scan line. This option also creates the motion effect at the field level rather than the frame level, but because pixels are not filtered, the final image is sharper than that created by the Interpolated Field option. The image might display some slight jitter at certain speeds. This technique is similar to that used by high-quality professional video decks when playing footage at less than normal speed. The time needed to render effects created using this option is longer than for effects created using either Duplicated Field or Both Fields, but similar to the time needed for Interpolated Field.

Table 9-27 Variable Speed and Strobe Motion Options (Continued)

Category Option	Description
Ignore Render Setting	If a specific motion effect type is set in the Motion Effects Render Using option of the active Render setting, the system automatically selects that motion effect type, makes all other motion effect type options unavailable, and displays the Ignore Render Setting checkbox. Click the Ignore Render Setting checkbox to temporarily override the active Render setting and make all four motion effect type available.

If a Strobe Motion effect becomes unrendered because it has been trimmed to a longer duration, the effect will not play and must be rendered again.

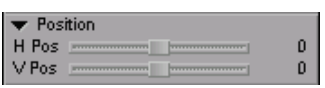
To indicate reverse motion at full play rate, slow or fast, enter a negative play rate or a percent.

Paint Effect Parameters

See **"AniMatte and Paint Effects" on page 459**.

Position

Parameter type: Keyframeable



Position parameters set horizontal and vertical position.

Position is not available for DSK titles. To reposition a Title effect, deselect the Downstream Key button in the Effect Editor.

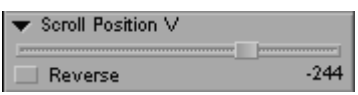
If your system has the 3D Effects option, see the 3D version on ***page 658****.*

Table 9-28 Position Parameters

Parameter	Description
H Pos (horizontal position)	Moves the video from side to side. Values range from –999 to 999. Negative values move the image to the left. Positive values move the image to the right.
V Pos (vertical position)	Moves the video up and down. Values range from –999 to 999. Negative values move the image to the top. Positive values move the image to the bottom.

Scroll Position V

Parameter type: Keyframeable



Rolling titles have an additional position parameter labeled Scroll Position V (vertical).

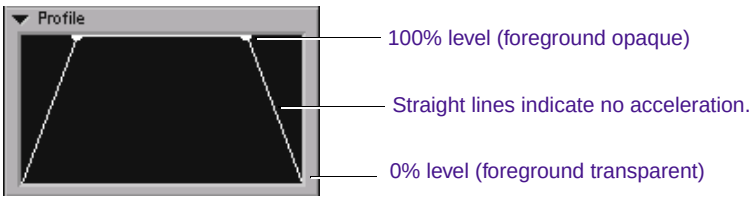
Use this parameter to move the rolling title up or down in the frame. The number range refers to the position of the roll relative to its overall length, where 0 represents the point at which the top of the roll is aligned with the top of the screen. The highest negative number (the slider at its leftmost position) places the top of the roll off the bottom of the screen. The highest positive number (the slider at its rightmost position) places the bottom of the roll off the top of the screen.

Click Reverse to reverse the direction of the roll.

If you select all keyframes when changing the scroll position on a rolling title, all keyframes will be set to that position and the title will no longer move. Make sure you select the appropriate keyframes.

Profile

Parameter type: Keyframeable



The Profile window in the Effect Editor is a graphical representation of the foreground level and acceleration applied to effect keyframes:

- **Foreground level** affects the opacity of the effect. The greater the opacity, the closer to the top of the Profile graph the keyframe appears. For more information, see the following section, "**Adjusting Foreground Level in the Profile Window**."
- **Acceleration** affects the rate of movement into and out of keyframes. The greater the acceleration, the more rounded the lines appear in the Profile window. You can adjust Acceleration with the Acceleration slider only. For more information, see **"Acceleration" on page 458**.

Adjusting Foreground Level in the Profile Window

Foreground level controls the opacity of a 3D effect layer. You can adjust levels for various keyframes directly in the Profile window. This is the same as using the Level slider in the Foreground parameter category, as described in **"Foreground" on page 489**. Adjustments you make with the Level slider are also represented in the Profile graph.

To adjust foreground level within the Profile window:

1. Select the appropriate keyframe in the effect's position bar.
2. Click the round white keyframe indicator that appears on the Profile graph, and drag it up or down to increase or decrease the opacity of the foreground image.

Scaling

Parameter type: Keyframeable

Scaling involves resizing the effect by adjusting height and width.

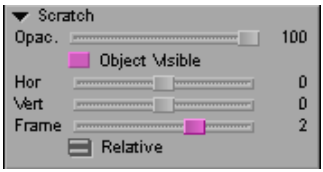
Table 9-29 Scaling Parameters

Parameter	Description
Wid (width)	Controls the width of the image when the Fixed Aspect parameter is disabled. Stretches or compresses along the X axis (horizontally). Values range from 0 to 400, where 100 indicates 100 percent scaling (normal size).
Hgt (height)	Controls the height of the image when the Fixed Aspect parameter is disabled. Stretches or compresses along the Y axis (vertically). Values range from 0 to 400, where 100 indicates 100 percent scaling (normal size).
Fixed Aspect	Determines which position and size parameters are displayed. When the Fixed Aspect parameter is enabled, the aspect ratio of the picture cannot be changed. The Wid and Hgt sliders are ganged and move together.

Scaling is not available for DSK titles. To scale a Title effect, deselect the Downstream Key button in the Effect Editor.

Scratch

Parameter type: Keyframeable



The Scratch parameters control the position and appearance of replacement material that you use to cover scratches and other flaws.

Table 9-30 Scratch Parameters

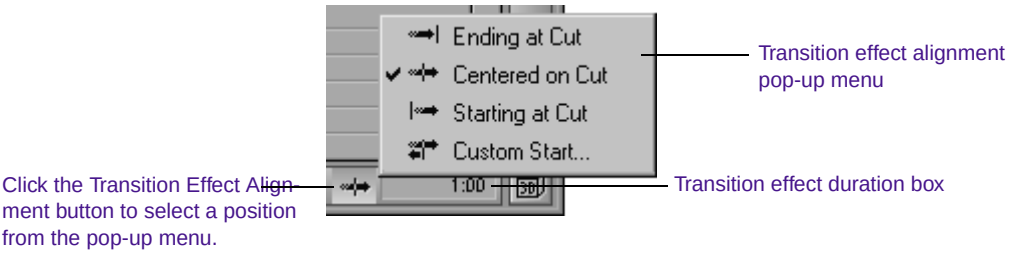
Parameter	Description
Opac. (opacity)	The Opac. slider controls the opacity of the replacement material used in a Scratch Removal effect. A value of 0 represents complete transparency. A value of 100 represents complete opacity.
Object Visible	The Object Visible button enables you to add a keyframe to a Scratch Removal effect and have replacement material suddenly “pop” onto the screen at the position marked by the keyframe. You must have at least three keyframes to create this effect.
Hor (horizontal)	Defines the position of the replacement material relative to the shape you have drawn on the horizontal axis of the frame. Negative values indicate the number of pixels the replacement material is to the left of the shape, positive values the number of pixels to the right. The default value is 0.
Vert (vertical)	Defines the position of the replacement material relative to the shape you have drawn on the vertical axis of the frame. Negative values indicate the number of pixels the replacement material is above the shape, positive values the number of pixels below. The default value is 0.

Table 9-30 Scratch Parameters (Continued)

Parameter	Description
Frame/Field	Defines which nearby frame or field is being used as the source of the replacement material. Values represent an offset from the reference point defined in the Offset Fast menu. A value of 0 indicates the frame or field that is the reference point; a positive value indicates a later frame or field than the reference point; a negative value indicates an earlier frame or field than the reference point. The default value of –1 provides an instant correction when you are working with the normal two-frame effect created by the Scratch Removal button. When you are working with single-field or 24p or 25p material, the slider is Frame and is calibrated from –5 to +5, with each increment representing one frame. When you are working with two-field material, the slider is Field and is calibrated from –10 to +10, with each increment representing one field.
Offset Fast menu	The Offset Fast menu defines the reference or zero point for the Frame or Field slider. The following three choices are available on the Offset Fast menu. **Relative** — The Frame or Field slider is set relative to the frame containing the shape that covers the flaw. **From Start** — The Frame or Field slider is set relative to the first frame of the segment. **From End** — The Frame or Field slider is set relative to the last frame of the segment.

Transition Parameters

Parameter type: Global



The Transition parameters appear at the bottom of the Effect Editor.

Transition Effect Alignment

The Transition Effect Alignment parameters specify the start of the transition effect relative to the cut point in the sequence.

To set the alignment for a transition effect:

- Click the button to the left of the Transition Effect Duration box, and select a position from the Transition Effect Alignment pop-up menu:
  - Ending at Cut — The transition effect will start a number of frames before the cut defined by the duration, such that the effect completes at the cut point in the video.
  - Centered on Cut — The transition will be centered on the cut so that half the effect will occur before the cut point and half will occur after the cut point in the sequence.
  - Starting at Cut — The transition effect will start immediately after the last frame of the outgoing video is displayed.
  - Custom Start — Allows you to specify the number of frames before and after the cut to be included in the effect.

Transition Effect Duration

The Transition Effect Duration box specifies the length of time that the effect will span the transition. The duration of a segment effect is determined by the length of the segment. The Transition Effect Duration format that is displayed (for example, 1:00 is 1 second and 0 frames) is determined by the Transition Effect Duration setting you selected at the top of the Effect Preview window.

For more information about using transition effects, see ***"Working with Transition Effects" on page 72****.*

Plug-in Effect Parameters

If you install third-party AVX (Avid Visual Extensions) plug-in effects, these effects usually come with their own documentation. For information on installing and using third-party plug-in effects, see **"Using Third-Party Plug-in Effects" on page 46**.

2D Effects

This section summarizes each 2D effect in alphabetical order within each effect category listed below. Parameters for each effect are listed here and described in **“2D Effects Parameters” on page 456**.

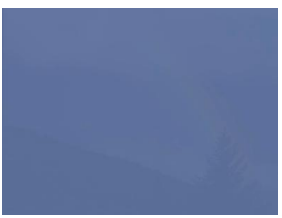
Blend Effects

Blend effects are general two-channel effects. They include:

- **Blend: Dip to Color**
- **Blend: Dissolve**
- **Blend: Fade from Color**
- **Blend: Fade to Color**
- **Blend: Picture-in-Picture**
- **Blend: Superimpose**

Blend: Dip to Color

Outgoing footage



Middle of effect

Incoming footage

Effect Icon

Apply to

Transitions

Parameters

Profile – foreground level

Foreground – level, reverse animation

Background – hue, saturation, luminance

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Fades from the outgoing video to black, white, or any color and then fades up to the incoming video. Color is specified using the Lum, Chroma, and Sat sliders.

Blend: Dissolve

Outgoing footage

Middle of effect

Incoming footage

Effect Icon

Apply to

Transitions

Parameters

Profile – foreground level

Foreground – level, reverse animation

Acceleration

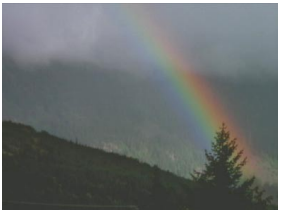
Transition Parameters – transition effect alignment and duration

Description

Blends images from the outgoing video with the incoming video over time.

Blend: Fade from Color

Beginning color



Middle of effect

Incoming footage

Effect Icon

Apply to

Transitions

Parameters

Profile – foreground level

Foreground – level, reverse animation

Background – hue, saturation, luminance

Acceleration

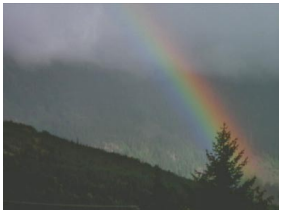
Transition Parameters – transition effect alignment and duration

Description

Fades from any color to incoming video.

Blend: Fade to Color

Outgoing footage



Middle of effect

Final color

Effect Icon

Apply to

Transitions

Parameters

Profile – foreground level

Foreground – level, reverse animation

Background – hue, saturation, luminance

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Fades from the outgoing video to any color.

Blend: Picture-in-Picture

Bottom track

PIP as a segment effect

Top track

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Background – hue, saturation, luminance

Acceleration

Transition Parameters – transition effect alignment and duration

Scaling – height, width, fixed aspect

Position – horizontal position, vertical position

Crop – top, bottom, left, right

Description

Creates a picture within a picture. Video from the higher layer, where the effect is applied, is displayed inside the video on the lower layer. When used on a transition, the incoming video appears inside outgoing video.

Blend: Superimpose

Bottom track

Superimpose effect

Top track

Effect Icon

Apply to

Multilayer segments

Parameters

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Description

Blends the image from the upper video track (where the effect is applied) with the image from the lower video track over time. Level set at 100 percent shows only the video image from the upper track where the effect is applied. Level set at 0 percent shows only the video image from the lower video track.

Box Wipes

Box Wipes reveal one video channel on top of another video channel, using predefined growing rectangular shapes. They include:

- **Box Wipe: Bottom Box**
- **Box Wipe: Bottom Left to Top Right**
- **Box Wipe: Bottom Right to Top Left**
- **Box Wipe: Left Box**
- **Box Wipe: Right Box**
- **Box Wipe: Top Box**
- **Box Wipe: Top Left to Bottom Right**
- **Box Wipe: Top Right to Bottom Left**

*For examples of similar effects, see **"Comparison of Similar Effects" on page 634**.*

Box Wipe: Bottom Box

Outgoing footage

Middle of effect

Incoming footage

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins as a box in the center of the bottom edge of the screen and wipes out the outgoing video as the box expands to fill screen.

Box Wipe: Bottom Left to Top Right

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins as a box in the bottom left corner of the screen and wipes out the outgoing video as the box expands to fill the screen.

Box Wipe: Bottom Right to Top Left

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins as a box in the bottom right corner of the screen and wipes out the outgoing video as the box expands to fill the screen.

Box Wipe: Left Box

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins as a box in the center of the left edge of the screen and wipes out the outgoing video as the box expands to fill the screen.

Box Wipe: Right Box

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins as a box in the center of the right edge of the screen and wipes out the outgoing video as the box expands to fill the screen.

Box Wipe: Top Box

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins as a box in the center of the top edge of the screen and wipes out the outgoing video as the box expands to fill the screen.

Box Wipe: Top Left to Bottom Right

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins as a box in the top left corner of the screen and wipes out the outgoing video as the box expands to fill the screen.

Box Wipe: Top Right to Bottom Left

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins as a box in the top right corner of the screen and wipes out the outgoing video as the box expands to fill the screen.

Conceal Effects

Conceal effects overlap one video channel over another video channel using a predefined path. They include:

- **Conceal: Bottom Left to Top Right**
- **Conceal: Bottom Right to Top Left**
- **Conceal: Bottom to Top**
- **Conceal: Left to Right**
- **Conceal: Right to Left**
- **Conceal: Top Left to Bottom Right**
- **Conceal: Top Right to Bottom Left**
- **Conceal: Top to Bottom**

*For examples of similar effects, see **"Comparison of Similar Effects" on page 634**.*

Conceal: Bottom Left to Top Right

Outgoing footage

Middle of effect

Incoming footage

Effect Icon

Apply to

Transitions, single-layer and multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video slides on top of the outgoing video from the bottom left to the top right of the screen.

Conceal: Bottom Right to Top Left

Effect Icon

Apply to

Transitions, single-layer and multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video slides on top of the outgoing video from the bottom right to the top left of the screen.

Conceal: Bottom to Top

Effect Icon

Apply to

Transitions, single-layer and multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video slides on top of the outgoing video from the bottom to the top of the screen.

Conceal: Left to Right

Effect Icon

Apply to

Transitions, single-layer and multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video slides on top of the outgoing video from the left edge to the right edge of the screen.

Conceal: Right to Left

Effect Icon

Apply to

Transitions, single-layer and multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video slides on top of the outgoing video from the right edge to the left edge of the screen.

