



Avid® DS Nitris™

Editing Guide

Version 7.5



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Using This Guide

Congratulations on your purchase of an Avid DS Nitris system. You can use your system to create broadcast-quality output incorporating every possible production element from full-speed, high-resolution footage, to multimedia artwork and animation, to computer-generated effects and titling.

This guide contains all the task-oriented instructions, conceptual information, and reference material you need to use the editing features of your system.

This guide is intended for all Avid DS Nitris users, from beginning to advanced.



The documentation describes the features and hardware of all models. Therefore, your system might not contain certain features and hardware that are covered in the documentation.

Symbols and Conventions

Avid documentation uses the following symbols and conventions:

Symbol or Convention	Meaning or Action
	A note provides important related information, reminders, recommendations, and strong suggestions.
	A caution means that a specific action you take could cause harm to your computer or cause you to lose data.
	A warning describes an action that could cause you physical harm. Follow the guidelines in this document or on the unit itself when handling electrical equipment.
>	This symbol indicates menu commands (and subcommands) in the order you select them. For example, File > Import means to open the File menu and then select the Import command.
►	This symbol indicates a single-step procedure. Multiple arrows in a list indicate that you perform one of the actions listed.
Margin tips	In the margin, you will find tips that help you perform tasks more easily and efficiently.
<i>Italic font</i>	Italic font is used to emphasize certain words and to indicate variables.
Courier Bold font	Courier Bold font identifies text that you type.
Bold font	Bold indicates a user interaction.
Ctrl+key or mouse action	Press and hold the first key while you press the last key or perform the mouse action. For example, Shift+Alt+C or Ctrl+drag.



Mouse, Pen, and Keyboard

You can use a two-button mouse (with wheel) or a pen and tablet. The left and right mouse buttons perform different operations. Unless otherwise stated, use the left mouse button.

The mouse and pen operate slightly differently. All the procedures in this guide are documented for the mouse. You can, however, easily use a pen or the keyboard.

Customizing the Pen or Mouse

By customizing the pen, you can adjust the click pressure, switch functions, and other features. For information on customizing the pen, refer to the documentation provided with your Avid DS Nitris system.

You can also customize the mouse. For example, you can select left-handed configuration or change the double-click speed. For information on customizing the mouse, refer to the Windows online Help.

If You Need Help

If you are having trouble using Avid DS Nitris:

1. Retry the action, carefully following the instructions given for that task in this guide. It is especially important to check each step of your workflow.
2. Check for the latest information that might have become available *after* the documentation was published in one of two locations:
 - If release notes are available, they ship with your application.
 - If ReadMe files are available, they are supplied in your Avid application folder. ReadMe files are also available from Help.
3. Check the documentation that came with your Avid application or your hardware for maintenance or hardware-related issues.
4. See [“Avid DS Customer Support” on page 24](#).
5. For Technical Support, please call 800-800-AVID (800-800-2843).

Avid DS Customer Support

The following sections describe various Avid DS Customer Support options.

E-mail Support

The e-mail address for Avid DS Customer Support is: **dssupport@avid.com**.

You can use it for sending bug reports, usability questions, and avidds.cab audit reports for system analysis. All e-mails are logged in the support database and assigned a case number. Send one support request per e-mail.



It is mandatory that you include your SID number in the body of your e-mail message for verification of your maintenance contract and case logging, otherwise, response will be delayed.

Web Support

The Avid DS Support Center at <http://www.softimage.com/avidds> provides quick access to a wide range of resources from the Avid DS teams and user community. Downloads, including presets, drivers, and Quick Fix Engineering (QFE), provide the latest solutions for use with your Avid DS system. Online documentation, tutorials, and Knowledge Base articles ensure that you get the most out of your work with Avid DS. It's like having a dedicated Avid DS Customer Support engineer sitting at your desk!

Upload Utility

For troubleshooting purposes, you can upload your files for Avid DS Customer Support personnel to examine. You can upload a project's archive, media files, or other necessary data. Simply zip the files that you need to upload and use a short name (for easy retrieval), such as archive.zip or Case274877.zip.

To upload your files:

1. Go to the Avid web site at <http://www.softimage.com/avidds>.
2. Select **Contact > Upload Tool**.
3. Once the file upload is complete, send an e-mail to **dssupport@avid.com** to inform Avid DS Customer Support as there is no automatic notification when a file is uploaded on the FTP server. Please provide the complete and exact file name (case sensitive) to retrieve.

Avid Community Forum

Although the Avid DS community forum is frequently monitored by Avid employees, it is not part of the official support channels. You are invited to send your support requests to any of the above channels when required.

If you have an e-mail account, you can join the worldwide network of Avid DS users exchanging ideas. The mailing list has proven to be quite useful for users, and there is a constant stream of new subscribers.

To subscribe, send an e-mail to **majordomo@softimage.com** with the following text in the body of your message: **subscribe ds**. You can get further information on using the automated list server by e-mailing **majordomo@softimage.com** with “help” as your message.

You can also join other Avid forums on the Avid web site at <http://www.avid.com>. Select **Support > Forums**.

Accessing the Online Library

The Online Library contains all the Avid DS Nitris documentation in PDF format. If it was installed on your system, you can access it from the Help menu in Avid DS Nitris.



You will need Adobe® Acrobat® Reader® installed to view the documentation online.

To access the Online Library:

- ▶ In Avid DS Nitris, select **Help > Online Library**,

or

- ▶ Insert the Software CD into your CD-ROM drive, and select **Online Library** from the main menu.

To install Adobe Acrobat Reader:

1. If Acrobat Reader is not installed on your system, insert the Drivers CD into your CD drive.
2. Under the Various section, select **Utilities**.

How to Order Documentation

To order additional copies of this documentation from within the United States, call Avid Sales at 800-949-AVID (800-949-2843). If you are placing an order from outside the United States, contact your local Avid representative.

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Chapter 1

Working with Projects

This chapter describes how your project files and media are handled in Avid DS Nitris. Since project organization plays a key part in the editing process, you will learn how to create projects, and use the Avid Explorer to organize your media into folders.

The following sections describe how to work with projects and media:

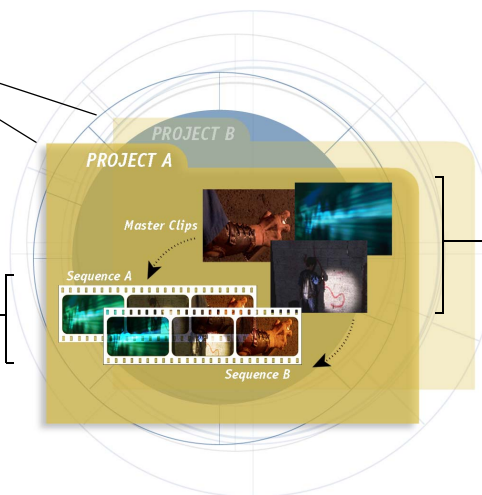
- [Starting a Work Session](#)
- [Managing Files and Folders](#)
- [Working with Bins](#)
- [Viewing Events](#)

Starting a Work Session

When you start Avid DS Nitris, the Open Project dialog box is displayed, so that you can view and manage all projects anywhere on the network. Each project has its own associated sequences. When you open a sequence, you have access to all the master clips and custom presets in the project.

Projects contain master clips, sequences, and any special presets and/or scripts you create.

Sequence files contain information about your edit decisions, composites, and any effects you've applied to your clips.



Master clips are representations of the digitized media stored on your storage device.

Master clips can be shared between sequences within the same project.

By default, all projects created with Avid DS Nitris are stored in their own folder under the DS Projects folder. It's important that you keep all the files related to a project inside the project folder, so that they can be archived, restored, and/or purged.



If you're running more than one version of Avid DS Nitris on your workstation, new projects will be classified by version, and will be stored in a subfolder of the \DS Projects folder.

To filter the list of projects, you can:

- *hide individual projects using the appropriate button.*
- *refresh the list of projects by clicking the Refresh button.*
- *reveal all hidden projects by pressing Ctrl + Refresh button.*

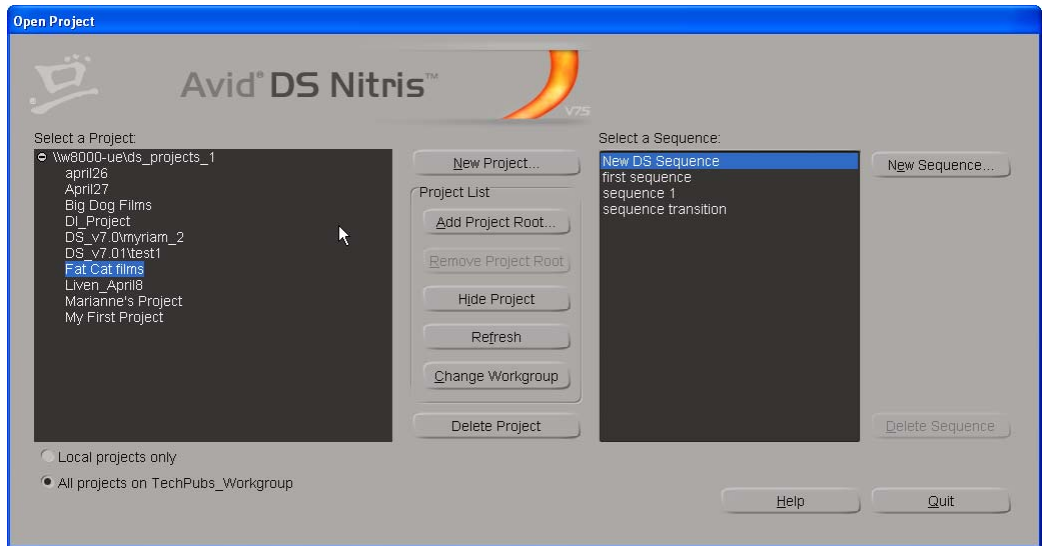
To start Avid DS Nitris, do one of the following:

- ▶ Double-click the Avid DS Nitris icon on the Windows desktop.
- ▶ Click **Start > Programs > Avid Products > Avid DS Nitris v7.5 > Avid DS Nitris v7.5.**



***Tip:** If you selected the **Load Last Sequence at Startup** option in the User Preferences dialog box and want to bypass this option, press Shift and double-click the Avid DS Nitris shortcut on the desktop. This starts the application and displays the Open Project dialog box from which you can select a different project.*

The Open Project dialog box is displayed.



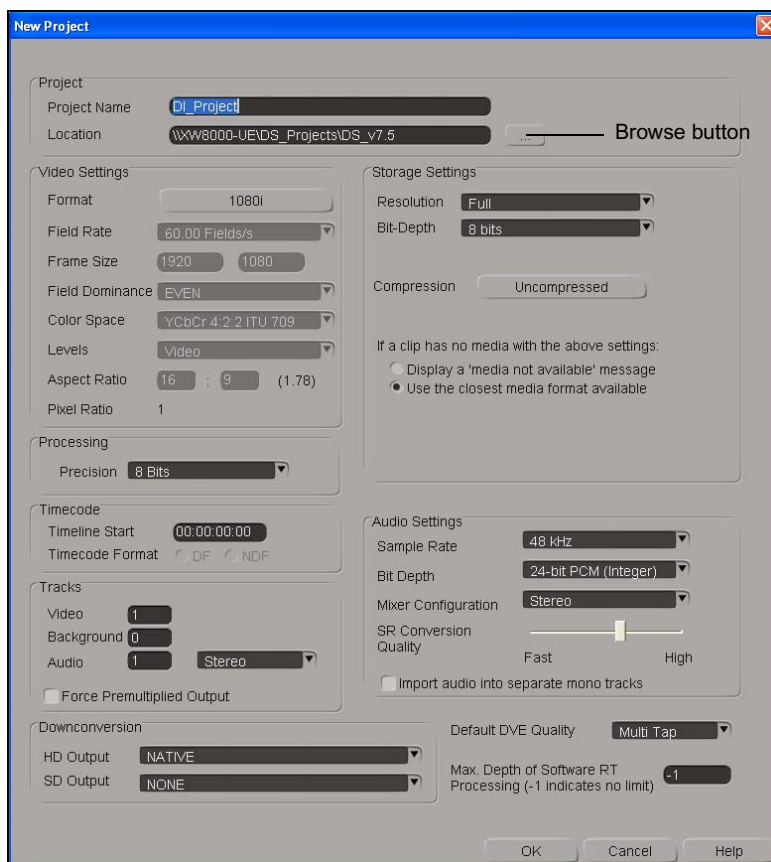
You can now create or open an existing project or sequence.

Creating a New Project

When you first start Avid DS Nitris or when you want to start a new project, you are prompted to name your project, designate a location for it, and set the project's preferences. Once you've done this, a project folder is created at the specified location. By default, all sequences associated with this project are saved in this folder.

To open a new project:

1. Do one of the following:
 - ▶ From the Open Project dialog box, click the **New Project** button.
 - ▶ Select **File > New > Project**.



2. In the New Project dialog box, enter a unique name for your project in the **Project Name** text box.
3. In the **Location** text box, type the path where you would like the project files to reside. You can also use the browse (...) button to locate the folder in which you want to save your project.
4. Set the appropriate preferences for your project.

Project preferences define the way your material is captured, processed, and output by Avid DS Nitris. Once you set the project preferences, they become the default settings for the sequences that you create in this project. Most of these preferences can be changed during the course of your work.

For detailed information on setting these preferences, click the **Help** button.

5. Click **OK** to save the project preferences.

The Editing layout is displayed for you to start building your sequence, and the Avid Explorer displays your project as the favorite.

Opening an Existing Project

Once you've created a project, it is available to all other users in your workgroup. Opening any sequence in the project gives you access to all master clips and presets used in that project.



A project can only be opened by one user at a time.

To open an existing project on your workstation:

1. Select **File > Open > Project**.
The Open Project dialog box is displayed.
2. From the **Select a Project** list, select a project name.
3. From the **Select a Sequence** list, do one of the following:
 - ▶ Click **New DS Sequence** and then click **New Sequence**.
 - ▶ Double-click an existing sequence name.
 - ▶ Select a sequence and click **Open**.

If you created a new sequence, the New Sequence dialog box is displayed for you to set the sequence preferences—see [“Setting Sequence Preferences” on page 68](#).

A new or existing sequence is opened.

To open an existing project on another workstation in your workgroup:

1. Select **File > Open > Project**.
The Open Project dialog box is displayed.
2. Select **All Projects on *workgroup_name***.
3. From the **Select a Project** box, choose a project under the appropriate workstation.
4. From the **Select a Sequence** box, select a New DS Sequence or open an existing one.

You will be notified if another user has this project opened.



If you need to work on a sequence within that project but it is heavily used by other users, you should create a project on your own workstation and then import the sequence into your project. Avid DS will automatically link to the media. When you have completed the sequence, you can import it back to the original project—see “Importing Sequences and Master Clips from Another Project” on page 66.

Setting User Preferences

You can work more efficiently by setting some personal preferences, such as automatic saves, number of undo levels, animation preferences, and the number of type of tracks to display when you open a new sequence. You can also set editing preferences, such as pre-roll and post-roll frames.