Conceal: Top Left to Bottom Right

Effect Icon

Apply to

Transitions, single-layer and multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video slides on top of the outgoing video from the top left to the bottom right of the screen.

Conceal: Top Right to Bottom Left

Effect Icon

Apply to

Transitions, single-layer and multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video slides on top of the outgoing video from the top right to the bottom left of the screen.

Conceal: Top to Bottom

Effect Icon

Apply to

Transitions, single-layer and multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

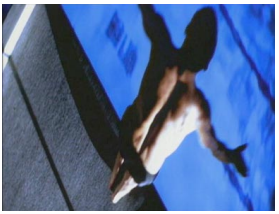
Incoming video slides on top of the outgoing video from the top to the bottom of the screen.

Edge Wipes

Edge Wipes reveal one video channel on top of another video channel by wiping an edge across the screen. They include:

- **Edge Wipe: Horizontal**
- **Edge Wipe: Horizontal Open**
- **Edge Wipe: Lower Left Diagonal**
- **Edge Wipe: Lower Right Diagonal**
- **Edge Wipe: Upper Left Diagonal**
- **Edge Wipe: Upper Right Diagonal**
- **Edge Wipe: Vertical Open**
- **Edge Wipe: Vertical**

Edge Wipe: Horizontal



Outgoing footage

Middle of effect

Incoming footage

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins at the left edge of the screen and moves to the right edge, wiping out the outgoing video.

Edge Wipe: Horizontal Open

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins as a vertical band in the center of the screen. This band expands to the left and right edges of the screen, wiping out the outgoing video.

Edge Wipe: Lower Left Diagonal

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Profile – foreground level

Foreground – level, reverse animation

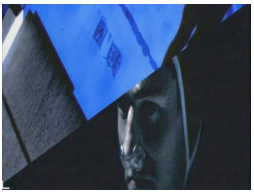
Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins in the bottom left corner of the screen and wipes out the outgoing video as a diagonal line moves from the bottom left corner to the top right corner of the screen.

Edge Wipe: Lower Right Diagonal



Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins in the bottom right corner of the screen and wipes out the outgoing video as a diagonal line moves from the bottom right corner to the top left corner of the screen.

Edge Wipe: Upper Left Diagonal

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins in the top left corner of the screen and wipes out the outgoing video as a diagonal line moves from the top left corner to the bottom right corner of the screen.

Edge Wipe: Upper Right Diagonal

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins in the top right corner of the screen and wipes out the outgoing video as a diagonal line moves from the top right corner to the bottom left corner of the screen.

Edge Wipe: Vertical Open

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins as a horizontal band in the center of the screen. This band expands up and down to fill the screen.

Edge Wipe: Vertical

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins at the top edge of the screen and expands downward to fill the screen.

Film Effects

Film effects, which are an available option on some systems, emulate many of the effects an optical house can produce. They include:

- **Film: 1.66 Mask**
- **Film: 1.85 Mask**
- **Film: Anamorphic Mask**
- **Film: 16:9 Mask**
- **Film: Blowup**
- **Film: Film Dissolve**
- **Film: Film Fade**
- **Film: Mask**

Film: 1.66 Mask

Original image

Mask effect example (1:1.85 Mask)

Effect Icon

Apply to

Single-layer segments

Parameters

Background – hue, saturation, luminance

Scaling – height, width, fixed aspect

Position – horizontal position, vertical position

Description

Masks out any area of the image that is not inside a centered rectangle. The centered rectangle is 1.66 times wider than it is tall. The area surrounding the rectangle is masked by a black background.

Film: 1.85 Mask

Effect Icon 

Apply to Single-layer segments

Parameters **Background** – hue, saturation, luminance

Scaling – height, width, fixed aspect

Position – horizontal position, vertical position

Description Masks out any area of the image that is not inside a centered rectangle. The centered rectangle is 1.85 times wider than it is tall. The area surrounding the rectangle is masked by a black background.

Film: Anamorphic Mask

Effect Icon 

Apply to Single-layer segments

Parameters **Background** – hue, saturation, luminance

Scaling – height, width, fixed aspect

Position – horizontal position, vertical position

Description Masks out any area of the image that is not inside a centered rectangle. The centered rectangle is 2.35 times wider than it is tall. The area surrounding the rectangle is masked by a black background.

Film: 16:9 Mask

Effect Icon 

Apply to Single-layer segments

Parameters **Background** – hue, saturation, luminance

Scaling – height, width, fixed aspect

Position – horizontal position, vertical position

Description Masks out any area of the image that is not inside a centered rectangle. The centered rectangle is 16 units wide by 9 units high. The area surrounding the rectangle is masked by a black background.

Film: Blowup

Original image

Blowup effect

Effect Icon

Apply to

Single-layer segments

Parameters

Background – hue, saturation, luminance

Blowup – field, X position, Y position

Description

Blowup modifies the size and portion of the picture that is displayed.

Film: Film Dissolve

Outgoing video

Middle of effect

Incoming video

Effect Icon

Apply to

Transitions

Parameters

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Blends the outgoing frame to the incoming frame over time. The Level parameter has been preset according to Kodak™ specifications. Avid does not recommend adjusting the Level parameter on this effect.

The Level set at 0% shows all of the outgoing frame. The Level set at 100% shows all of the incoming frame.

This dissolve has preset parameters that emulate film's response to light when dissolving to another (nonblack) picture.

Film: Film Fade

Effect Icon

Apply to

Transitions

Parameters

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Description

Blends the outgoing pictures to the incoming pictures over time. The Level parameter has been preset according to Kodak specifications. Avid does not recommend adjusting the Level parameter on this effect.

The Level set at 0% shows all of the outgoing frame. The Level set at 100% shows all of the incoming frame.

This dissolve has preset parameters that emulate film's response to black material. Use this effect for fade ins and fade outs.

Film: Mask

Effect Icon

Apply to

Single-layer segments

Parameters

Background – hue, saturation, luminance

Scaling – height, width, fixed aspect

Position – horizontal position, vertical position

Description

Masks out any area of the image that is not inside a rectangle defined by the Scaling, Fixed Aspect, and Position parameters of the effect.

The area surrounding this rectangle is masked by the effect's background color.

Image Effects

Image effects are general effects that apply to a single stream of video or (in the case of Scratch Removal and Submaster) that modify all the layers of video beneath them. They include:

- **Image: Color Effect**
- **Image: Flip**
- **Image: Flip-Flop**
- **Image: Flop**
- **Image: Mask**
- **Image: Paint Effect**
- **Image: Resize**
- **Image: Scratch Removal**

Image: Color Effect

Effect Icon	
Apply to	Single-layer segments
Parameters	**Luma Adjust** – brightness, contrast, invert **Luma Range** – white point, black point, and gamma **Luma Clip** – high and low **Chroma Adjust** – hue, saturation, invert **Color Style** – posterization and solarization **Color Gain** – red, green, blue
Description	The Color Effect modifies the luminance, chroma, style (posterized or solarized), and color gain of the segment. For examples of the Color Effect, see **"Color Effect Parameters" on page 479**.

Image: Flip

Original image

Flip effect applied

Effect Icon

Apply to Single-layer segments

Parameters None

Description Video image is flipped vertically.

Image: Flip-Flop

Original image

Flip-flop effect applied

Effect Icon

Apply to Single-layer segments

Parameters None

Description Video image is flipped both horizontally and vertically.

Image: Flop

Original image

Flop effect applied

Effect Icon 

Apply to Single-layer segments

Parameters None

Description Video image is flipped horizontally, which reverses the camera angle.

Image: Mask

Effect Icon 

Apply to Single-layer segments

Parameters

Background – hue, saturation, luminance

Scaling – height, width, fixed aspect

Position – horizontal position, vertical position

Description Masks out any area of the image that is not inside a rectangle defined by the Scaling, Fixed Aspect, and Position parameters of the effect. The area surrounding the rectangle is masked by the effect's background color.

Image: Paint Effect

Effect Icon

Apply to

Single-layer or multilayer segments

Parameters

Acceleration

Mode

Feathering

Magic Mask

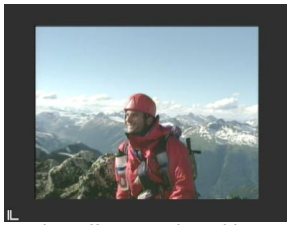
Brush

Description

Enhances the creative and corrective powers of the Avid system by allowing you to create vector-based objects that you can animate and edit with customizable paint brushes on one frame or a series of frames. For examples of the Paint Effect, see **"Common Intraframe Editing Techniques" on page 439**.

Image: Resize


Original image


Resize effect – reduced image


Resize effect – enlarged image

Effect Icon

Apply to

Single-layer segments

Parameters

Background – hue, saturation, luminance

Scaling – height, width, fixed aspect

Position – horizontal position, vertical position

Crop – top, bottom, left, right

Description

Resize modifies the size and position of the video. The background color displays where no video is present. Use the H Pos, V Pos, and Size sliders to specify the size and position of the video. Use the Crop parameters to remove the edges of the picture.

Image: Scratch Removal

Effect Icon

Apply to

Single-layer segments

Parameters

Acceleration

Scratch

Feathering

Brush

Description

Allows you to remove scratches and other flaws by drawing an object to cover the scratch and filling the object with clean replacement material. For examples of the Scratch Removal effect, see **"Scratch Removal" on page 423**.

Image: Submaster

Effect Icon 

Apply to — The top video track under which are the video tracks that will be included in the Submaster effect.

Parameters — None

Description — When rendered, the Submaster effect creates a single media file for all the video on the layers below the Submaster effect. This allows you to group several effects that reside on different video layers and render them as one effect; this is quicker than rendering each effect separately.

The Submaster effect does not render each track separately; you cannot play each track separately after rendering.

Key Effects

Key effects combine two streams of video using components from one of the streams. They include:

- **Key: AniMatte**
- **Key: Chroma Key**
- **Key: Luma Key**
- **Key: Matte Key**
- **Key: RGB Keyer (AVX Plug-in Effect)**

Key: AniMatte

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Acceleration

Foreground – level, reverse animation, swap sources

Mode

Feathering

Magic Mask

Brush

Description

Enables you to generate custom matte effects that you can apply to a segment or transition in a sequence. You can use a variety of brushes and painting tools to create matte effects that you can animate. For examples of the Animatte Effect, see **"Common Intraframe Editing Techniques" on page 439**.

Key: Chroma Key

Background – video layer 1

Key image – video layer 2

Chroma Key effect

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Key – hue, saturation, luminance, gain, softness

Secondary Key – hue, saturation, luminance, gain, softness

Spill Suppression – hue, saturation, luminance, gain, softness

Profile – foreground level

Foreground – level, swap sources, reverse animation, invert, show alpha

Acceleration

Scaling – height, width, fixed aspect

Position – horizontal position, vertical position

Crop – top, bottom, left, right

Transition Parameters – transition effect alignment and duration

Description

Replaces one part of the video image with another video image based on color. The key color in the video on the higher track is replaced with the video from the lower track number. Chroma Key is used most frequently with a foreground image shot in front of a highly saturated color screen.

Key: Luma Key


Key image


Background image


Luma Key effect

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Key – hue, saturation, luminance, gain, softness

Profile – foreground level

Foreground – level, swap sources, reverse animation, invert, show alpha

Acceleration

Scaling – height, width, fixed aspect

Position – horizontal position, vertical position

Crop – top, bottom, left, right

Transition Parameters – transition effect alignment and duration

Description

Replaces one part of the video image with another video image based on luminance.

Key: Matte Key

Video layer 3 – high-contrast matte image

Matte Key effect

Video layer 2 – foreground

Video layer 1 – background

Effect Icon

Apply to

Multilayer segments

Parameters

Profile – foreground level

Foreground – level, swap sources, reverse animation, invert, show alpha

Acceleration

Scaling – height, width, fixed aspect

Position – horizontal position, vertical position

Crop – top, bottom, left, right

Transition Parameters – transition effect alignment and duration

Downstream Key (for graphics files imported with alpha channel)

Description

A three-layer track effect. The bottom layer is the background image, the middle layer is the foreground image, and the top layer contains the grayscale matte or alpha channel.

Key: RGB Keyer (AVX Plug-in Effect)

Background – video layer 1

Key image – video layer 2

Chroma Key effect

Effect Icon

Apply to

Multilayer segments

Parameters

Key Color – hue, saturation, value

Chroma Key – gain, softness, show alpha, spill suppression, level, reverse

Matte Control – blur, erode

Color Correction – hue, saturation, brightness, contrast

Description

Replaces one part of the video image with another video image based on color. The key color in the video on the higher track is replaced with the video from the lower track number. You can also perform post-key color correction with the RGB Keyer effect.

L-Conceal Effects

L-Conceal effects overlap one video channel over another using a predefined L-shaped path. They include:

- **L-Conceal: Bottom Left**
- **L-Conceal: Bottom Right**
- **L-Conceal: Top Left**
- **L-Conceal: Top Right**

L-Conceal: Bottom Left

Outgoing footage

Middle of effect

Incoming footage

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video slides up the left half of the screen from bottom to top and then fills the screen from left to right.

L-Conceal: Bottom Right

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video slides up the right half of the screen from bottom to top and then fills the screen from right to left.

L-Conceal: Top Left

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video slides down the left half of the screen from top to bottom and then fills the screen from left to right.

L-Conceal: Top Right

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video slides down the right half of the screen from top to bottom and then fills the screen from right to left.

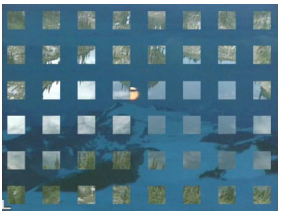
Matrix Wipes

Matrix wipes reveal one video channel on top of another video channel, using blocks or bands that appear in a predefined position or path. They include:

- **Matrix Wipe: Grid**
- **Matrix Wipe: One-Way Row**
- **Matrix Wipe: Speckle**
- **Matrix Wipe: Spiral**
- **Matrix Wipe: Zig-Zag**

Matrix Wipe: Grid

Outgoing footage



Middle of effect

Incoming footage

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Other Options – matrix columns and rows

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins as blocks in a grid pattern that wipe out the outgoing video as the blocks expand to fill the screen. Change the size of the grid by clicking the Other Options button.

Matrix Wipe: One-Way Row

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Other Options – matrix columns and rows

Profile – foreground level

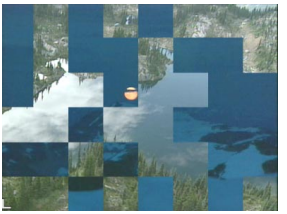
Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins as a block in the top left corner of the screen that wipes out the outgoing video as the band expands horizontally across the screen from left to right. When the first horizontal band reaches the right edge of the screen, a second band appears on the left edge of the screen, just below the first band, and repeats the process until the incoming video has wiped out all the outgoing video.



Matrix Wipe: Speckle

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Other Options – matrix columns and rows

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video appears in a random series of blocks that wipe out the outgoing video until the blocks have filled the screen.

Matrix Wipe: Spiral

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Other Options – matrix columns and rows

Profile – foreground level

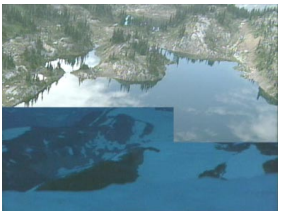
Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video spirals over and wipes out the outgoing video using blocks of screen space, starting in the bottom left corner of the screen, spiraling inward in a counterclockwise movement.



Matrix Wipe: Zig-Zag

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Other Options – matrix columns and rows

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins as a single block in the top left corner of the screen that wipes out the outgoing video as the band expands horizontally across the screen from left to right. When the first horizontal band reaches the right edge of the screen, a second band appears and expands horizontally across the screen from right to left. Succeeding bands repeat the process until the wipe is completed.

Motion Effects

A motion effect is applied to a clip in the Source monitor and controls the rate at which the video channel is played. Motion effects include:

- Freeze Frame
- Variable Speed
- Strobe Motion

When you use motion effects to slow down a clip, the effect is real-time. When you use motion effects to speed up a clip, the effect is non-real-time and must be rendered before it can be played.