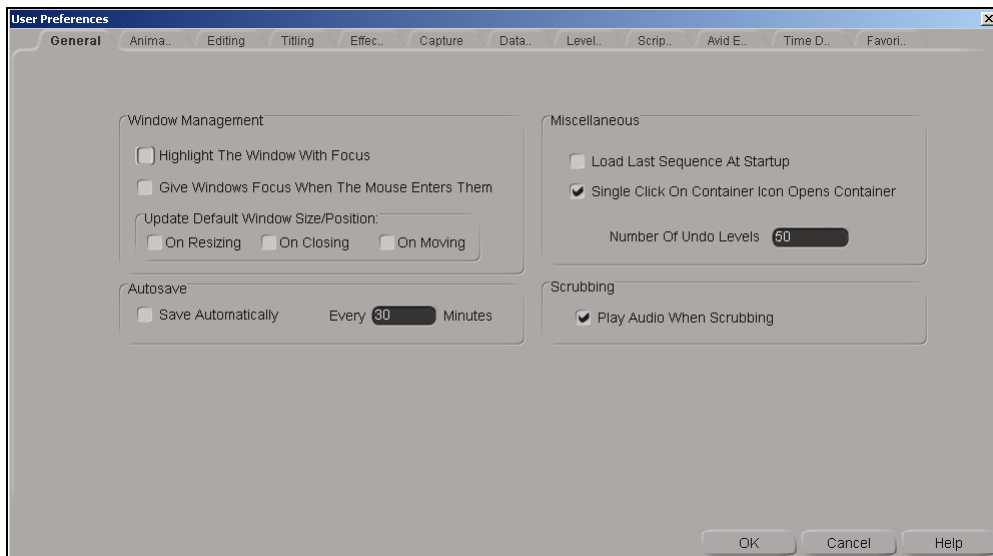
After setting the preferences, they become part of your user profile under your user name. The next time you start Avid DS Nitris, these preferences are used.



Do not customize the fonts, windows scheme, or taskbar properties on the Windows desktop or Avid DS Nitris may not function properly.

To open the User Preferences dialog box:

- Select **File > User Preferences**.



For information about the User Preferences options, click the **Help** button.

Choosing a Scripting Language

Avid DS Nitris supports several popular scripting languages. To use a scripting language with Avid DS Nitris, you must first install the scripting engine for that language.

Although Avid DS Nitris logs commands in its History pane using VBScript syntax, you can write and run scripts using any language that is ActiveX-compliant. ActiveX is a technology for sharing data between programs. Some ActiveX-compliant scripting languages include:

- ActivePerl
- JScript
- Python ActiveX Scripting
- VBScript (default)

To set a preferred scripting language:

1. From the User Preferences dialog box, select the Scripting/Logging tab.
2. From the **Scripting Language** list, select your preferred scripting language.



No matter what language you've specified in your preferences, Avid DS Nitris logs commands using the VBScript syntax.

The Scripting Language list contains the ActiveX scripting languages whose engines are installed on your workstation. If you just installed an engine and it's not listed, restart Avid DS Nitris. If it still isn't listed, restart your computer.

Setting Up the Command Log

Avid DS Nitris not only creates a command log in the History pane of the Script Editor, but can also create a separate log file that is saved to disk for each Avid DS Nitris session.

You have the option of setting a limit to the number of commands logged in the History pane. You can also save a log file to disk, containing all commands used in each Avid DS Nitris session.

To set the command log size:

1. From the User Preferences dialog box, select the **Scripting/Logging** property page.
2. The number of commands kept in the History pane of the Script Editor by default is 200. To modify this number, click in the **Lines** text box and type a new number. To set no limit to the number, select the **Unlimited** option.

To activate the log file:

1. On the Scripting/Logging property page, select the **Log Commands to File** option to create a command log file.

A log file will be created the next time you start Avid DS Nitris.

2. To specify a location for the log file, type a path in the **File Name** text box.



Avid DS Nitris overwrites the existing command log file each time you start a new session. If you want to keep the log file, make sure you rename it before starting Avid DS Nitris.

You can only use the logging and scripting tools to capture media.

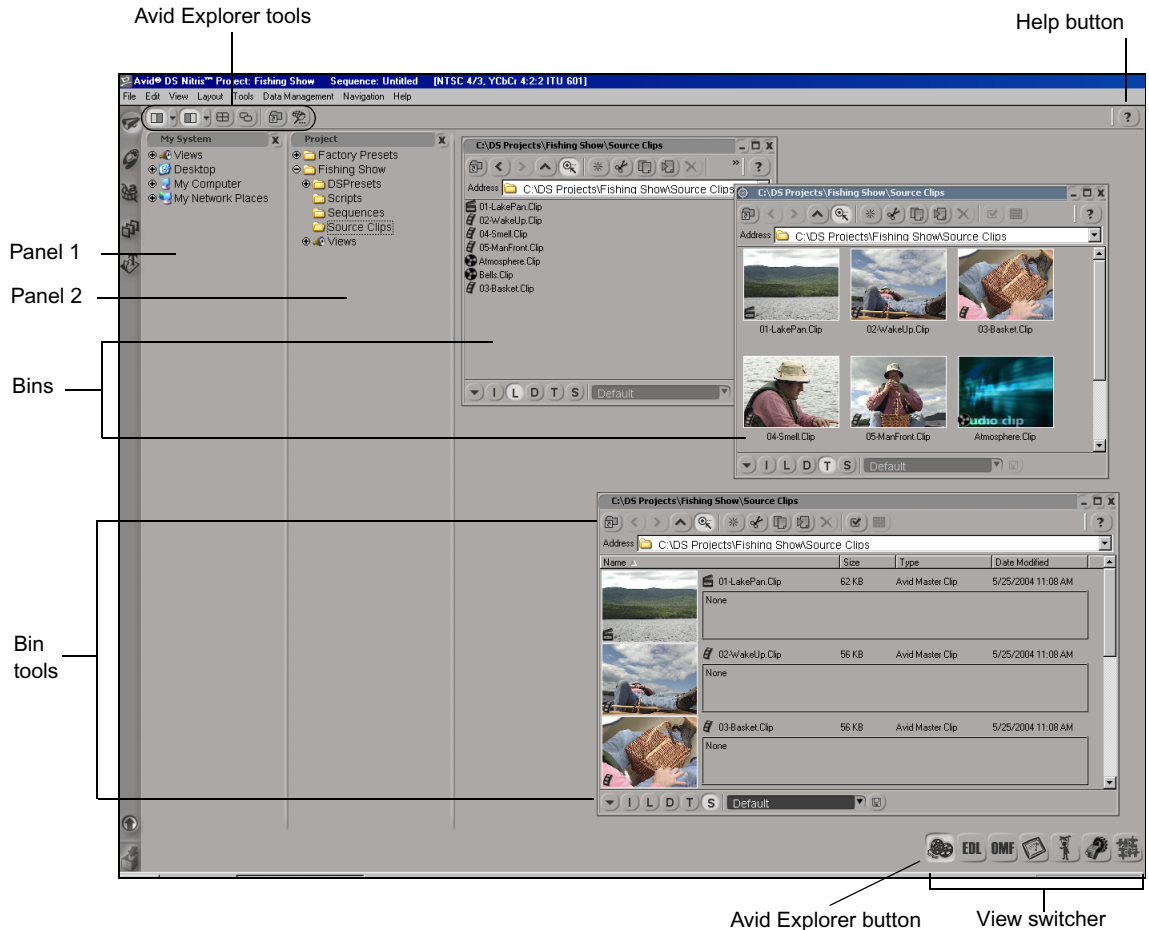
Managing Files and Folders

After you start a project, you can organize your project files to suit your project's needs. When you work with files, folders, and the windows that contain them, you are working in the Avid Explorer view.

Working with the Avid Explorer

The Avid Explorer is a view that opens by default when you start a project. By using the Avid Explorer, you can

- Navigate and view the entire contents of your workstation
- Organize a project's clips, sequences, and effects in a tree structure of folders.
- Capture from file and import clips from other projects



Any files or applications that you can open on your Windows desktop you can also open in the Avid Explorer. For example, imagine that you are working on a commercial and the producer sends you a Microsoft® Word document that lists the latest changes. You can open the document within the Avid Explorer and refer to it while you are editing, without needing to switch back and forth between application windows. You can also open files associated with your Web browser through the Avid DS Nitris Web viewer, which you launch by selecting View Multi-instance Views > Web.

When you select a folder, the folder's contents are displayed in a *bin*. For more information, see [“Working with Bins” on page 45](#).



You can include the Avid Explorer as a single-instance view or a multi-instance view in any views that you create.

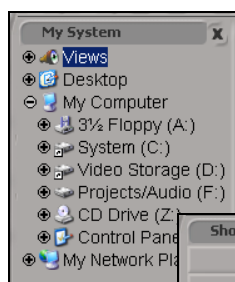
To access the Avid Explorer from another view:



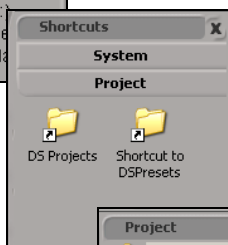
- From the view switcher, click the Avid Explorer (Main) button.

Using the Avid Explorer Views

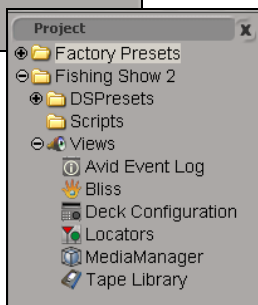
The left side of the Avid Explorer includes two panels. Each panel can contain one of three views: My System, Shortcuts, or Project.



The My System view shows the contents of your workstation in a hierarchical tree structure.



The Shortcuts view shows shortcuts to files, folders, or applications.



The Project view shows the folders for the current project.

To show or hide a panel:

- Click the Show/Hide Panel button.

Show/Hide Panel buttons



The Show/Hide Panel button is highlighted for the panel that is displayed.

To choose a view to display in a panel:

- Click the pop-up menu next to a Show/Hide Panel button and select **My System**, **Shortcuts**, or **Project**.

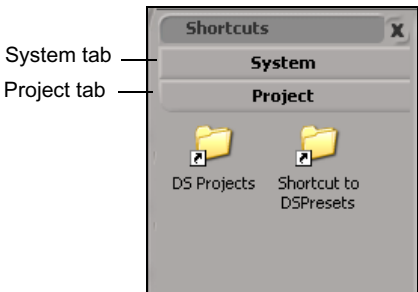
A check mark indicates which view is displayed.

Using the Shortcuts View

The Shortcuts view lets you create and access shortcuts that suit your work requirements. For example, you can create a shortcut to a folder with your favorite presets or to a graphics application. Any shortcuts you can create in Windows can be created in the Shortcuts view.

The Shortcuts view is divided into two tabs: System and Project.

- Shortcuts that you create on the **System** tab are available in all projects.
- Shortcuts that you create on the **Project** tab are available only when the project in which you created them is open.



To switch between tabs:

- ▶ Click the **System** tab or the **Project** tab.

To create a shortcut, do one of the following, depending on what is displayed in a bin:

- ▶ Drag a folder or file from a bin to either tab in the Shortcuts view.
- ▶ Drag the folder icon from a bin's address bar to either tab in the Shortcuts view.
- ▶ In either tab of the Shortcuts view, right-click an empty area and select **New Shortcut**. The Windows Shortcut Wizard is displayed. Follow the instructions to create a shortcut in the Shortcuts view.

To delete a shortcut, do one of the following:

- ▶ Right-click the shortcut and select **Delete**.
- ▶ Select a shortcut and press Delete on the keyboard.

To access the Shortcuts context menus:

- ▶ Right-click the background. Use this context menu to change the way shortcuts are displayed (large icons, list, thumbnail) and how they are sorted and arranged.
- ▶ Right-click a shortcut. Use this context menu to cut, copy, paste, delete, and other system functions.



The Create Shortcut command, which is displayed when you right-click an object, does not create a shortcut in the My System view or Project view.

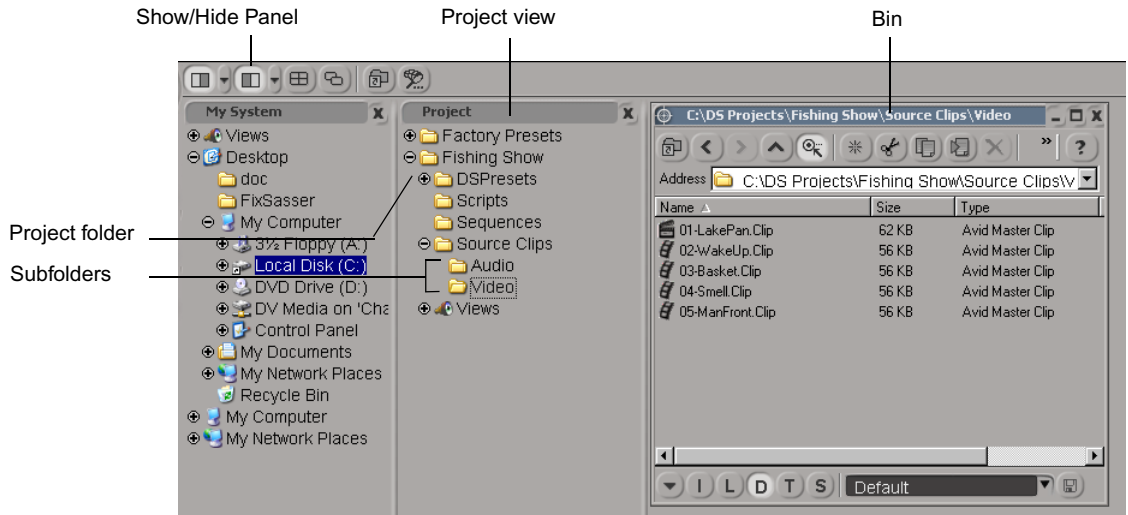
Organizing Your Project Folder

Before you start capturing material and editing sequences, create subfolders in your project folder to hold master clips, sequences, and custom presets. You'll find that creating subfolders helps organize your project, so that you can locate files quickly and easily.

Also, when Avid DS Nitris archives a project, it gathers and archives all the files in the project folder. Therefore, it is important that you keep all the project files within the project folder.

When you create a new project in Avid DS Nitris, a project folder is automatically created and displayed in the Avid Explorer. It also creates subfolders for DSPresets and scripts. This default structure can be customized, so that all projects you create are already organized. For more information, see [“Creating a Standard Folder Structure” on page 41](#).

There are ways to set up your folders that make tasks, such as recapturing, much easier. Here is an example of a simple but effective folder setup:



When capturing clips, you can select Auto-Source as the capture target. This automatically creates a folder for your master clips with the same name as the tape from which you are capturing material.

Creating or Deleting Folders

To create a folder:

1. In the Project view, select your project folder.
The contents of the folder are displayed on the right in a bin.
2. Do one of the following:
 - ▶ In the bin toolbar, click the New button.
 - ▶ Right-click an empty area of the bin and select **New > Folder**.The new folder is displayed in the bin with the name New Folder highlighted.
3. Type in a new name and press Enter.
4. Continue adding as many folders as you need. You can create subfolders under your new folders. Simply click the new folder in the Project view and then right-click the bin to add a new folder.



To delete a folder:

- ▶ In the Project view or bin, right-click a folder and select **Delete** from the Windows section of the menu.

Moving Files between Folders

You can rearrange the files in your project folders by dragging them to a new folder.

To move a file to another folder:

- ▶ Drag a file from a bin to a folder in the Project view or to another bin.
The No Entry icon changes to a Move icon when you place the pointer over a folder in the Project view.