Motion Effect: Freeze Frame

Apply to	Current frame in the Source monitor
Parameters	**Motion Effect Parameters** – duration and two-field media
Description	This effect repeats the current frame in the Source monitor for the specified duration.

Motion Effect: Variable Speed and Strobe Motion

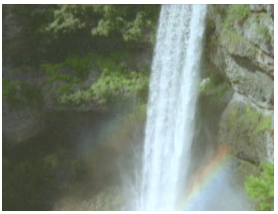
Apply to	The clip marked by the IN and OUT points in the Source monitor
Parameters	**Motion Effect Parameters** – variable speed, strobe motion, two-field media
Description	Variable Speed creates slow motion, fast motion, or reverse motion. Strobe Motion creates a stuttering effect. The Strobe Motion effect can be used in combination with the Variable Speed effect.

Peel Effects

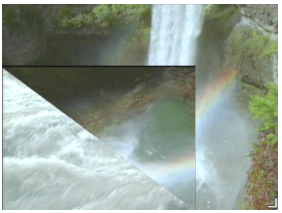
Peel effects treat one video channel as though it were a sheet of paper being peeled from the other video channel. They include:

- **Peel: Bottom Left Corner**
- **Peel: Bottom Right Corner**
- **Peel: Bottom to Top**
- **Peel: Left to Right**
- **Peel: Right to Left**
- **Peel: Top Left Corner**
- **Peel: Top Right Corner**
- **Peel: Top to Bottom**

Peel: Bottom Left Corner



Outgoing footage



Middle of effect

Incoming footage

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Outgoing video is peeled from incoming video from the bottom left corner to the top right corner of the screen.

Peel: Bottom Right Corner

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Outgoing video is peeled from incoming video from the bottom right corner to the top left corner of the screen.

Peel: Bottom to Top

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Outgoing video is peeled from incoming video from the bottom edge to the top edge of the screen.

Peel: Left to Right

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Outgoing video is peeled from incoming video from the left edge to the right edge of the screen.

Peel: Right to Left

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Outgoing video is peeled from incoming video from the right edge to the left edge of the screen.

Peel: Top Left Corner

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Outgoing video is peeled from incoming video from the top left corner to the bottom right corner of the screen.

Peel: Top Right Corner

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Outgoing video is peeled from incoming video from the top right corner to the bottom left corner of the screen.

Peel: Top to Bottom

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video is peeled from outgoing video from the top to the bottom of the screen.

Push Effects

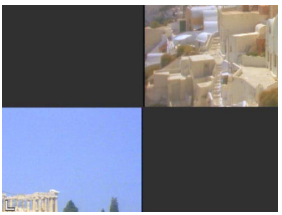
Push effects move one video channel to fill the screen while the other video channel is pushed out of the screen. They include:

- **Push: Bottom Left to Top Right**
- **Push: Bottom Right to Top Left**
- **Push: Bottom to Top**
- **Push: Left to Right**
- **Push: Right to Left**
- **Push: Top Left to Bottom Right**
- **Push: Top Right to Bottom Left**
- **Push: Top to Bottom**

*For examples of similar effects, see **"Comparison of Similar Effects" on page 634**.*

Push: Bottom Left to Top Right

Outgoing footage



Middle of effect

Incoming footage

Effect Icon

Apply to — Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

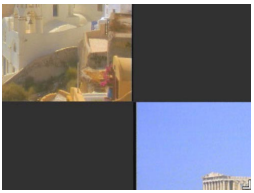
Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description — Incoming video pushes out outgoing video from the bottom left corner to the top right corner of the screen. Border is on incoming video.

Push: Bottom Right to Top Left



Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video pushes out outgoing video from the bottom right corner to the top left corner of the screen. Border is on incoming video.

Push: Bottom to Top

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video pushes out outgoing video from the bottom to the top of the screen. Border is on incoming video.

Push: Left to Right

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video pushes out outgoing video from the left edge to the right edge of the screen. Border is on incoming video.

Push: Right to Left

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

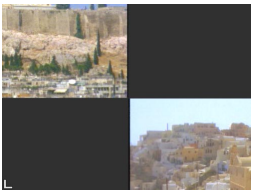
Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video pushes out outgoing video from the right edge to the left edge of the screen. Border is on incoming video.

Push: Top Left to Bottom Right



Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

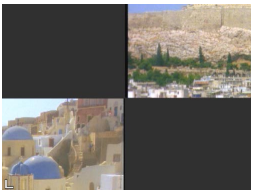
Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video pushes out outgoing video from the top left corner to the bottom right corner of screen. Border is on incoming video.

Push: Top Right to Bottom Left



Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video pushes out outgoing video from the top right corner to the bottom left corner of the screen. Border is on incoming video.

Push: Top to Bottom

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video pushes out outgoing video from the top to the bottom of the screen. Border is on incoming video.

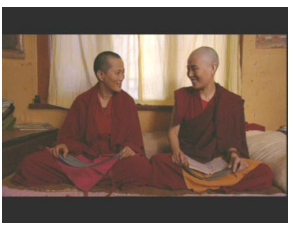
Reformat Effects

Reformat effects allow you to reformat media to different aspect ratios, for example when you need to reformat a film aspect ratio for television programming. 16:9 Letterbox, 14:9 Letterbox, and 4:3 Sidebar resize the media to conform to the aspect ratio you select. Pan and Scan allows you to select a portion of the media to reformat.

- **Reformat: 16:9 Letterbox**
- **Reformat: 14:9 Letterbox**
- **Reformat: 4:3 Sidebar**
- **Reformat: Pan and Scan**

Reformat: 16:9 Letterbox

Original footage



After 16:9 Letterbox effect applied

Effect Icon

Apply to

Multilayer or single-layer segments.

Parameters

Background

Position – horizontal position

Acceleration

Description

Reformats media to 16:9 Letterbox aspect ratio by distorting the media. See **"Understanding the Pan and Scan Effect" on page 188**.

Reformat: 14:9 Letterbox

Effect Icon

Apply to

Multilayer or single-layer segments.

Parameters

Background

Position – horizontal position

Acceleration

Description

Reformats media to 14:9 Letterbox aspect ratio by distorting the media. See **"Understanding the Pan and Scan Effect" on page 188**.

Reformat: 4:3 Sidebar

Effect Icon

Apply to

Multilayer or single-layer segments.

Parameters

Background

Position – horizontal position

Acceleration

Description

Reformats media to 4:3 Sidebar aspect ratio by distorting the media. See **"Understanding the Pan and Scan Effect" on page 188**.

Reformat: Pan and Scan

Effect Icon

Apply to

Multilayer segments, or single-layer segments in certain circumstances. For more information, see **"Combining the Pan and Scan Effect with Transition Effects" on page 205**.

Parameters

Aspect Ratios – source, target

Scaling – height, width, fixed aspect

Position – horizontal position, vertical position

Acceleration

Actions – establish origin, subdivide effect, reset to origin

Grid

Description

Allows you to reformat media to different aspect ratios, for example when you need to reformat a film aspect ratio for television programming. For examples of the Pan and Scan effect, see **"Using the Reformat Effects and the Pan and Scan Effect" on page 187**.

Sawtooth Wipes

Sawtooth wipes create a transition between shots using a jagged edge like the teeth of a saw. They include:

- **Sawtooth Wipe: Horizontal Sawtooth**
- **Sawtooth Wipe: Horizontal Open Sawtooth**
- **Sawtooth Wipe: Vertical Open Sawtooth**
- **Sawtooth Wipe: Vertical Sawtooth**

Sawtooth Wipe: Horizontal Sawtooth

Outgoing footage

Middle of effect

Incoming footage

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Profile – foreground level

Foreground – level, reverse animation

Other Options – matrix columns and rows

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video appears with a sawtooth on the left edge of the screen. The sawtooth edge moves to the right edge of the screen, revealing the incoming video.

Sawtooth Wipe: Horizontal Open Sawtooth

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Profile – foreground level

Foreground – level, reverse animation

Other Options – matrix columns and rows

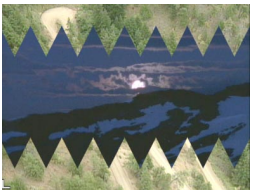
Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins as a vertical sawtooth in the center of the screen. The sawtooth then expands outward to the left and right edges of the screen to display the incoming video in the center while covering the outgoing video.

Sawtooth Wipe: Vertical Open Sawtooth



Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Profile – foreground level

Foreground – level, reverse animation

Other Options – matrix columns and rows

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins as a horizontal sawtooth in the center of the screen. The sawtooth expands up and down, revealing the incoming video.

Sawtooth Wipe: Vertical Sawtooth

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Profile – foreground level

Foreground – level, reverse animation

Other Options – matrix columns and rows

Acceleration

Transition Parameters – transition effect alignment and duration

Description

The sawtooth edge moves from the top of the screen down, covering the outgoing video and displaying the incoming video above the sawtooth.

Shape Wipes

Shape Wipes reveal one video channel on top of another video channel, using a growing or moving geometric shape. They include:

- **Shape Wipe: 4 Corners**
- **Shape Wipe: Center Box**
- **Shape Wipe: Circle**
- **Shape Wipe: Clock**
- **Shape Wipe: Diamond**
- **Shape Wipe: Ellipse**
- **Shape Wipe: Horizontal Bands**
- **Shape Wipe: Horizontal Blinds**
- **Shape Wipe: Vertical Blinds**

Shape Wipe: 4 Corners

Outgoing footage

Middle of effect

Incoming footage

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins as blocks in four corners of the screen and wipes out the outgoing video as the blocks expand to fill the screen.

Shape Wipe: Center Box

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Scaling – height, width, fixed aspect

Position – horizontal position, vertical position

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins as a small box in the center of the screen and wipes out the outgoing video as it expands to fill the screen.

Shape Wipe: Circle

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Scaling – height, width, fixed aspect

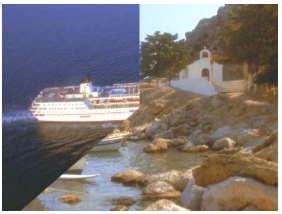
Position – horizontal position, vertical position

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins as a small circle in the center of the screen and wipes out the outgoing video as it expands to fill the screen.

Shape Wipe: Clock



Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and durations

Description

Incoming video appears as a vertical line from the center of the screen to the top edge. The incoming video replaces the outgoing video in a clockwise motion as if it were the hand on a clock.

Shape Wipe: Diamond

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Scaling – height, width, fixed aspect

Position – horizontal position, vertical position

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins as a small diamond in the center of the screen and wipes out the outgoing video as it expands to fill the screen.

Shape Wipe: Ellipse

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, and softness

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Scaling – height, width, fixed aspect

Position – horizontal position, vertical position

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins as a small ellipse in the center of the screen and wipes out the outgoing video as it expands to fill the screen.

Shape Wipe: Horizontal Bands

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Other Options – matrix rows and columns

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Reversible

Yes

Description

Horizontal bands expand toward the center of the screen to reveal incoming video between alternate shrinking bands of outgoing video.

Shape Wipe: Horizontal Blinds

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Other Options – matrix rows and columns

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video begins as horizontal bands on the screen that wipe out the outgoing video as the incoming bands expand vertically to fill the screen.

Shape Wipe: Vertical Blinds

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Other Options – matrix rows and columns

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

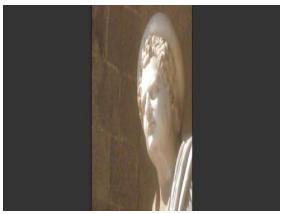
Incoming video begins as vertical bands on the screen that wipe out the outgoing video as the incoming bands expand horizontally to fill the screen.

Spin Effects

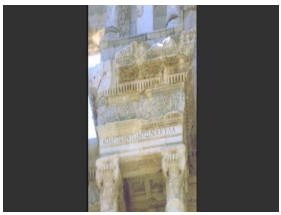
Spin effects rotate one or more video channels. They include:

- **Spin: X Spin**
- **Spin: Y Spin**
- **Spin: Z Spin**

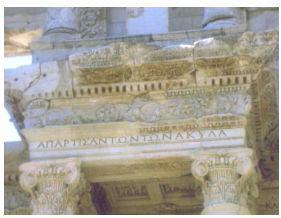
Spin: X Spin



Middle of effect



Outgoing footage



Incoming footage

Effect Icon

Apply to

Transitions

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

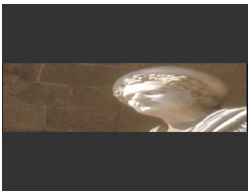
Acceleration

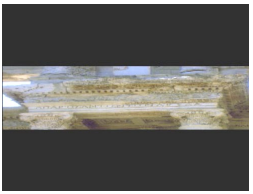
Transition Parameters – transition effect alignment and duration

Description

Outgoing video is squeezed until it appears as a vertical line. The incoming video then expands from that vertical line until it fills the screen. Border appears only on the incoming video.

Spin: Y Spin





Middle of effect

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

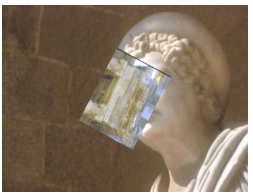
Transition Parameters – transition effect alignment and duration

Description

Outgoing video is squeezed until it appears as a horizontal line. The incoming video then expands from that horizontal line until it fills the screen.

Spin: Z Spin

Outgoing footage



Incoming footage

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

The incoming video begins as a dot in the center of the screen and then enlarges to full screen while rotating counterclockwise one full revolution, covering the outgoing video.

Squeeze Effects

Squeeze effects expand a video channel from a single point or line until it fills the screen, obscuring the second video channel. They include:

- **Squeeze: Bottom Centered**
- **Squeeze: Bottom Left**
- **Squeeze: Bottom Right**
- **Squeeze: Bottom to Top**
- **Squeeze: Centered Zoom**
- **Squeeze: Horizontal Centered**
- **Squeeze: Left Centered**
- **Squeeze: Left to Right**
- **Squeeze: Right Centered**
- **Squeeze: Right to Left**
- **Squeeze: Top Centered**
- **Squeeze: Top Left**
- **Squeeze: Top Right**
- **Squeeze: Top to Bottom**
- **Squeeze: Vertical Centered**

*For examples of similar effects, see **"Comparison of Similar Effects" on page 634**.*

Squeeze: Bottom Centered

Outgoing footage

Middle of effect

Incoming footage

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video squeezes over the outgoing video, beginning as a rectangle in the center bottom of the screen and expanding to fill the screen.

Squeeze: Bottom Left

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Reversible

Yes

Description

Incoming video squeezes over the outgoing video, beginning as a rectangle in the bottom left corner of the screen and expanding to fill the screen.

Squeeze: Bottom Right

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video squeezes over the outgoing video, beginning as a rectangle in the bottom right corner of the screen and expanding to fill the screen.

Squeeze: Bottom to Top

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video squeezes over the outgoing video, beginning at the bottom of the screen and filling to the top of the screen.

Squeeze: Centered Zoom

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

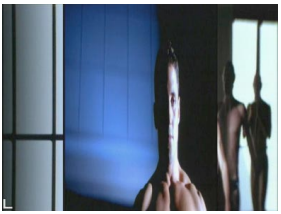
Foreground – level, reverse animation

Acceleration

Description

Incoming video starts as a rectangle in the center of the screen and zooms to fill the screen.

Squeeze: Horizontal Centered



Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video starts as a vertical band squeezed in the center of the screen and expands horizontally to fill the screen.

Squeeze: Left Centered

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video squeezes over the outgoing video, beginning as a rectangle in the center left edge of the screen and expanding to fill the screen.

Squeeze: Left to Right

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video squeezes over the outgoing video, beginning at the left edge of the screen and filling to the right edge of the screen.

Squeeze: Right Centered

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Description

Incoming video squeezes over the outgoing video, beginning as a rectangle in the center right edge of the screen and expanding to fill the screen.