You cannot move clips or sequences between projects, but you can import sequences and master clips into another project. For more information, see “Importing Sequences and Master Clips from Another Project” on page 66.

To make a copy of a file:

- ▶ Select the clip or sequence that you want to copy, press Ctrl and drag the clip to an empty area in the current folder, or to another folder in the tree.

Renaming Project Files

You can rename a master clip, sequence, or folder in your project.



You cannot change the name of a clip or sequence if it is open or when previewing it in the Source viewer.

To rename a clip, sequence, or folder:

1. In a bin, click the name of a clip, sequence, or folder.
2. Type in a new name and press Enter.



When you rename a clip, sequence, or other Avid DS Nitris file, make sure to keep the file extension (.Clip, .Segment, and so on). Avid DS Nitris cannot manage the file properly without the extension.

*A file name can contain up to 255 characters and include spaces. It cannot contain any of the following characters: \ / : * ? " < > |*

Creating a Standard Folder Structure

If you want Avid DS Nitris to create a standard folder structure for new projects, you can create an .ini file that will specify the folders that will appear in the Avid Explorer when a new project is created. The .ini file must be called *folder.ini* and must be stored in the \Preferences\username folder. You can have different .ini files for each Avid DS Nitris user.

To create a standard folder structure for new projects:

1. Open a text file using a text editor.
2. On the first line of the file, type the following in uppercase letters:
[FOLDERS].
3. Type the names of the folders you want to appear in the Avid Explorer, one on each line. For example:

```
Graphics
Master Clips
Sequences
Trash
```

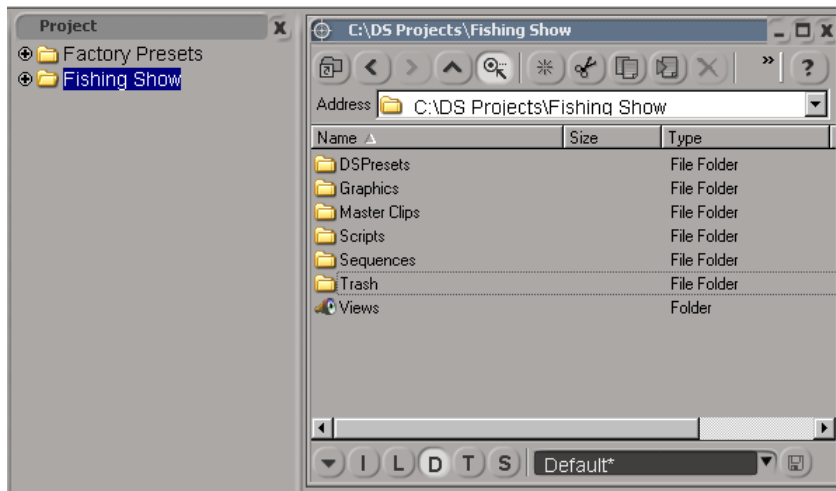


The order of the folders is not important, as they will be sorted in alphabetical order or according to the sorting method used in the Avid Explorer.

4. Save the file as *folder.ini* and save it in the following location:

C:\Program Files\Avid\DS_v7.0\Preferences\username

Any new projects that are created will contain the folders specified in the .ini file.



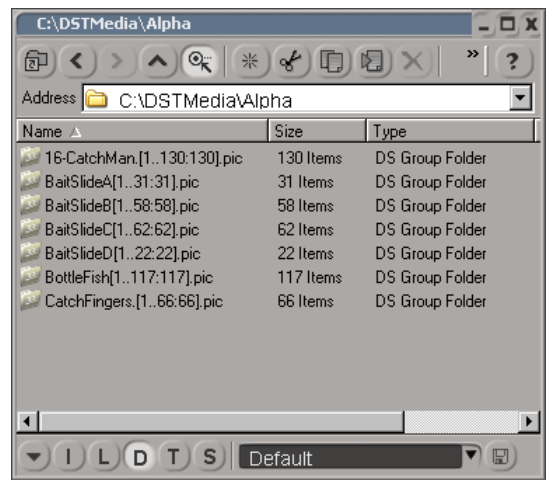
The DSPresets, Scripts, and Views folders are created by default.

Avid DS Nitris Group Folders



As part of a project's workflow, you might need to work with groups of sequential files, such as a series of scanned image files or files from a graphics program. Typically these files share a file name that increments by a single digit, such as beach001.jpg, beach002.jpg, and so on. The Avid Explorer automatically combines these files into a special kind of folder, called an Avid DS Nitris Group folder, or virtual folder. You can then capture and manage the sequential files more easily.

The following illustration shows a list of Avid DS Nitris Group folders.



The folder is identified with the following syntax:

filename[first..last:#files].extension

For example, a folder that contains 88 files, named CatchFish1.pic through CatchFish88.pic, is labeled:

CatchFish[1..88:88].pic

To view the individual files:

- Double-click the Avid DS Nitris Group folder.



If a group does not include a complete series of numbers, a yellow circle and exclamation point is displayed over the icon. The folder name displays the total number of files, indicating that one or more files are missing. For example, if CatchFish30.pic is missing, the folder is labeled:

CatchFish[1..88:87].pic



Sequential Avid DS Nitris files (.Clip, *.Segment, *.Preset) are not grouped in a folder.*



When a folder contains a file that does not conform to the pattern of the group, Avid DS Nitris isolates the file and the part of the group that is affected. To combine the files into a single folder again, remove or rename the non-conforming file.

Grouping Files as Frames or Fields

By default, Avid DS Nitris groups files as a series of frames. If, however, the file names of a group include field numbers (Frame01.1.jpg, Frame01.2.jpg, Frame02.1.jpg, and so on), you should deselect the default option. The folder name then includes the total number of files followed by the letter F (field). For example,

Frame[01..06:12;F].jpg

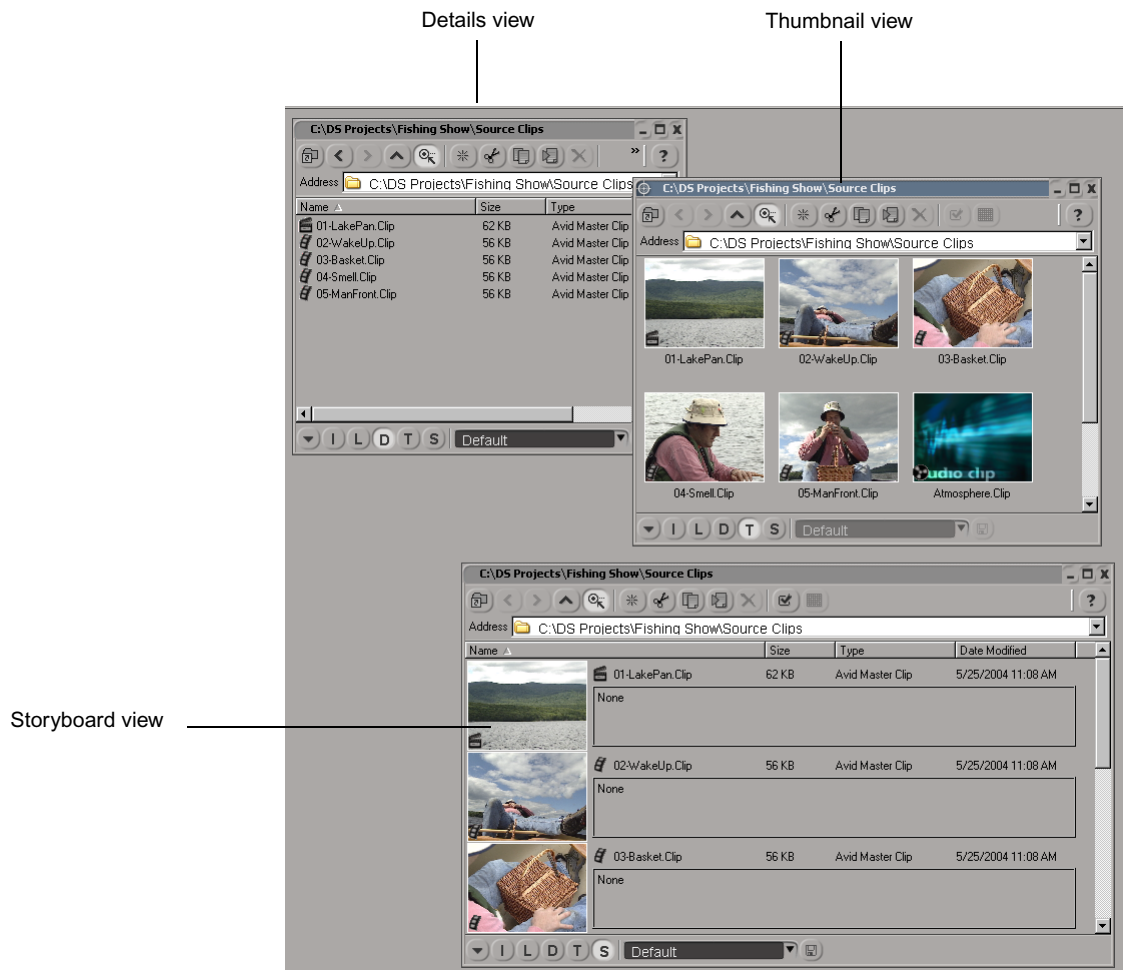
To group files as frames or fields:

1. Select **File > User Preferences**.
2. Select the **Avid Explorer** property page.
3. Select or deselect the **Group files as frame** option.

Working with Bins

A bin is a window that displays the contents of a folder or other object. Bins appear within the Avid Explorer view. You can minimize, maximize, resize, and close bins using standard Windows control methods. You can also cascade and tile bins.

The following illustration shows three bins within the Avid Explorer view. Each bin displays its contents in a different view.



To open a bin:

- ▶ Select a folder or other object in the tree.
If a folder in the tree is already selected, double-click it.

To open additional bins, do one of the following:

- ▶ Press Shift and click a folder or other object in the tree.
If a folder in the tree is already selected, press Shift and double-click it.
- ▶ Press Shift and double-click a folder in a bin.



*You can open one or more Avid Explorer windows that are not docked in the Avid Explorer view. From the View menu, select **Multi-Instance Views > Avid Explorer**. These windows include only bin tools. You can include this Avid Explorer window as a multi-instance view in any views that you create.*

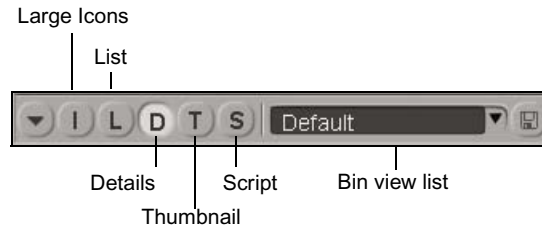
Changing the Bin View

You can display a bin in one of five different views:

- **Large icons:** Displays files with large icons
- **List:** Displays files with small icons in list format
- **Details:** Displays files as a list with details, using columns. You can choose and save which columns to display—see [“Customizing the Details and Script Views” on page 50](#).
- **Thumbnail:** Displays the files as pictorial icons. This view is especially useful for media files. You can rearrange the thumbnails in any order within the bin by clicking and dragging.
- **Script:** Displays the files as pictorial icons with an area for comments. Clip information is displayed above the text box.

To change the bin view:

- Click a button at the bottom of the bin.



Changing the Frame in Thumbnail and Script View

By default the first frame of a clip is displayed in Thumbnail or Script view. Avid DS Nitris lets you select a different frame to display.

To change the frame displayed in the Thumbnail or Script view:

1. Open the clip in the Source viewer.
2. Go to the frame you want to display.
3. Click the **Update Thumbnail** button, located below the Source viewer.



Identifying File Types

Each file in a bin is identified by an icon. Because a bin displays the same files as your workstation, you see the same icons that appear in your Windows Explorer.



Files that are specific to Avid DS Nitris display a generic icon when viewed in the Windows Explorer.

Avid DS Nitris media files have their own icons, which appear on or beside clips in a bin. When an icon is highlighted in red, it means that Avid DS Nitris could not find any media associated with a clip. This clip must be recaptured before you can work with it.

Icon	File Type	Icon	File Type
	Audio clip		Background or composite container clip
	Video clip		Sequence
	Combined audio and video clip		Still image
	Audio container clip		Linked still image

Displaying File Properties

Each master clip or sequence contains information about its location on the storage device, the name of the project to which it belongs, the start, end, and duration of the clip, as well as your own comments. In addition, master clips contain information on the clip type, quality, resolution, dominance, color space, bit depth, coverage, and location. For a description of these properties, click the **Help** button.

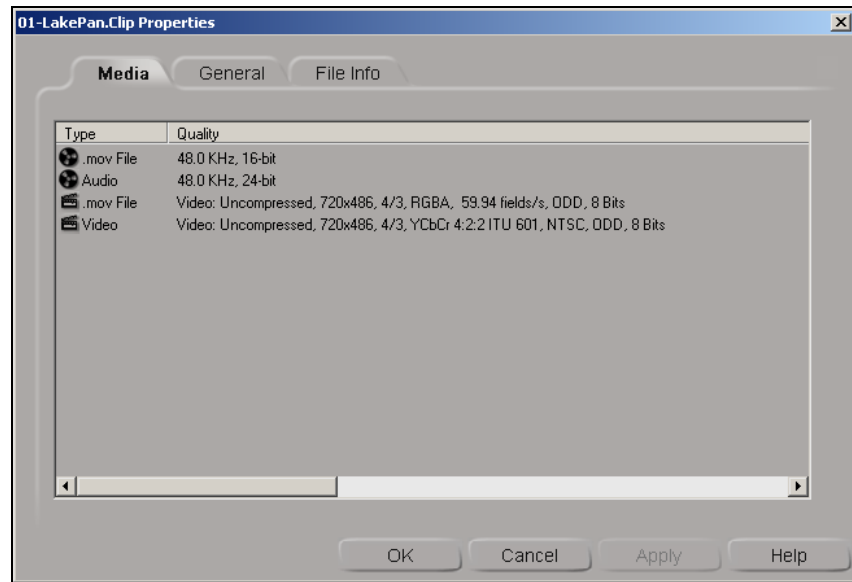
To view master clip properties:

1. In a bin, right-click a master clip, and in the Avid DS Nitris section select **Properties**.

The Properties dialog box is displayed.

2. Select the **Media** tab to view information about the media associated with the master clip.

The Media property page displays information about the selected clip. Audio and video media files are listed separately.



The Media property page displays the types of media associated with the clip you selected in the Avid Explorer. Purged media is indicated by a red dot on the icon. It is possible to have one type of media indicated as purged and another not.

3. Select the **General** tab to view the file properties.

The location of this file, its in and out times, and duration are displayed. You cannot edit these properties, but you can add notes for the file in the Comments text box, unless the clip is displayed in a viewer.

4. Select the **File Info** tab to view information about how the original file was captured.

The original file location, resolution, capture settings, and file status are displayed. This information is read-only and cannot be modified, except to re-establish a link for a linked file that has been moved from its original location.

5. Select the **Track Patching** tab to view information about the audio format (such as mono or stereo) and the audio input assignment for master clips that were captured from tape.

You can use this property page to reassign hardware inputs to different audio channels if necessary when recapturing audio media.

To view sequence properties:

- In a bin, right-click a sequence, and in the Avid DS Nitris section select **Properties**.