Squeeze: Right to Left

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video squeezes over the outgoing video, beginning at right edge of the screen and filling to the left edge of screen.

Squeeze: Top Centered

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video squeezes over the outgoing video, beginning as a rectangle in the center top edge of the screen and expanding to fill the screen.

Squeeze: Top Left

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video squeezes over the outgoing video, beginning as a rectangle in the top left corner of the screen and expanding to fill the screen.

Squeeze: Top Right

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video squeezes over the outgoing video, beginning as a rectangle in the top right corner of the screen and expanding to fill the screen.

Squeeze: Top to Bottom

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video squeezes over the outgoing video, beginning at the top edge of the screen and filling to the bottom edge of the screen.

Squeeze: Vertical Centered

Effect Icon

Apply to

Transitions, multilayer segments

Parameters

Border – hue, saturation, luminance, width, softness

Blend Color – hue, saturation, luminance

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Transition Parameters – transition effect alignment and duration

Description

Incoming video starts as a horizontal band squeezed in the center of the screen and expands vertically to fill the screen.

Title Effects

Effect Category Title effects (Title, Rolling Title)

Effect Icons Title Rolling Title

Apply to Multilayer segments

Title Parameters

Profile – foreground level

Foreground – level, reverse animation

Acceleration

Scroll Position V (rolling titles only)

Downstream Key

Disabling Downstream Key enables the following additional parameters:

Scaling – height, width, fixed aspect

Position – horizontal position, vertical position

Crop – top, bottom, left, right

Rolling Title Parameters

Foreground – level, reverse animation

Acceleration

Scroll Position V

Reverse

Description Title effects are created in the Title tool and can incorporate text, graphic objects, imported graphics, and video. Similar to Matte Key effects, Title effects are placed on segments in one video layer and then keyed over background video on the underlying video layers.

Comparison of Similar Effects

There are four effect categories that have a similar result: Box Wipe, Conceal, Push, and Squeeze. Examples of these effects are shown here to assist you in using these effects.

Box Wipe — Top Left to Bottom Right

Conceal — Top Left to Bottom Right

Push — Top Left to Bottom Right

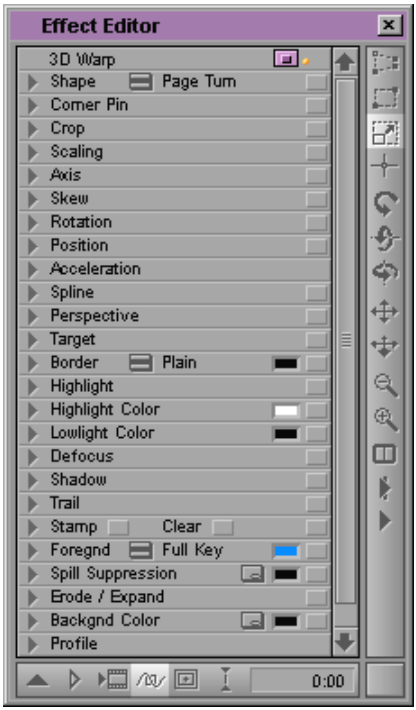
Squeeze — Top Left

CHAPTER 10

3D Effects Reference

This chapter provides reference information on parameters and effect shape options that appear in the Effect Editor when you apply the 3D Warp effect to a transition or segment. For information on applying and editing 3D effects, see **Chapter 5**, "**Working with 3D Effects**."

- **3D Effects Parameters**
- **3D Shape Effects**



3D Effects Parameters

This section provides a general description of all 3D parameters, in alphabetical order. Each effect includes a subset of these parameters. Some parameters have corresponding 2D versions, described in **Chapter 9**.

This section also covers the following topics:

- **Global Versus Keyframeable Parameters**
- **The Hierarchy of Parameters**

Some parameters are not available on all systems.

Effects parameters are grouped in the following categories:

- **Acceleration** (see 2D version on **page 458**)
- **Axis**
- **Background Color** (see 2D version on **page 476**)
- **Border** (see 2D version on **page 478**)
- **Corner Pin**
- **Crop** (see 2D version on **page 487**)
- **Defocus**
- **Erode/Expand**
- **Foreground** (see 2D version on **page 489**)
- **Highlight**
- **Perspective**
- **Position** (see 2D version on **page 505**)
- **Profile**
- **Rotation**
- **Scaling** (see 2D version on **page 508**)
- **Shadow**
- **Shape**
- **Skew**
- **Spill Suppression**
- **Spline**
- **Stamp**
- **Target**
- **Trail**

For an explanation of how to change a parameter, see ***"Changing a Parameter" on page 123****.*

Global Versus Keyframeable Parameters

Parameters for 3D effects are divided into two logical groups:

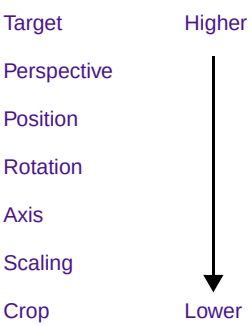
- **Global parameters** cannot change between keyframes. When you change one of these parameters, your Avid system automatically sets the value for all keyframes.
- **Keyframeable parameters** are adjustable on an individual keyframe basis, so that the parameters can change over time.

The type of parameter is indicated throughout this section.

The Hierarchy of Parameters

Your Avid system processes 3D effects parameters in a specific order. Knowing the order will help you understand why something looks a particular way or why an object behaves the way it does on a motion path.

The hierarchy of 3D effects parameters, and the relationships between them, are as follows:



- Parameters that are lower in the hierarchy, like Crop, are not affected by parameters that are higher in the hierarchy, such as Rotation. In an effect that has both rotation and cropping, for

example, the same four edges are always cropped the same way no matter what angle you have chosen for the rotation.

- Parameters that are higher in the hierarchy will always take into account the parameters lower in the hierarchy when processing. For example, before an object is rotated, your Avid system looks to see where the object is positioned in the frame to display the correct 3D point of view with the new angle.
- You always end up with the same effect no matter the order in which you change parameters. However, building an effect from the bottom of the hierarchy up will be easier to control. If you rotate an object, for example, and then move the axis (a lower parameter), your object may jump off the screen. It would be better to move the axis first, and then rotate the object.
- Parameters operate as 2D, 3D, and post-transformation. All these choices affect the 3D path of the object differently. Two-dimensional (2D) parameters, such as Scaling, are lowest in the hierarchy and do not affect the path through space. Three-dimensional (3D) parameters, such as Position, directly affect the shape of the motion path. Post-transformation parameters, such as Target, move the entire path.

Acceleration

Parameter type: Global

Acceleration changes the speed of movement into and out of keyframes. This is also known as *ease in* and *ease out*. Zero on the slider is no acceleration; 100 is full acceleration.

Acceleration applies to every keyframe in the same way. The last time you change this parameter determines the acceleration for all keyframes in the effect.

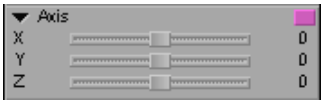
You can apply acceleration to a number of 3D effects parameters. For example, you can use keyframes and acceleration to smooth the motion of a rotating Picture-in-Picture effect.

Acceleration affects the following 3D effects parameters:

- **Shape** (X and Y position)
- **Position** (if **Spline** is disabled)
- **Scaling**
- **Rotation**
- **Axis**
- **Target**
- **Perspective**
- **Skew**
- **Crop**
- **Shadow** (X and Y position)

Axis

Parameter type: Keyframeable




Axis button

Use Axis to move the center of rotation relative to the image. There is no fixed rotation axis with an image. The axis is independent of the image and is movable. For example, the rotation axis can be placed in the center of the image, on the edge, or off the picture.

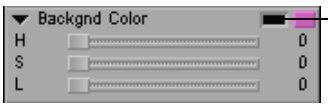
To move the center of rotation off the image, you might find it useful to zoom out and activate the wire-frame handles. For more information, see **“Effect Editor Buttons” on page 119**.

Table 10-1 Axis Parameters

Parameter	Description
X	Moves the center of rotation along the X axis (right or left). Values range from –999 to +999, where 0 is the center of the X axis.
Y	Moves the center of rotation along the Y axis (up or down). Values range from –999 to +999, where 0 is the center of the Y axis.
Z	Moves the center of rotation along the Z axis. Values can range from –999 to +999, where 0 is the center of the Z axis. Positive values are closer and negative values are farther away. Adjusting the Z value moves the center of rotation off the plane of the video screen.

Background Color

Parameter type: Keyframeable



Move the mouse to the Color Preview window to activate the eyedropper.

Use Backgnd (background) Color to replace the bottom video track with a background color.

Use the eyedropper to select a color from the video in a monitor, or use the following color parameters. For a description of how to use the eyedropper, see **"Using the Eyedropper" on page 125**.

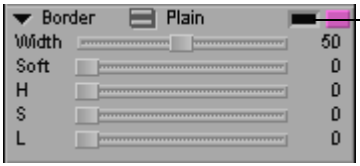
Table 10-2 Background Color Parameters

Parameter	Description
H (hue)	Specifies the hue or shade of the color. Values range from 0 to 255.
S (saturation)	Specifies the amount or intensity of the color. Values range from 0 to 255, where 0 is no chrominance and 255 is a fully saturated color.
L (luminance)	Specifies the brightness of the color. Values range from 0 to 255, where 0 is black and 255 is full brightness.

You can achieve interesting effects on a two-track sequence by using a background color for the bottom track and using a Luma Key effect on the top track.

Border

Parameter type: Keyframeable



Use Border to place a border around the image. Use the Fast Menu button to select the border style.

The default border color is black for Plain borders and shades of gray for other border types.

You can blend the foreground video with the background video if you turn on Border, use a zero width, and adjust the Soft parameter.

For information about the 2D version of this effect, see ***"2D Effects Parameters" on page 456***.

Table 10-3 Border Parameters

Parameter	Description
Width	Changes the width of the border. Values range from 0 (no border) to 100, where 50 is the default.
Soft (softness)	Changes the softness. Values range from 0 (hard edge) to 255 (a very soft edge), where 0 is the default. Border softness blends the border with the background image, giving the border a soft appearance.

Use the eyedropper to select a color from the video in the Record monitor, or use the following color parameters. For a description of how to use the eyedropper, see **"Using the Eyedropper" on page 125**.

H (hue)	Specifies the hue or shade of the color. Values range from 0 to 255.

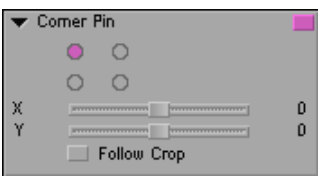
Table 10-3 Border Parameters (Continued)

Parameter	Description
S (saturation)	Specifies the amount or intensity of the color. Values range from 0 to 255, where 0 is no chrominance and 255 is a fully saturated color.
L (luminance)	Specifies the brightness of the color. Values range from 0 to 255, where 0 is black and 255 is full brightness.

You cannot change the border type and border color between keyframes.

Corner Pin

Parameter type: Keyframeable



Corner pinning is a way of positioning a 3D effect in a foreground video track over an object in a background video track. For example, you might want to have the foreground video appear to be playing on a TV set in the background video.

Table 10-4 Corner Pin Parameters

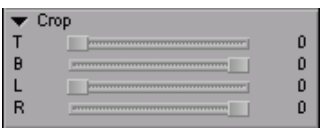
Parameter	Description
Corner Selection	Selects which corner the X and Y parameters apply to.

Table 10-4 Corner Pin Parameters (Continued)

Parameter	Description
X	Pins the image along the X axis. Values range from –999 to +999, where 0 is the default.
Y	Pins the image along the Y axis. Values range from –999 to +999, where 0 is the default.
Follow Crop	Lets you pin the corners of a cropped image rather than pinning the corners of the whole frame.

Crop

Parameter type: Keyframeable




Crop button

At the bottom of the effects parameters hierarchy is Crop. It always crops the same four edges of the object no matter what orientation the object has. Cropping works only in 2D space so that 3D parameters such as Rotation and Position, which are higher in the hierarchy, take effect later in the processing. You don't need to adjust cropping before the other parameters, but it is difficult to crop edges if they are rotated to the vanishing point. Use Crop to trim an image's top, bottom, left, and right edges.

For information about the 2D version of this effect, see ***"2D Effects Parameters" on page 456****.*

Table 10-5 Crop Parameters

Parameter	Description
T (top)	Crops the top edge of the image. Values range from –999 (bottom) to 999 (top). The values –999 to 999 are relative to the edges of the image. Zero is the center of the image.
B (bottom)	Crops the bottom edge of the image. Values range from –999 (bottom) to 999 (top).
L (left)	Crops the left edge of the image. Values range from –999 (left) to 999 (right).
R (right)	Crops the right edge of the image. Values range from –999 (left) to 999 (right).

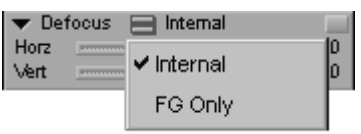
You can apply the FG Only, Key Only, FG and Key, or KeyBlur on any Avid system, but if your system does not support the feature, there will be no effect on the image. When you move the project to a system that does support the feature, the system will make the image adjustments you specified.

Defocus

Parameter type: Keyframeable

Menu options in Key effects

Menu options in non-Key effects



Defocus gives you the ability to blur the image or blur individual layers of a matte effect with the Internal, FG Only, Key Only, or FG and Key options.

You can use Defocus to create an effect in which the incoming media "fades in" to focus.

The KeyBlur option uses alpha channel values as a template for blurring the foreground image. When you select this option, Defocus blurs the foreground in proportion to the opacity of the matte. You might use this effect to selectively blur part of a foreground image, such as a face, by creating a moving matte for the area of the image you want to appear blurred. You would use the Offset parameter to control how much of a blur Defocus applies to the face. Alternatively, you could use a KeyBlur matte to create a soft-focus area around a foreground subject.

When you enable Defocus, the default option is Internal and default values are 10 for Horz (horizontal) and Vert (vertical). This produces a slight softening effect.

Table 10-6 Defocus Options

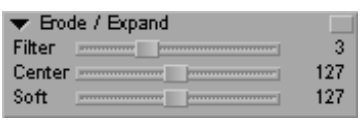
Option	Parameter	Description
Internal		Blurs the image. Available on all systems.
	Horz (horizontal)	Increases or decreases horizontal blur. Values range from 0 to 15, where 0 represents no change. Defaults to 10.
	Vert (vertical)	Increases or decreases vertical blur. Values range from 0 to 15, where 0 represents no change. Defaults to 10.
FG (Foreground) Only **Key Only** **FG (Foreground) and Key**		Blurs the selected component of a Matte Key effect.

Table 10-6 Defocus Options (Continued)

Option	Parameter	Description
	Horz (horizontal)	Increases or decreases horizontal blur of the selected component(s). Values range from 0 to 255, where 0 represents no change. Defaults to 0.
	Vert (vertical)	Increases or decreases vertical blur of the selected component(s). Values range from 0 to 255, where 0 represents no change. Defaults to 0.
KeyBlur		Blurs the foreground in proportion to the opacity of the matte. Black matte values cause no blurring; white matte values cause maximum blurring.
	Offset	Increases or decreases across the whole image the relative amount of blurring that Defocus applies as a result of the KeyBlur option. Values range from –100 to 100, representing a percentage of maximum blur (100) or minimum blur (–100). At 0, Defocus makes no further adjustment to the foreground after it applies the KeyBlur option.

Erode/Expand

Parameter type: Global



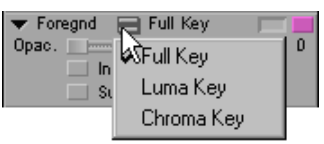
Use Erode/Expand to control the blending of the edges on 3D Warp effects.

Table 10-7 Erode/Expand Parameters

Parameter	Description
Filter	Specifies how many pixels on each side of the edge will be smoothed. Values range from 1 (1 pixel on each side) to 7 (7 pixels on each side).
Center	Controls the amount of erosion or expansion applied to the edges. Erosion shrinks the edges, and expansion enlarges the edges. Values range from 0 to 255, where 0 is maximum erosion and 255 is maximum expansion.
Sof (softness)	Controls the slope of the edges. Values range from 0 to 255, where 0 is a vertical slope (no softness) and 255 is the maximum slope (maximum softness).