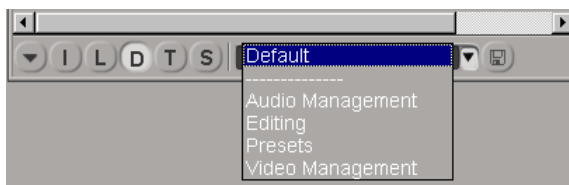
The Properties dialog box is displayed. These properties are read-only.

Customizing the Details and Script Views

Avid DS Nitris lets you customize the columns of information in Details and Scripts views by displaying and hiding file parameters.

You can choose from Avid DS Nitris parameters, parameters from the Windows operating system, or parameters that have been added to your Windows system from other applications. You can also rearrange the order of columns, adjust the size of columns, and save the arrangement.

You can select a preset bin view from the Bin View column at the bottom of the bin. These bin views display columns that are appropriate to a particular task and include Editing, Audio Management, Video Management, and Presets. You can also create and save your own bin view—see [“Saving or Deleting a Bin View”](#) on page 52.



Bin view list



To display information specific to media files, such as Video Compression, you must have media files displayed in the bin. Use the Avid Explorer or Media Tool to display media files.

To create a more compact display, Avid DS Nitris parameters do not include the product name in the column heading. Column headings for these parameters use a darker shading.

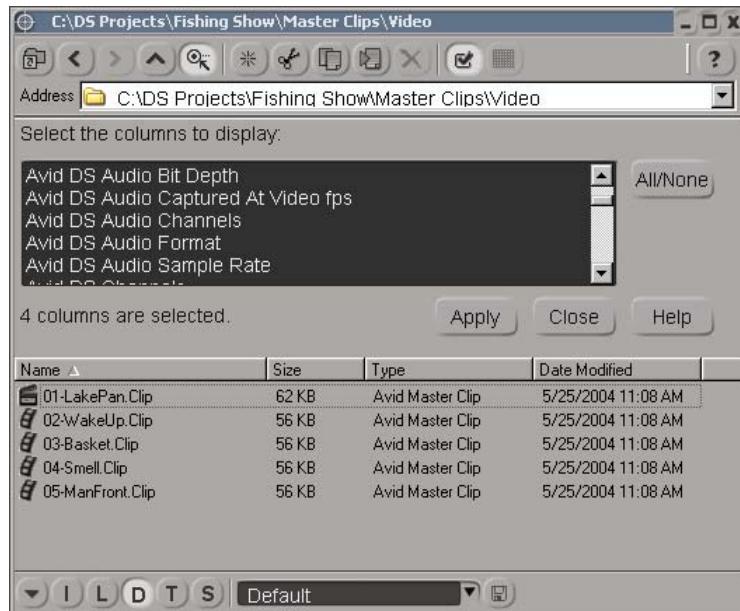
To hide or display bin columns:

1. Do one of the following:



- ▶ In the bin tools, click the **Settings** button.
- ▶ Click the **Fast Menu** button and select **Settings > Add/Remove Columns**.

A dialog box is displayed, either within the bin or separately. The currently displayed column headings are marked by colored bands.



For a description of the bin columns, click the **Help** button.

2. Do one or more of the following:
 - ▶ Select the columns that you want to display.
Selected columns are highlighted by a colored band.
 - ▶ Deselect highlighted columns that you do not want to display.
 - ▶ Click the **All/None** button to select all columns.
 - ▶ Click the **All/None** button again to deselect all columns
3. Click the **Apply** button to apply your changes.
4. Click the **Close** button to close the dialog box.

To display a preset bin view:

- ▶ Select a preset view from the Bin View list.

To rearrange columns:

1. Click the heading of the column that you want to move.
The entire column is selected.
2. Drag the column to the desired position.
The column is displayed in the new position.

To change the width of a column:

- ▶ Drag the border of a column heading.

Saving or Deleting a Bin View

If you change the bin view by adding columns, changing the order of columns, or other customization, an asterisk is displayed at the end of the bin view name. Avid DS Nitris lets you save and display this customized bin view.

To save a bin view:



1. Click the **Save Current Column Setting** button.
The Save As dialog box is displayed.
2. Accept the current name or type a new one, and click **OK**.
The Bin View list includes the new bin view.

To display a bin view:

- ▶ From the Bin View list, select the view you want to display.

To delete a bin view:

1. From the Bin View list, select the view you want to delete.
2. With the Bin View list displayed, press the Delete key.
A confirmation box is displayed.
3. Click **Yes**.

Sorting Files

By default, clips in Details view are sorted by name, in ascending alphabetical order (from A to Z). You can change the way clips are sorted, using the information in any column or combination of columns.

You can change the sorting for any files that you view through the Avid Explorer.

To change the way clips are sorted:

1. In Details view, click the column that you want to act as the primary sorting criterion.

The clips are sorted according to the information in that column. The number zero (0) is displayed in the title bar of the column indicating the primary sorting status. An upward or downward pointing arrow is also displayed, specifying the direction in which the information is sorted (ascending or descending).

2. Press Ctrl and click a new column to act as the secondary sorting criterion.

Any clips with the same criterion in the primary sort are now sorted according to the information in the second column. The number one (1) is displayed in the title bar of the column, indicating the secondary sorting status. An upward or downward pointing arrow is also displayed, specifying the direction in which the information is sorted.

3. Continue pressing Ctrl and clicking the columns to further refine your column sorting.

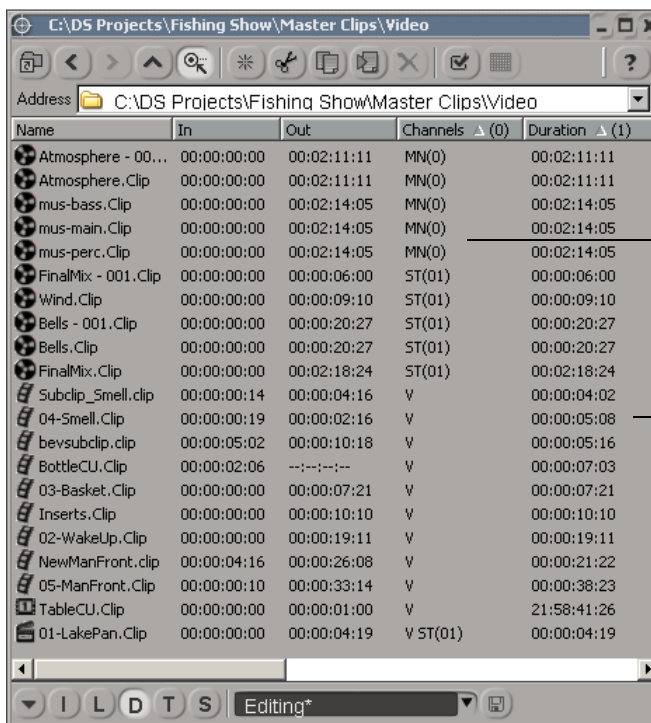


When performing a single-column sort, click the column a second time to change the direction in which the column is sorted. Click again to remove the sorting.

When performing multi-column sort, press Ctrl and click a column a second time to change the sorting direction. Press Ctrl and click again to remove the sorting.

Example

In this example, clips are first sorted by channel. Notice that all video clips are grouped together. Since they are all the same, you can sort them further using another criterion. In this example, they are sorted further by duration.



The screenshot shows the Avid Explorer window with the address bar set to 'C:\DS Projects\Fishing Show\Master Clips\Video'. The table below represents the data shown in the window.