Foreground

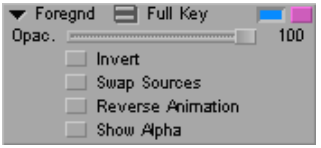
Parameter type: Global



The Foregnd (foreground) Fast menu has three options: **Full Key**, **Luma Key**, and **Chroma Key**. Each of the three keys has different values you can adjust. When you enable a key, its value options are automatically revealed. The values are described in the following sections.

Full Key

Parameter type: Keyframeable



Full Key is the default for all 3D effects. Use Full Key to:

- Create dissolves using the Opac. (opacity) slider
- Switch an effect from one video track or segment to another by using the Swap Sources button

You cannot rotate the key independently of the image.

Table 10-8 Foreground: Full Key Parameters

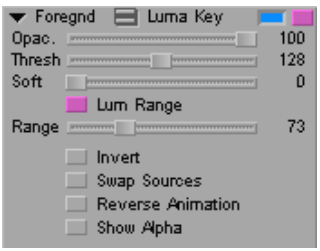
Parameter	Description
Opac. (opacity)	Modifies the transparency of the foreground image. Values range from 0 (transparent) to 100 (opaque). You can also use the Opac. (opacity) slider to adjust the foreground opacity. See **"Adjusting Foreground Level in the Profile Window" on page 659**.
Invert	Inverts the key. This setting is most noticeable for effects that scale the foreground video, such as a Picture-in-Picture effect. The bottom track shows through the Picture-in-Picture effect key unscaled. The area outside the Picture-in-Picture effect key is black.
Swap Sources	Switches the foreground and background sources for the effect.
Reverse Animation	Causes the entire effect to be reversed, including the direction of movement as well as the incoming and outgoing sources.

Table 10-8 Foreground: Full Key Parameters (Continued)

Parameter	Description
Show Alpha	Displays the grayscale alpha channel used to apply the key effect to the foreground and the background source. This allows you to examine problem areas of the key while making adjustments.

Luma Key

Parameter type: Keyframeable



Use Luma Key to replace portions of the foreground video with the background video based on brightness or luminance. The Luma Key sliders allow you to select a brightness value or a range of brightness values in the foreground video. The Avid system replaces the corresponding portions of the foreground video with background video.

For information about the 2D version of this effect, see ***"2D Effects Parameters" on page 456****.*

Table 10-9 Foreground: Luma Key Parameters

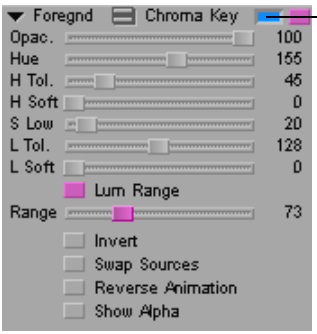
Parameter	Description
Opac. (opacity)	Adjusts the transparency of the foreground image from 0 (transparent) to 100 (opaque).

Table 10-9 Foreground: Luma Key Parameters (Continued)

Parameter	Description
Thresh (threshold)	Identifies either the brightness threshold for the foreground image or the center of the luma range.
Soft (luma softness)	Allows you to soften the edge of the cutoff line. Pixel values slightly above or below the threshold are included, depending on the softness value.
Lum Range (luminance range)	Turns the Range slider on and off. The Luma Range parameter is not available on all systems.
Range	When Lum Range is not active, the Thresh value is a cutoff point. All brightness values above the Thresh value are displayed (you see the foreground). Values below the Thresh value are not displayed (you see the background). When Lum Range is active, Thresh becomes the median point of the range. This allows you to leave in a specific range of brightness values. The Luma Range parameter is not available on all systems.
Invert	Inverts the key. Portions of the foreground that were visible are now invisible and vice versa.
Swap Sources	**S**witches the foreground and background sources for the effect.
Reverse Animation	Causes the entire effect to be reversed, including the direction of movement as well as the incoming and outgoing sources.
Show Alpha	Displays the grayscale alpha channel used to apply the key effect to the foreground and the background source. This allows you to examine problem areas of the key while making adjustments.

Chroma Key

Parameter type: Global



Move the mouse to the Color Preview window to activate the eyedropper.

Use Chroma Key to replace one part of the video image with another video image based on color. The key color in the video on the higher track is replaced with the video from the lower track.

Chroma keys are often used with a foreground image shot in front of a highly saturated color screen.

For information about the 2D version of this effect, see ***"2D Effects Parameters" on page 456****.*

Table 10-10 Foreground: Chroma Key Parameters

Parameter	Description
Opac. (opacity)	Adjusts the transparency of the foreground image from 0 (transparent) to 100 (opaque).
Hue	Identifies the color. The hue color is replaced with video from the lower track. Either use the slider to select the hue, or use the eyedropper with the Color Preview window. When you use the eyedropper, the Avid system uses the hue only from the selected color. It ignores the saturation and luma values.

Table 10-10 Foreground: Chroma Key Parameters (Continued)

Parameter	Description
H Tol. (hue tolerance)	Controls how many similar shades of the hue will be replaced by the background (the bottom video track). Use this when the ranges of luminance and saturation of the chroma key color are too wide.
H Soft (hue softness)	Allows you to soften edges that are too aliased or sharp.
S Low (low saturation)	Allows you to remove low saturation colors by raising the lower limit. For example, sometimes portions of clothing or faces may contain subtle variations of a hue. To keep these portions of the image visible, you can try adjusting the S Low value.
S High (high saturation)	Allows you to remove high saturation colors by moving the upper limit down. For typical chroma keys with high saturation colors, you usually leave this value at the default of 255.
Invert	Inverts the key. Portions of the foreground that were visible are now invisible and vice versa.
Swap Sources	Switches the background and foreground source footage.
Reverse Animation	Causes the entire effect to be reversed, including the direction of movement as well as the incoming and outgoing sources.
Show Alpha	Displays the grayscale alpha channel used to apply the key effect to the foreground and the background source. This allows you to examine problem areas of the key while making adjustments.

The following parameters, available on some systems, are used only for special applications. These parameters actually create a mask rather than a key. They determine a range of values to retain rather than define a range of values to key out.

L Tol. (luminance tolerance)	Specifies a tolerance level — retain everything below the level.
L Soft (luminance softness)	Softens the key created by L Tol.

Table 10-10 Foreground: Chroma Key Parameters (Continued)

Parameter	Description
Lum Range option and Range slider	Allow you to retain values within a certain luminance range.

Using the Chroma Key Sliders

The most common procedure for using Chroma Key sliders is:

1. Use the eyedropper to select a hue.

   For best results, pick a color that is well within the field of color.

2. Adjust H Tol. (hue tolerance) to replace the hue with the background.

3. If low-saturation grays are keyed out (for example, portions of faces or clothing), try adjusting S Low (low saturation) to put them back into the foreground.

4. Use L Soft (luminance softness) to fine-tune the edges of the key.

You usually keep the S High, L Tol., and L Soft at their default settings.

*You can use the **Spill Suppression** parameter to correct spill for a Chroma Key.*

Highlight

Parameter type: Keyframeable

The Highlight parameters allow you to:

- Enable automatic highlighting for shapes and adjust the intensity of automatic highlighting
- Adjust the highlights for manual highlighting and Rev (reverse) manual highlighting

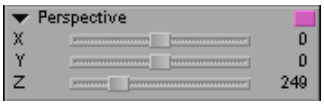
You can use manual highlights even when a shape is not active. The default manual highlight creates a blurred disk in the center of the image.

Table 10-11 Highlight Parameters

Parameter	Description
Soft (softness)	Controls the softness of the highlight's edge. Softness values range from 0 (hard edge) to 100 (a very soft edge), where 50 is the default softness.
Inty (intensity)	Controls the brightness of the highlight. Values range from 0 to 100, where 50 is the default intensity.
Rad (radius)	Controls the size of the highlight. Values range from 0 to 100, where 50 is the default radius.
Angle	Rotates the highlight. This has an effect only when the aspect ratio is not 0. Values range from –180 degrees to +180 degrees, where 0 is the default angle.
Aspct (aspect ratio)	Changes the shape of the highlight from a perfect circle (0) to an oval or a band. Values range from –100 to +100, where 0 is the default. The –100 band is at right angles to the +100 band.
X	Moves the center of the highlight from left to right. Values range from –999 to +999, where 0 is the default. Positive values move the highlight to the right.
Y	Moves the center of the highlight from top to bottom. Values range from –999 to +999, where 0 is the default. Positive values move the highlight up.

Perspective

Parameter type: Keyframeable



Use Perspective to move the perspective point (where parallel lines appear to converge) along the screen's X, Y, and Z axes. This changes the way the image is visually projected onto the video screen.

Table 10-12 Perspective Parameters

Parameter	Description
X	Moves the projected screen image farther to the left or right. Values range from –999 to +999, where 0 is the default.
Y	Allows you to view the image from a higher or lower angle. Values range from –999 to +999, where 0 is the default.
Z	Moves the perspective point closer to and farther from the observer. Perspective increases as the point moves inward and decreases as the point moves outward from the screen. Moving the perspective point in Z changes the amount of foreshortening on an image that is rotated around the X or Y axis.

Position

Parameter type: Keyframeable

Use Position to move an image in 3D space.

For information about the 2D version of this effect, see ***"2D Effects Parameters" on page 456****.*

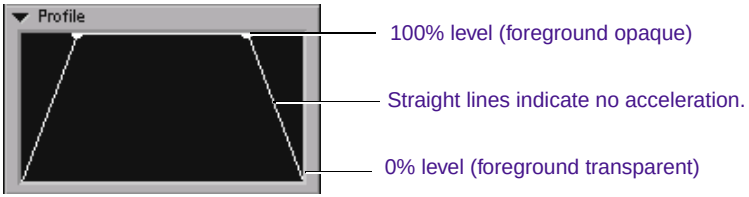
Table 10-13 Position Parameters

Parameter	Description
X	Moves the image along the screen's X axis (horizontally). Values range from –3000 to +3000, where 0 is the zero-point of the X axis. Negative values move the image to the left and positive values move the image to the right.
Y	Moves the image along the screen's Y axis (vertically). Values range from –3000 to +3000, where 0 is the zero-point of the Y axis. Negative values move the image down and positive values move the image up.
Z	Moves the image closer to or farther from the observer along the Z axis. Values range from -3000 to +3000, where zero is the zero-point of the Z axis. Negative values move the image away from the observer and positive values move the image toward the observer.

For an illustration of the XYZ coordinate system, see ***"The 3D Coordinate System" on page 228****.*

Profile

Parameter type: Keyframeable



Profile is available on all effects that have the Foreground (level) parameter. The Profile window in the Effect Editor is a graphical representation of the foreground level and acceleration applied to effect keyframes:

- **Foreground level** affects the opacity of the effect. The greater the opacity, the closer to the top of the Profile graph the keyframe appears. For more information, see the following section.
- **Acceleration** affects the rate of movement into and out of keyframes. The greater the acceleration, the more rounded the lines appear in the Profile window. You can adjust Acceleration with the Acceleration slider only. For more information, see **"Acceleration" on page 640**.

Adjusting Foreground Level in the Profile Window

Foreground level controls the opacity of a 3D effect layer. You can adjust levels for various keyframes directly in the Profile window. This is the same as using the Opac. slider in the Foregnd (foreground) parameter category.

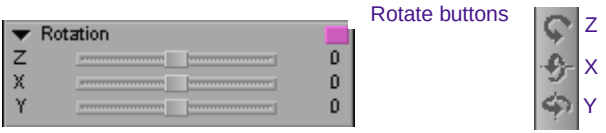
To adjust foreground level within the Profile window:

1. Select the appropriate keyframe in the effect's Timeline.

2. Click the round white keyframe indicator that appears on the Profile graph, and drag it up or down to increase or decrease the opacity of the foreground image.

Rotation

Parameter type: Keyframeable



Use Rotation to rotate the image around the X, Y, or Z axis.

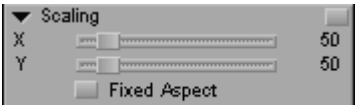
Table 10-14 Rotation Parameters

Parameter	Description
Z	Rotates the image around the Z axis (clockwise or counterclockwise). Values range from –720 to +720, where 0 is the default.
X	Rotates the image around the X axis. Values range from –720 to +720, where 0 is the default.
Y	Rotates the image around the Y axis. Values range from –720 to +720, where 0 is the default.

A value of 720 degrees allows you to spin the image more than once between two keyframes. For an explanation of rotation angles, see **"Rotation Axes" on page 229**.

Scaling

Parameter type: Keyframeable



 Scale button

The Scaling parameters allow you to adjust the size of the image or effect.

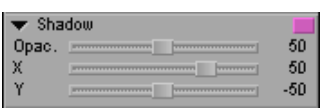
For information about the 2D version of this effect, see ***"2D Effects Parameters" on page 456****.*

Table 10-15 Scaling Parameters

Parameter	Description
X	Stretches or compresses along the X axis (horizontally). Values range from 0 to 400, where 100 indicates 100 percent scaling (normal size).
Y	Stretches or compresses along the Y axis (vertically). Values range from 0 to 400, where 100 indicates 100 percent scaling (normal size).
Fixed Aspect	When enabled, Fixed Aspect locks the aspect ratio of the image so you cannot move the X and Y sliders independently. The X and Y sliders are ganged and move together to maintain the selected aspect ratio.

Shadow

Parameter type: Keyframeable



Use Shadow to place a shadow beneath an image, to adjust its offset, and to adjust its transparency.

Table 10-16 Shadow Parameters

Parameter	Description
Opac. (opacity)	Changes the shadow's opacity from fully transparent (0) to fully opaque (100), where 50 is the default.
X	Changes the shadow's left/right offset. Values range from –100 to +100, where 50 is the default.
Y	Changes the shadow's top/bottom offset. Values range from –100 to 0, where –50 is the default.

Shadow, Trail, and Stamp (described in ***"Trail" on page 671****) are mutually exclusive. This means that you can have only one enabled at a time.*

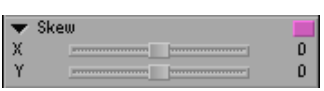
Shape

Parameter type: Global

There are five basic types of 3D shape effects, each with its own parameter categories. For more information, see **"3D Shape Effects" on page 672**.

Skew

Parameter type: Keyframeable



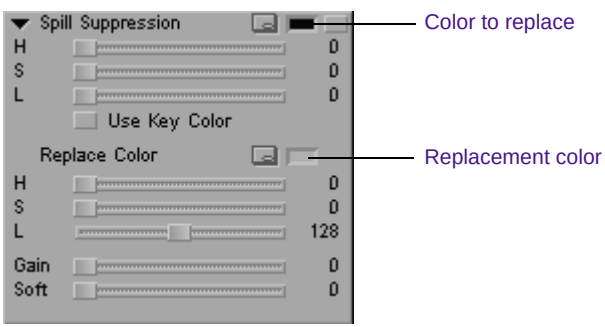
Use Skew to move or tilt an image in the X or Y direction.

Table 10-17 Skew Parameters

Parameter	Description
X	Skews the image along the X axis. The orientation of the top and bottom edges remains fixed, while the left and right edges are tilted along the X axis into a parallelogram. Values range from –999 to +999, where 0 represents no change.
Y	Skews the image along the Y axis. The orientation of the left and right edges remains fixed, while the top and bottom edges are tilted along the Y axis into a parallelogram. Values range from –999 to +999, where 0 represents no change.

Spill Suppression

Parameter type: Keyframeable



Use real-time Spill Suppression to replace one color with another color. You can use real-time Spill Suppression in conjunction with the chroma key to correct spill. You can also use real-time Spill Suppression for spot color correction.

Table 10-18 Spill Suppression Parameters

Parameter	Description
H (hue)	Specifies the hue or shade of the color. Hue refers to the name commonly associated with a color, such as red, green, or blue. Values range from 0 to 255.
S (saturation)	Specifies the purity or intensity of the color. A fully saturated color produces the most intense representation of that color. Values range from 0 to 255, where 0 is no chrominance and 255 is a fully saturated color.
L (luminance)	Specifies the brightness of the color. Values range from 0 to 255, where 0 is black and 255 is full brightness.
Use Key Color	Uses the chroma key color as the color to be replaced.The color indicator box will show gray rather than the key color itself when this option is enabled.
Gain	Spill Suppression affects contiguous pixels that fall within the specified color range, or tolerance, of the color you pick with the eyedropper or color sliders. You adjust the tolerance with the Gain slider. Values range from 0 to 63. Decreasing the Gain decreases the color range and includes fewer pixels contiguous to the color selection. Increasing the Gain expands the range and includes more pixels surrounding the color selection.
Soft (softness)	Determines how colors contiguous to the selected color are processed in the effect. Colors that border the selected color are displayed as a blend of the original color and the replacement color. The higher the softness value, the more of the replacement color is blended with the original color. Use the Soft slider to improve the appearance of the edges of the keyed areas. Values range from 0 to 63.

Spline

Parameter type: Global

 Outline/Path button

Spline is the parameter that smooths the position changes between keyframes. It helps to reproduce the natural motion path of an object through 3D space. Without spline, moving objects follow the most direct path between keyframed positions, resulting in a “mechanical” feel.

Sometimes you want objects to settle gently into place at each keyframe and other times you may want objects to move in a swooping arc, connecting the keyframes. Spline helps to achieve both. It looks ahead and takes into account the motion approaching a keyframe and the motion immediately after a keyframe and averages the changes for the smoothest possible transition. Spline is often helpful for putting the finishing touches on a move.

When you are working with Spline, it is a good idea to click the Outline/Path button in the Effect Editor to displays the wire-frame line that represents the path between keyframes.

Table 10-19 Spline Parameters

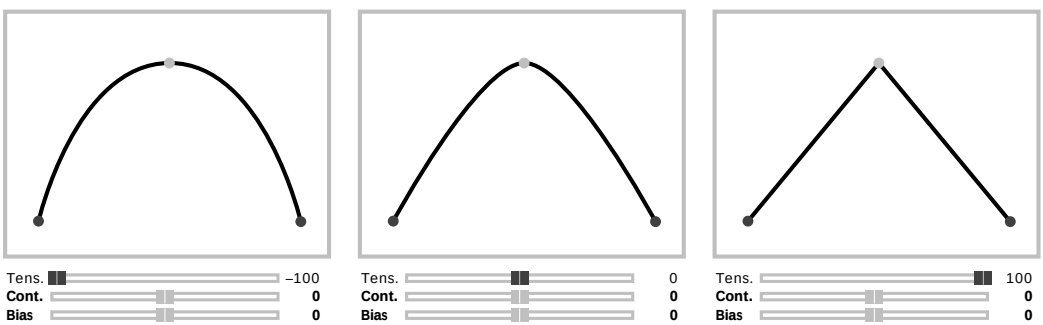
Parameter	Description
Tension (Tens.)	Tension controls how sharply the curve bends at a keyframe. The default or 0 setting is the average of the changes before and after the keyframe. Decreasing it to –100 doubles the amount of bending from the original 0 position and creates more slack in the curve. Increasing it to 100 tightens the curve and makes the change in direction more severe.

Table 10-19 Spline Parameters (Continued)

Parameter	Description
Continuity (Cont.)	Continuity controls the amount of direction change between the incoming motion and outgoing motion around the keyframe. Usually the motion should be as smooth as possible, reducing sharp, unnatural corners (the default setting of 0). However, when you want to simulate bouncing or punching, you must turn the Continuity down (–100) to make the quick, hard direction changes more obvious. Turning it up to 100 forces the motion to begin going in the opposite direction at the previous keyframe, changing to the new direction for the outgoing motion.
Bias	Bias assigns a different weight to either the incoming or the outgoing motion. Set at 0, it averages both incoming and outgoing motion. When set to –100, it "undershoots" the keyframe; at 100 it "overshoots" the keyframe. This causes the curve to occur either before or after the keyframe it passes through.

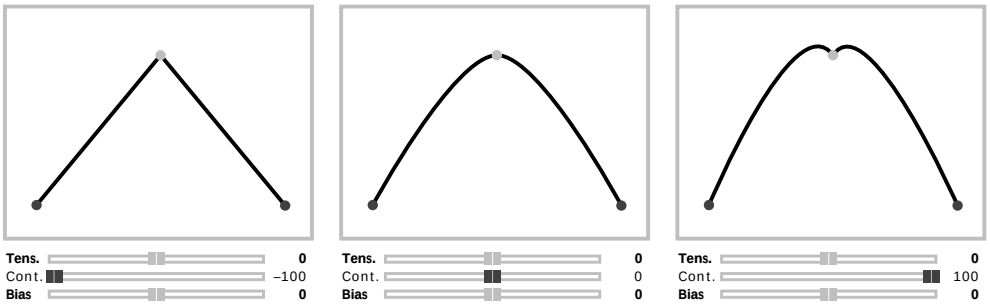
Tension (Tens.)

The following is a graphical representation of the effects of adjusting the Tens. (tension) slider.



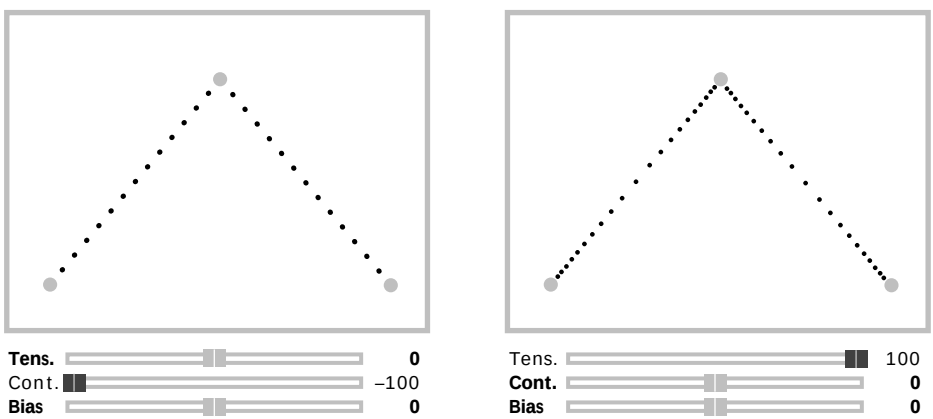
Continuity (Cont.)

The following is a graphical representation of the effects of adjusting the Cont. (continuity) slider.



Difference Between Tension and Continuity

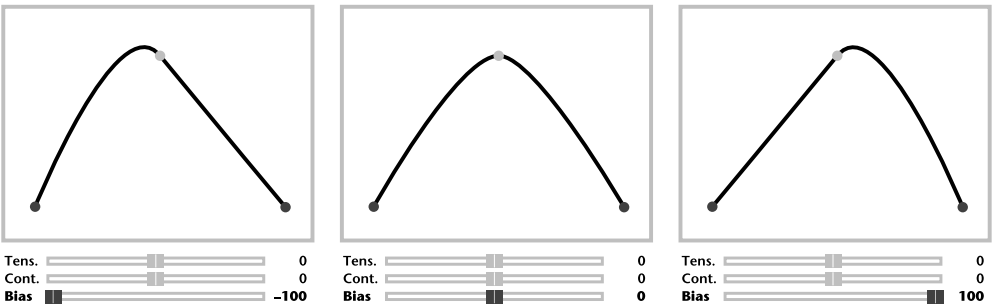
There appears to be no difference between the motion path of an object with maximum Tension and an object with minimum Continuity. The motion dynamics of the two moves, however, are quite different. Even though both motion paths have severe direction changes, Tension causes the object to start slowly, speed up, slow down, and pause at the keyframe, and then speed up and slow down again at the next keyframe. This is referred to as an ease in/ease out motion.



Continuity Tension

Bias

The following is a graphical representation of the effects of adjusting the Bias slider.



Adding a New Point to a Spline Curve

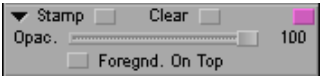
Mathematically speaking, when you add a point to a spline curve, the curve changes shape, even if the new point is on the curve. Sometimes you will want to add a new point on the curve to change the path. However, sometimes you may simply want to add a new keyframe to change a parameter such as Rotation or Scaling without affecting the curve. In order to account for both cases, the Avid system uses the following rule:

Once you move one of the points, the Avid system incorporates all the existing keyframes into the curve. You can move any of the points to readjust the curve.

If you add a keyframe when using the Spline category, the system displays the new point on the curve. However, it does not recalculate the curve until you use one of the Position parameters to move one of the points.

Stamp

Parameter type: Keyframeable



Stamp lets you imprint a video or graphic element into an independent Stamp buffer that allows the image to remain on screen after the effect's segment has ended. For example, you can "stamp" multiple elements of video, text, and graphics over a background image to create effects that would otherwise require rendering or additional real-time streams of video. For more information, see **"Creating a Stamp" on page 253**.

Table 10-20 Stamp Parameters

Parameter	Description
Opac. (opacity)	Changes the stamp's opacity from fully transparent (0) to fully opaque (100), where 100 is the default.
Foregnd. On Top (foreground on top)	Switches the image in the Stamp buffer to the background; without Foregnd. On Top enabled, the Stamp buffer is always in the foreground.
Clear	Lets you clear the stamp buffer of everything in it.

Three of the most common uses for Stamp are:

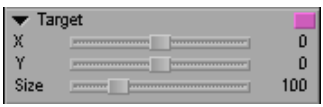
- **Real-time title builds:** You reveal multiple text, graphic, and video elements and stamp them over or under the foreground image when they come to rest. Once the image is stamped, you can add additional layers.
- **Downstream key:** You add an image that stays in place. For example, you could create a logo that you want to just stay on the screen.

- **Video montage:** You bring in a variety of video images, where each one stays in place as you continue to add new ones.

You cannot render Stamp effects; they are real-time effects. Also, the Stamp, Shadow, and Trail parameters are mutually exclusive. This means that you can only have only one enabled at a time.

Target

Parameter type: Keyframeable



Use Target to change the X Y positioning and the sizing and to maintain the current perspective.

Target is a post-transformation parameter. In other words, it is at the top of the hierarchy and affects objects after all the other parameters have affected it. If an object has been rotated and has perspective added to it, Target moves the object without changing the relationship of the other parameters. Think of it as moving the entire 3D world where point of view does not change.

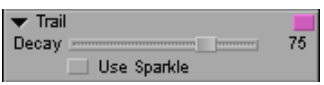
Target can be used in many cases as a *global* parameter. If you have already created an effect and want the whole effect to move higher across the frame or to appear inside another frame, such as a television on a set, Target is the way to move it. It is also good for offsetting another track slightly if you want to use a black graphics image as a drop shadow.

Table 10-21 Target Parameters

Parameter	Description
X	Moves the image along the screen's X axis (horizontally). Values range from –999 to +999, where 0 is the default.
Y	Moves the image along the screen's Y axis (vertically). Values range from –999 to +999, where 0 is the default.
Size	Scales the image and maintains the aspect ratio. Values range from 0 to 400, where 100 is the default scale of 100 percent.

Trail

Parameter type: Keyframeable



Use Trail to add a trail to an effect as it moves across the screen.

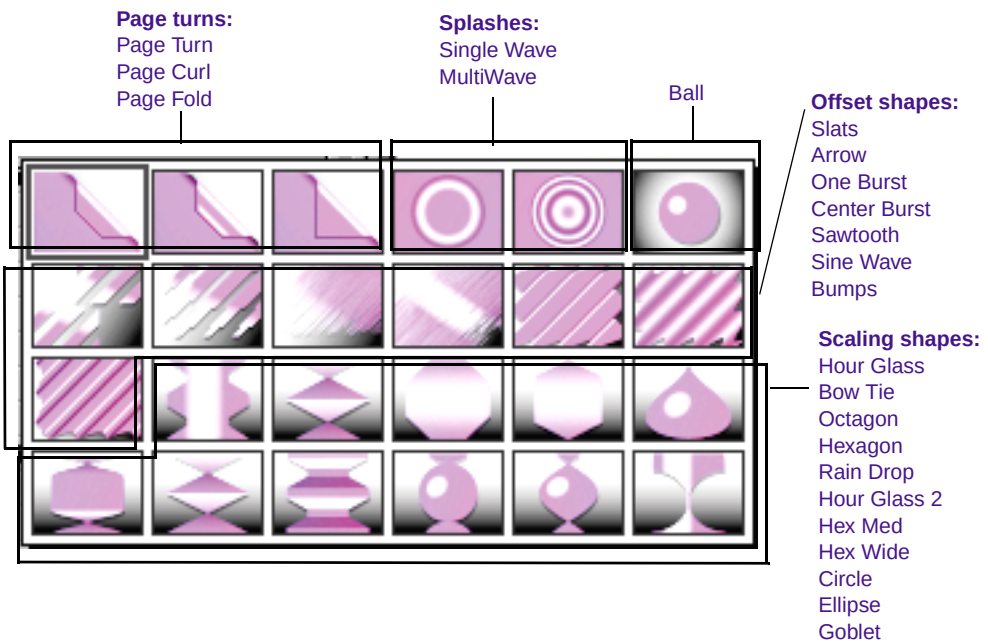
Table 10-22 Trail Parameters

Parameter	Description
Decay	Changes the rate of the trail's decay, or dissipation, during the DVE's motion. Adjustment ranges from a quick decay (close to 0) to a slower decay (close to 100), where 75 is the default.
Use Sparkle	Instructs the Avid system to paint a trail with sparkles. When Use Sparkle is not selected, the Avid system paints a trail using the image itself.

You do not see the trail when you step through the effect because it is a cumulative effect. Also, you cannot render a Trail effect.

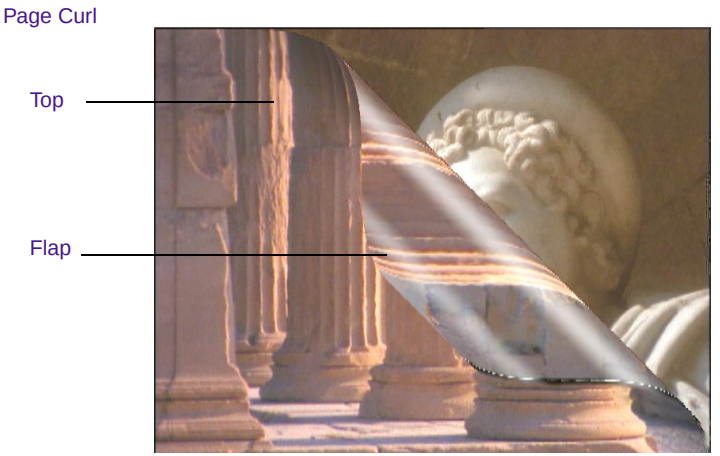
3D Shape Effects

3D shape effects allow you to map the foreground video channel to various geometric shapes. You do this by selecting a shape from the Fast menu in the Shape parameter category. The following illustration shows the Shape menu and the five main categories of shapes.



Each shape effect displays a set of parameters that are specific to that shape in the Shape category. In addition, you can use any of the other 3D effects parameters, such as **Border**, **Scaling**, **Position**, and **Trail**.

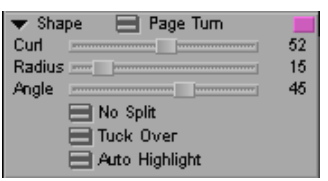
Page Turns



A page turn effect treats the foreground video channel as though it were a sheet of paper being turned over or rolled up to reveal another page beneath. You can see the video on either side when you rotate the image or curl the edges. The portion of the image that folds over or rolls up is referred to as the *flap*.

Page Turn Parameters

This section describes parameters that are common to all three page turn effects. The following illustration shows the Shape parameter category with Page Turn selected.



To soften the edges of a page turn effect, enable the Border parameter and adjust the Soft slider. You can soften a border of zero width.

The following parameters are common to all page turn effects.

Table 10-23 Page Turn Parameters

Parameter	Description
Curl	Controls the distance the page rolls up. It specifies how far the rolling up has progressed. Values range from 0 to 100, where 0 represents no rollup.
Radius	Controls the tightness of the curl or fold. Values range from 0 to 100, where 15 is the default.
Angle	Controls the direction of the curl or fold. Values range from –180 degrees to +180 degrees, where 45 degrees is the default.

Vary the Curl value from 0 to 100 with default radius to take the page from a flat, centered image to one that is completely off the screen.

In addition, there are three Fast menus: **No Split**, **Tuck Over**, and **Auto Highlight**. These Fast menu values are described in **"Using the Page Turn Fast Menus" on page 675**.

The following table describes the three Page Turn shapes that are accessible from the Fast menu in the Shape parameter category.

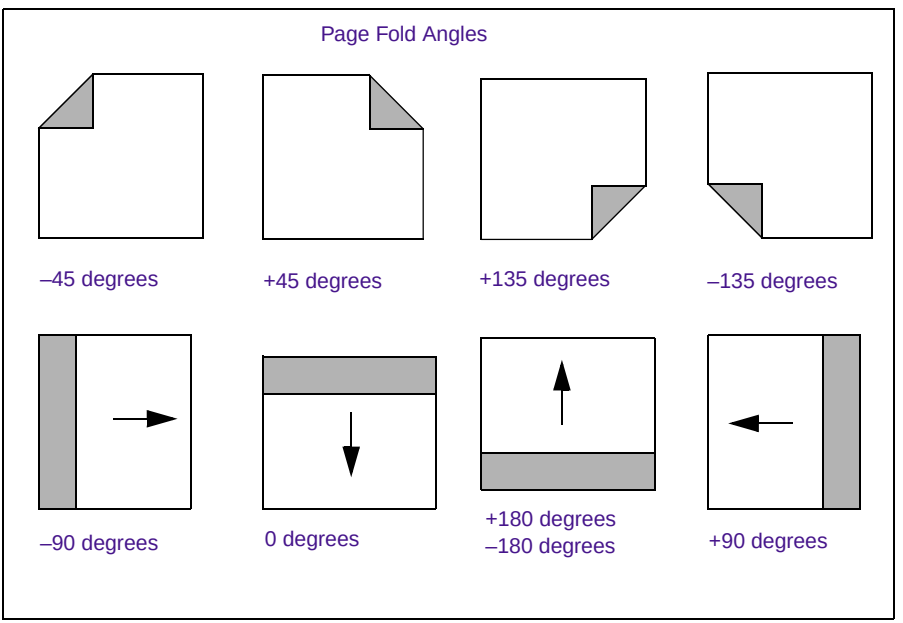
Effect	Description
Page Turn	Creates the illusion of the top image rolling up into a scroll. This effect has one highlight.
Page Curl	Page Curl is the same as Page Turn except that there are two highlights. One highlight is slightly wider and more intense than the other.
Page Fold	Creates an illusion similar to turning a page in a book. The top image curls over and then becomes flat.

Using the Page Turn Fast Menus

The following sections describe how you can use the Shape category Fast menus along with the Page Turn shape effect parameters to achieve various effects.

Adjusting Page Fold Angle Values

The following illustration shows how the Avid system interprets several angle values for the Page Fold with the default No Split option. Experiment with incremental angle values. Also experiment with changing angle values at different keyframes.



While you are experimenting with angle and offset values, it is useful to scale down the top video layer. This allows you to see the full effect as the video peels off the screen. For example, scaling 75 percent in both X and Y axes displays the page fold as a Picture-in-Picture effect.

Splitting a Page Turn or Page Fold Effect

You can access the splitting options through the **No Split** Fast menu in the Shape parameter category. A split gives the illusion of cutting the top image with a pair of scissors and folding or scrolling the resulting pieces. The following table describes the splitting options.

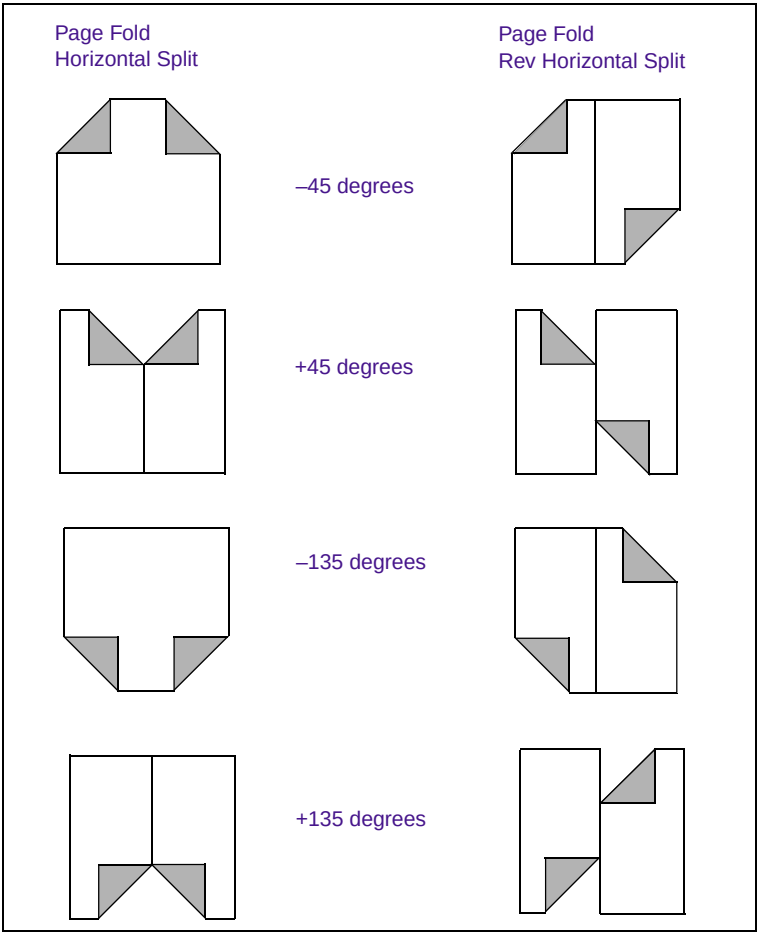
Table 10-24 Page Turn Splitting Options

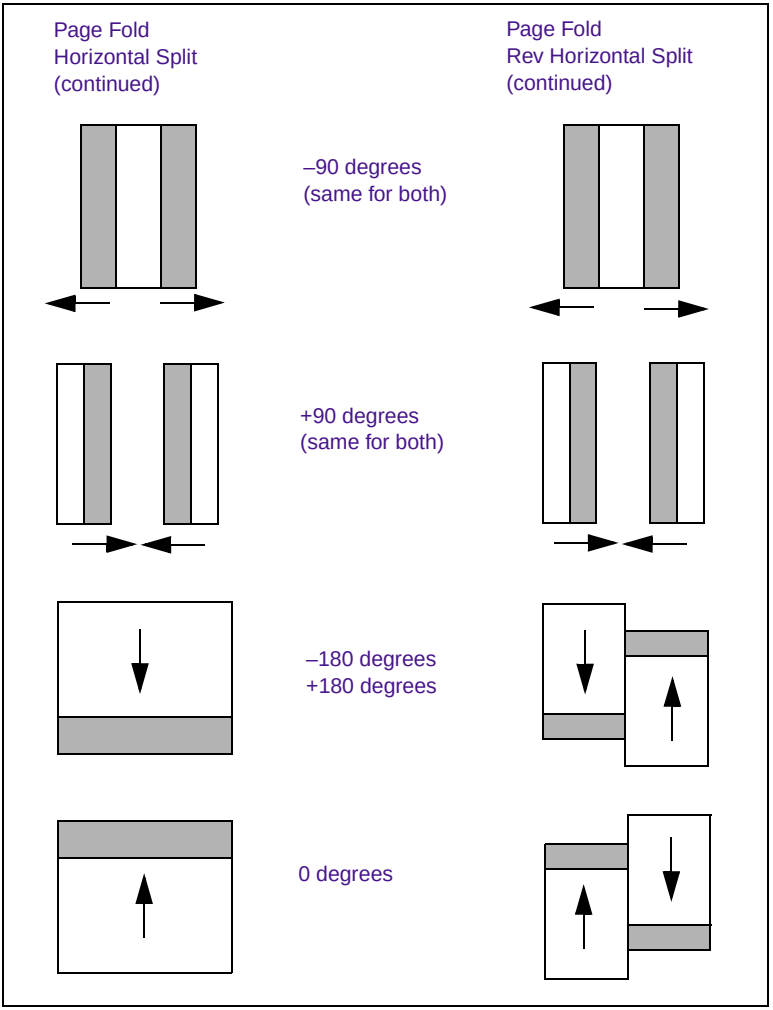
Option	Description
No Split	Folds or scrolls a single corner or edge, depending on the angle. This is the default option.
Horizontal Split	Cuts the image in half horizontally. The two images are tied together so that they appear to scroll or fold in unison. The image separates from left to right.
Rev Horizontal Split (reverse horizontal split)	Similar to Horizontal Split except that the image folds or scrolls from opposite sides at the same time.
Vertical Split	Cuts the image in half vertically. The two images are tied together so that they appear to scroll or fold in unison. The image separates from top to bottom.
Rev Vertical Split (reverse vertical split)	Similar to Vertical Split except that the image folds or scrolls from opposite sides at the same time.
Quad Split	Divides the image into four equal parts. Results depend on the starting and ending angle values (specify the starting and ending angles on different keyframes). For example, for a starting and ending angle of 135 degrees, the split begins in the center and the four inside corners roll outward.

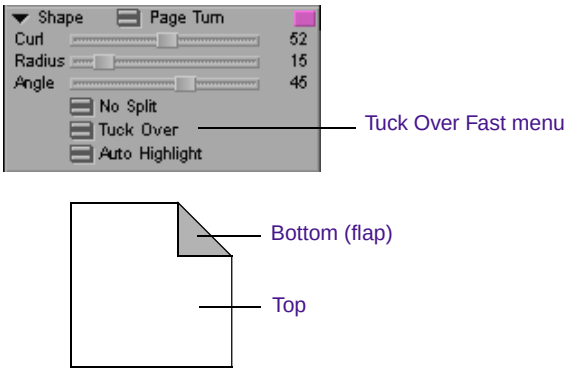
Table 10-24 Page Turn Splitting Options (Continued)

Option	Description
Doubled Split	Displays two scrolls of live video on the screen at the same time. Both scrolls roll off the video underneath.

The following illustrations show how the Horizontal Split and Rev Horizontal Split options interpret angles.


Page Fold
Horizontal Split
Page Fold
Rev Horizontal Split
–45 degrees
+45 degrees
–135 degrees
+135 degrees


Page Fold
Horizontal Split
(continued)
Page Fold
Rev Horizontal Split
(continued)
–90 degrees
(same for both)
+90 degrees
(same for both)
–180 degrees
+180 degrees
0 degrees



You can access the tuck and flap options through the **Tuck Over** Fast menu in the Shape parameter category. The following table describes the tuck and flap options.

Table 10-25 Page Turn Tuck and Flap Options

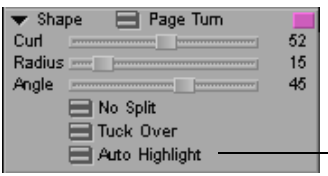
Option	Description
Tuck Over	Folds the flap over the top. This is the default option.
Tuck Under	Folds the flap under the top.
Show Top Only	Shows the top without the flap.
Show Bottom Only	Shows the flap (bottom) without the top.

Use Show Top Only and Show Bottom Only when you want to control the image in the flap or top. These are commonly used with two video channels. One channel shows the top and the other shows the bottom (the flap).

For example, if you want an opaque top and a partially transparent flap, set a transparency value for the video channel containing Show Bottom Only. Use the Opac. slider in the Foregnd parameter category to adjust transparency. Note that in this example you would have to render one of these effects to see the result.

Show Top Only and Show Bottom Only are also useful when you want to apply an effect such as Defocus on just the flap or the top.

Highlight Options



You can access the highlight options through the Auto Highlight Fast menu in the Shape parameter category. The following table describes the highlight options.

Table 10-26 Page Turn Highlight Options

Option	Description
Auto Highlight	Lets the Avid system control the highlighting. You need to enable highlighting in the Highlight parameter category in order for highlights to appear. You can also vary the intensity of the highlight in the parameter category. The Avid system takes care of the positioning automatically. Applies to all shapes except for the Ball shape.
Manual Highlight	Lets you use the Highlight parameter category to control the highlighting. In this case, you need to set the angle, aspect ratio, radius, and so forth. Applies to all shapes, including the Ball shape. Use the Highlight parameters (located near the bottom of the 3D Warp parameter list) to control manual highlighting. See **"Highlight" on page 655**.

Table 10-26 Page Turn Highlight Options (Continued)

Option	Description
Rev Manual Highlight	Reverses the effect of manual highlighting you set up. Applies to all shapes, including the Ball shape.

Splashes

Multi Wave splash

Splashes create a wave effect as if you dropped a stone into still water. There are two choices on the Shape Fast menu:

- **Single Wave** creates a splash with one wave, as if you dropped a pebble into a very still pool.
- **Multi Wave** creates a splash with many waves or ripples, as if you dropped a stone into a pond.

Splash Parameters

The following Shape parameters apply to splashes.

Table 10-27 Splash Effect Parameters

Parameter	Description
Radius	Controls the size of the waves and, therefore, the movement of the waves through the video. Values range from 0 to 100.
Freq (frequency)	For Multi Wave effects, controls the width and number of waves present at any given time. Increase the frequency to make the waves smaller and increase their number. Decrease the frequency to create fewer, wider waves. For Single Wave effects, determines the width of the single wave. Frequency values range from 0 to 100.
Ampl (amplitude)	Controls the depth of the troughs of the ripples and the height of the crests of the waves. You can think of this as the depth to which the image is distorted to produce the splash. Values range from 0 to 100.
X Pos	Moves the splash to the right or left. The values range from –999 to +999, where 0 is the center of the image. Values increase to the right and decrease to the left.
Y Pos	Moves the splash up or down. Values range from –999 to +999, where 0 is the center of the image. Values increase as you go down and decrease as you go up.
Aspct (aspect ratio)	Distorts the shape from a circle to variations on an oval shape. Values range from –100 to +100, where 0 is a circle.
Angle	Rotates the splash. This parameter has a visible effect only when the aspect ratio is other than 0. Values range from –180 to +180.

Limitations to Splash Effects

The following limitations apply to Splash effects:

- You cannot apply the Z perspective to a Splash effect.
- The X and Y direct manipulation handles do not work for a Splash effect. Use the Rotation (X, Y, Z) sliders in the Rotation parameter category instead.

For a visual explanation of this limitation, see **“Limitations to Ball Shapes” on page 685**.

Ball

Ball effect with highlight and shadow

Use Manual Highlight to apply highlights to a Ball shape.

The Ball shape lets you treat the video as a rubbery, rectangular sheet stretched around a sphere. If the radius of the sphere is very large, the corners of the sheet curve along the surface like a rubber patch on a ball. If the radius is small, the corners disappear, wrapping completely around the sphere’s surface.

Ball Effect Parameters

The following parameters apply to the Ball effect.

Table 10-28 Ball Effect Parameters

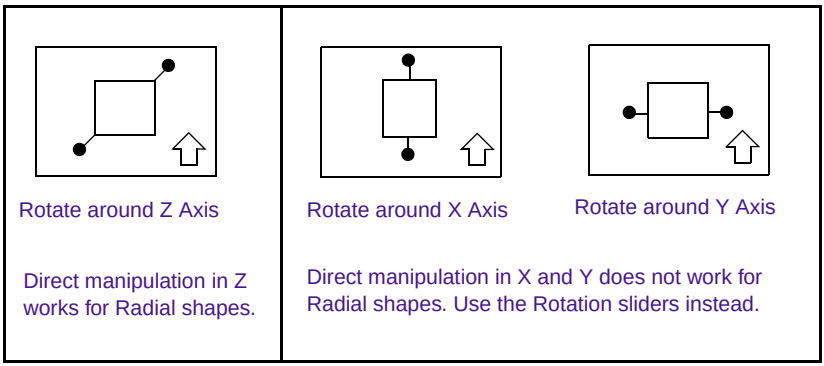
Parameter	Description
Radius	Changes the size of the ball. Values range from 0 to 100.
Curve	Gives the ball a 3D effect. A value of 0 looks like a flat circle (and can be used as a Circle Wipe). Higher values give more depth to the ball's shape. Values range from 0 to 100.
X Pos (X position)	Moves the shape to the right or left in relation to the image. The values range from –999 to +999, where 0 is the center of the image. Values increase to the right and decrease to the left.
Y Pos (Y position)	Moves the shape up or down in relation to the image. Values range from –999 to +999, where 0 is the center of the image. Values increase as you go down and decrease as you go up.
Aspct (aspect ratio)	Changes the shape from perfectly round to a distorted shape. Values range from –100 to +100, where 0 is a circle.
Angle	Rotates the axis of the shape. This effect is visible only when the aspect ratio is not zero. Values range from –180 to +180.

Limitations to Ball Shapes

The following limitations apply to Ball shapes:

- You cannot apply the Z perspective to a Ball.
- The X and Y direct manipulation handles do not work for a Ball. Use the Rotation sliders in the Rotation parameter category instead.

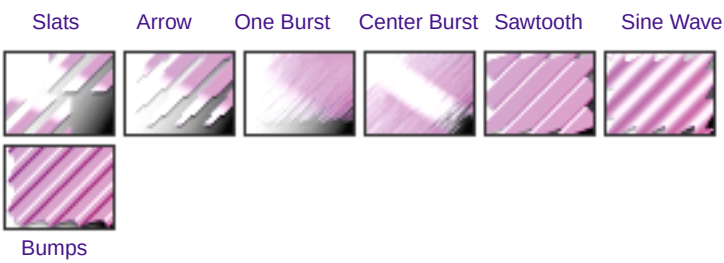
Once you rotate a Radial effect in X or Y using the sliders, no direct manipulation other than XY position will work. To regain access to the direct manipulation Z handle, reset the X and Y Rotation sliders to 0.



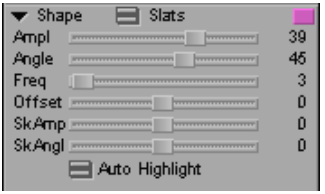
Offset Shapes

Offset shapes are separate portions of a live video image moving at the same time, in different directions, and at varying speeds.

Offset shapes are shown below. You can access the Offset shapes through the Fast menu in the Shape parameter category.



Offset Shape Parameters



The following Shape parameters are common to all Offset shape effects.

Table 10-29 Offset Shape Parameters

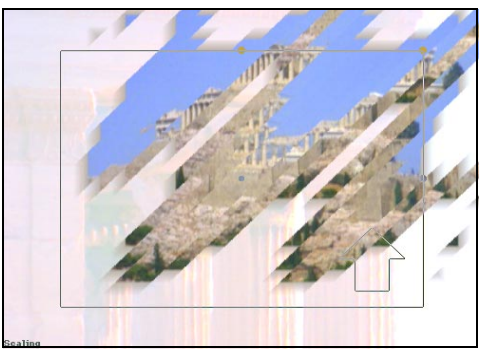
Parameters	Description
Ampl (amplitude)	Controls the distance the shape moves. For transition effects, increase the amplitude to take the effect off the screen.
Angle	Changes the line along which the video pieces move. Values can range from –180 to +180. Use 0 for horizontal and 90 for vertical.
Freq (frequency)	Controls how many copies of the offset shape appear on the screen.
Offset	Repositions the shape on the image.
Sk Amp (skew amplitude)	Weaves the image through the slats. Think of this as weaving a “video cloth” through a loom.
Sk Angl (skew angle)	Rotates the image through the slats.

When experimenting with these shapes, start with a Frequency value of 1 and an Amplitude of 0. This makes it easier to see how changes in these values affect the image.

Slats

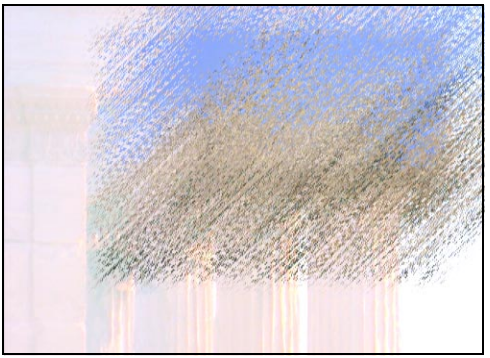
Slats split the image into alternating bands of video that enter the screen from opposite directions. Change the Amplitude to make the slats move in opposite directions.

Arrow



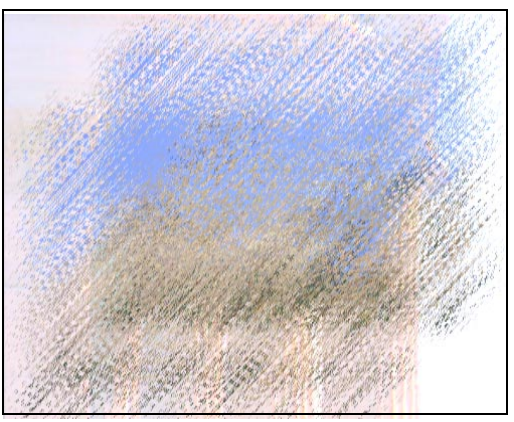
You can think of 3D Arrow as a specialized form of Slats. Each arrow contains seven rectangles that enter the screen at slightly different speeds from the same direction. The difference in speed creates the arrow shape. Use Frequency to change the number of arrows that appear on the screen at any given time. See **“Offset Shapes” on page 686** for a description of the other sliders.

One Burst



This is a burst in one direction. The Avid system separates the image into many straws, each with a height of one line. All straws move in the same direction but at different (random) speeds. Use Amplitude to increase the speed.

Center Burst



This is similar to One Burst except that the burst begins in the center of the image and the straws move in opposite directions rather than in one direction. Use Amplitude to increase the speed. See **"Offset Shapes" on page 686** for a description of the other sliders.

Sine Wave

This effect applies the image to a general sine curve, as seen on a mathematical graph. The video is twisted into a sine wave as it enters or leaves the screen. You can also think of it as a progression of connected waves. Amplitude stretches or compacts the waves. Frequency increases the number of waves.

Sawtooth

This is similar to a Sawtooth Wipe effect except that you have more control over the shape. Alternating slats of video turn and slide against each other to fill the screen or turn and slide away to reveal

incoming video. Amplitude changes the tilt of the slats. Frequency changes the size and number of the slats. Higher values increase the number of slats.

Bumps

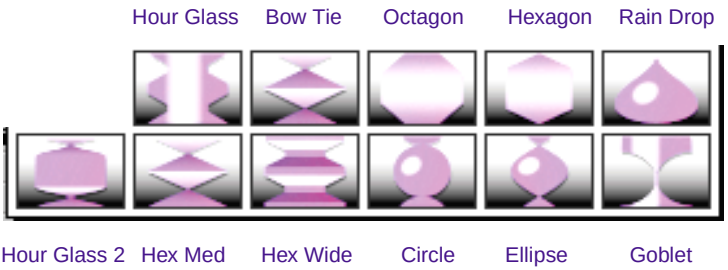
The video in this effect billows out from fixed horizontal lines, like a sail or a sheet of fabric tacked to the horizontal beams of a fence.

- Amplitude stretches or compacts the bumps. Think of this as making the wind blow harder against the video fabric.
- Frequency increases the number of bumps (puts more beams on the fence).
- Change the Angle to change the line along which the video pieces move.

Scaling Shapes

The following illustration shows the Scaling shapes. They are called Scaling shapes because they give the illusion of the video “pouring” from one portion of the shape to the other. The image is scaled as it pours through a narrower or wider portion of the shape.

You can access the Scaling shapes through the Fast menu in the Shape parameter category.



Scaling Shape Parameters

The following Shape parameters are common to all Scaling shapes.

Table 10-30 Scaling Shape Parameters

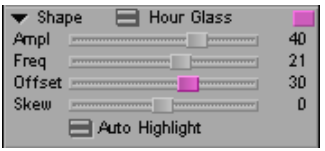
Parameter	Description
Ampl (amplitude)	Controls the width of the shape. Negative values flip the image within the shape. Values range from –100 to +100.
Freq (frequency)	Controls how many copies of the shape appear on the screen. Values range from –100 to +100.
Offset	Moves the shape along the image from bottom to top. As one shape moves down, another shape "pulls down" from above. For an example, see the following illustrations. Values range from –100 to +100.
Skew	Moves the shape and the image together to the left or right. Values range from –999 to +999, where 0 is the center of the display area.

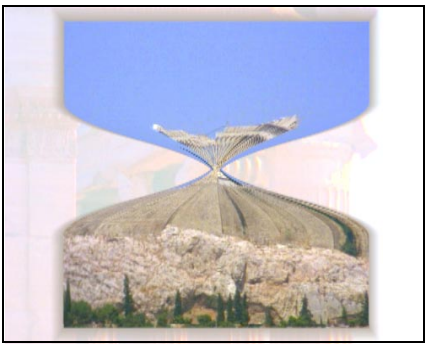
The interactive scaling feature is very useful when working with these effects.

Scaling shapes scroll down over the image as you increase the Offset value. The following illustrations show examples of Scaling shapes and the values used to obtain the image shown.

Hour Glass

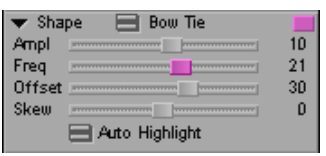
The following illustration shows the values used to obtain the image shown.





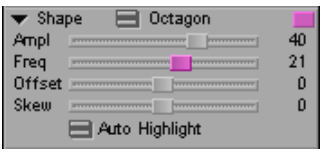
Bow Tie

The following illustration shows the values used to obtain the image shown.



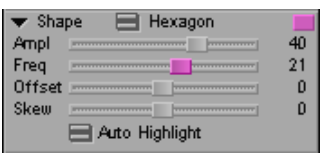
Octagon

The following illustration shows the values used to obtain the image shown.



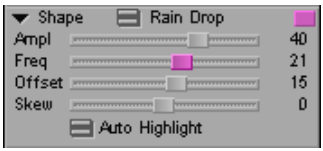
Hexagon

The following illustration shows the values used to obtain the image shown.



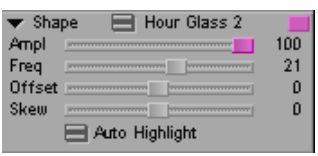
Rain Drop

The following illustration shows the values used to obtain the image shown.



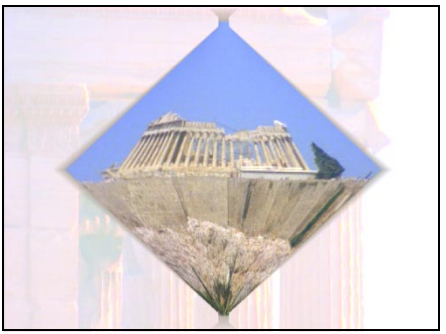
Hour Glass 2

The following illustration shows the values used to obtain the image shown.



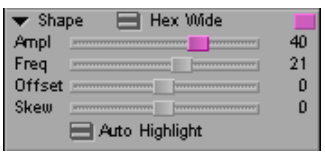
Hex Medium

The following illustration shows the values used to obtain the image shown.



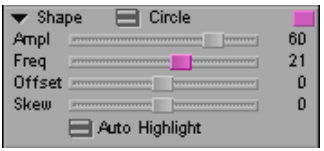
Hex Wide

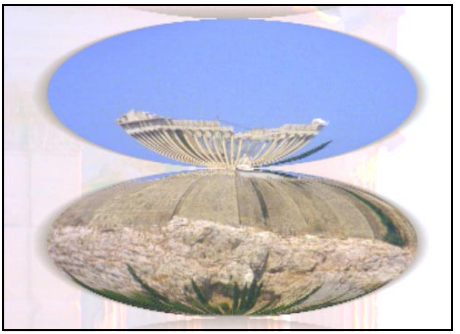
The following illustration shows the values used to obtain the image shown.



Circle

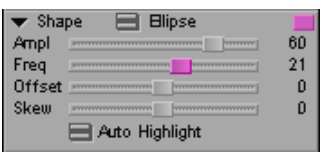
The following illustration shows the values used to obtain the image shown.

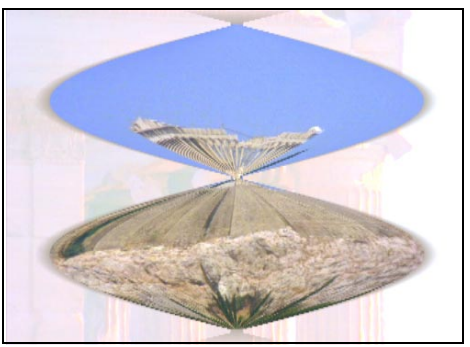




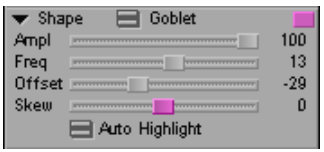
Ellipse

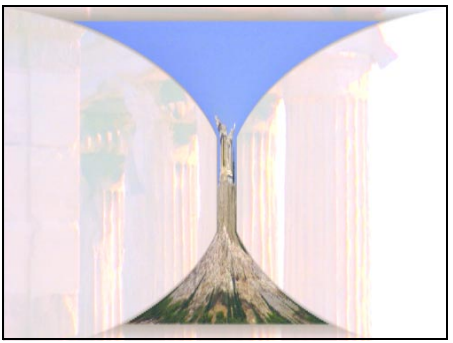
The following illustration shows the values used to obtain the image shown.





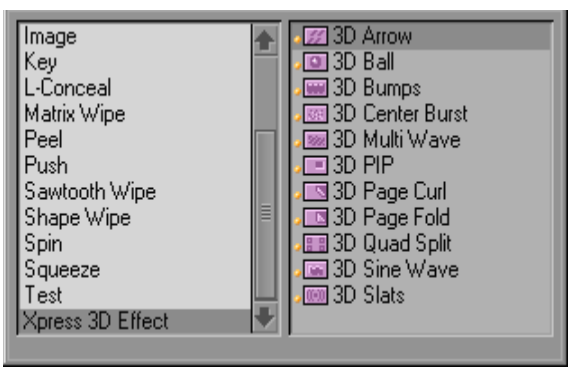
The following illustration shows the values used to obtain the image shown.





Avid Xpress 3D Effects

The Effect Palette — on systems equipped with the 3D Effects option — contains an Xpress 3D Effect category.



The Xpress 3D effects are completely compatible with Avid Xpress systems that are also equipped with the 3D Effects option. As a result, you can move sequences containing Xpress 3D effects between Avid

Media Composer or Film Composersystems, and Avid Xpress systems.

To maintain compatibility when transferring sequences between Avid Media Composer or Film Composer systems and Avid Xpress systems, use only Xpress 3D effects (do not use the 3D Warp effect to create 3D effects).

The Xpress 3D effects include:

- 3D Arrow
- 3D Ball
- 3D Bumps
- 3D Center Burst
- 3D Multi Wave
- 3D PIP
- 3D Page Curl
- 3D Page Fold
- 3D Quad Split
- 3D Sine Wave
- 3D Slats

Xpress 3D Effects Parameters

Xpress 3D effects use a subset of the parameters that are available for the 3D Warp effect. For more information about a specific parameter that appears in the Effect Editor for an Xpress 3D effect, see **"3D Effects Parameters" on page 636**.

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