Name	In	Out	Channels	Duration
Atmosphere - 00...	00:00:00:00	00:02:11:11	MN(0)	00:02:11:11
Atmosphere.Clip	00:00:00:00	00:02:11:11	MN(0)	00:02:11:11
mus-bass.Clip	00:00:00:00	00:02:14:05	MN(0)	00:02:14:05
mus-main.Clip	00:00:00:00	00:02:14:05	MN(0)	00:02:14:05
mus-perc.Clip	00:00:00:00	00:02:14:05	MN(0)	00:02:14:05
FinalMix - 001.Clip	00:00:00:00	00:00:06:00	ST(01)	00:00:06:00
Wind.Clip	00:00:00:00	00:00:09:10	ST(01)	00:00:09:10
Bells - 001.Clip	00:00:00:00	00:00:20:27	ST(01)	00:00:20:27
Bells.Clip	00:00:00:00	00:00:20:27	ST(01)	00:00:20:27
FinalMix.Clip	00:00:00:00	00:02:18:24	ST(01)	00:02:18:24
Subclip_Smell.clip	00:00:00:14	00:00:04:16	V	00:00:04:02
04-Smell.Clip	00:00:00:19	00:00:02:16	V	00:00:05:08
bevsclip.clip	00:00:05:02	00:00:10:18	V	00:00:05:16
BottleCU.Clip	00:00:02:06	--:--:--:--	V	00:00:07:03
03-Basket.Clip	00:00:00:00	00:00:07:21	V	00:00:07:21
Inserts.Clip	00:00:00:00	00:00:10:10	V	00:00:10:10
02-WakeUp.Clip	00:00:00:00	00:00:19:11	V	00:00:19:11
NewManFront.clip	00:00:04:16	00:00:26:08	V	00:00:21:22
05-ManFront.Clip	00:00:00:10	00:00:33:14	V	00:00:38:23
TableCU.Clip	00:00:00:00	00:00:01:00	V	21:58:41:26
01-LakePan.Clip	00:00:00:00	00:00:04:19	V ST(01)	00:00:04:19

Clips sorted by channel in alphabetical order. (primary sort)

Each channel type, such as Video, is further sorted according to duration (secondary sort).

Sifting Files

By sifting files, you can customize any window that you view through the Avid Explorer so that it displays only those files that meet a specific set of criteria.

For example, in a bin that contains master clips, you can create a custom sift to display only clips from a particular tape or only clips with a name that contains the letters CU (for close-up). Sifting is not limited to clips; you can use it with any files that you view through the Avid Explorer. You can also use it to modify the files displayed in the Media Tool (see [“Using the Media Tool” on page 438](#)).

The Custom Sift dialog box provides ten types of criteria (such as Equals or Contains) and lets you set up to six sets of criteria.



Tip: To view bin columns, click the **D (Details)** button in the bottom bar of the bin. To change the visible bin columns, click the **Settings** button in the Avid Explorer toolbar.

To sift clips or sequences:



1. In an open bin, click the **Fast Menu** button and select **Custom Sift**.
The Custom Sift dialog box is displayed.

2. From the Column list, select an Avid DS Nitris column heading to which you want to apply the criterion.
 - ▶ To view all column headings on your system, select the **Show All Columns** option.
 - ▶ To clear the Column entry, select **None** from the Column list.
3. From the Criterion list, select one of the sifting options.

4. In the Value text box, and type the text that you want to use as a sift criterion.

Type the text exactly as it is displayed in the column. For example, to view clips with a duration of more than 5 seconds, select **Greater Than** as the criterion and type 00:00:05:00.

An exception is size. For example, to view clips greater than 54 KB, select **Greater Than** as the criterion and type **54000**.

5. Repeat these steps to add additional sift criteria (up to six sets).
6. To clear all data, click the **Clear** button.
7. To preview the results of your selections, click the **Apply** button.
8. To save your view:

- a. Click the **Save** button.

The Save As dialog box is displayed.

- b. Type a name for the sifted view and click **OK**.

9. In the Custom Sift dialog box, click **OK**.

Only the clips or sequences that meet your criteria are displayed in the bin.

Displaying a Sifted or an Unsifted View

After you have sifted the clips in a bin, you can switch between the unsifted view and the currently selected sifted view.

To switch between a sifted and an unsifted view, do one of the following:

- ▶ In a bin, click the **Fast Menu** button and select **Show Sifted**.
- ▶ In the Avid Explorer toolbar, click the **Sifting** button.



Loading and Deleting a Sifted View

You can load or delete a saved set of criteria.

To load a sifted view, do one of the following:

- ▶ In the Custom Sift dialog box, select the view that you want to load from the **Load/Save** list, and click **Apply** or **OK**.
- ▶ Click the **Fast Menu** button, select **Load Sift**, and select the view you want to load.

To delete a sifted view:

1. Select the view that you want to delete from the **Load/Save** list.
2. Keep the menu open and press the Delete key on your keyboard.
3. In the dialog box, click **Yes**.

Viewing Events

While working with Avid DS Nitris, you can track important processes, such as the start up and shut down of Avid DS Nitris applications, Avid DS Nitris RP processing messages, or errors when a folder cannot be accessed. This is done using the event logging service in Avid DS Nitris. The event-logging service stores events from various sources in a single collection called an *event log*. Notifications of events include informative messages, errors, and warnings.

The event log records important software and hardware events to help you determine the conditions that caused the error and the context in which it occurred. By periodically viewing the event log, you may be able to identify problems before they cause damage.

The event logging service does not replace direct messages that are displayed when an action is necessary. The event log simply lets you to view the results of any actions.

A reasonable amount of disk space is reserved for the event log. When the log is full, older events are erased to make room for new ones.

The following Avid applications log events in the event log:

- Avid DS Nitris
- Avid Media Indexer
- Avid Project Indexer

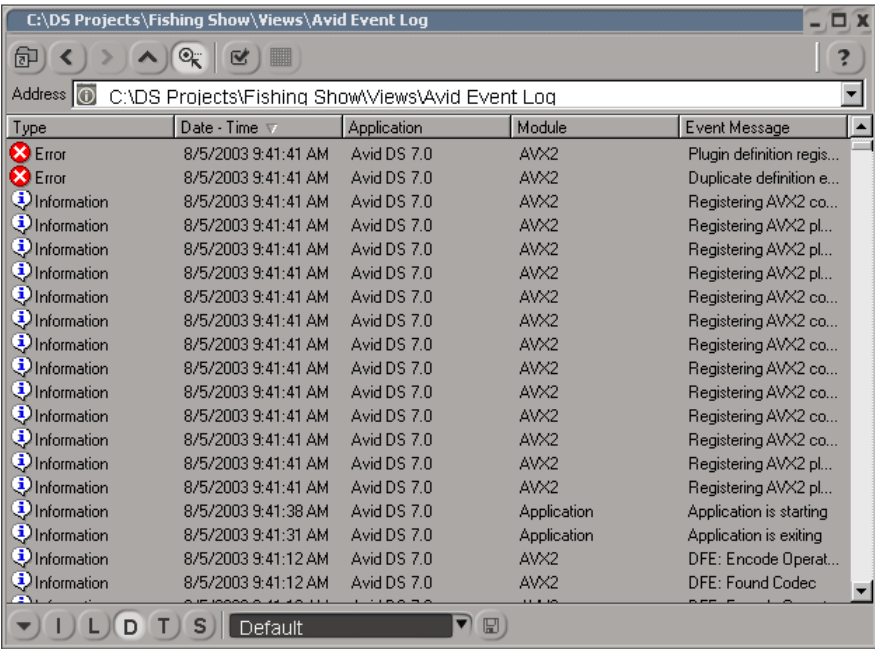
Viewing the Avid Event Log

The event logging system consists of two parts, the viewer and the event log file. The Avid Event Log is a list of all previously logged events.

To view the Avid event log,

1. Do one of the following:
 - ▶ Select **View > Multi-Instance Views > Avid Event Log**.
 - ▶ In an Avid Explorer panel, select Avid Event Log in the Views folder.

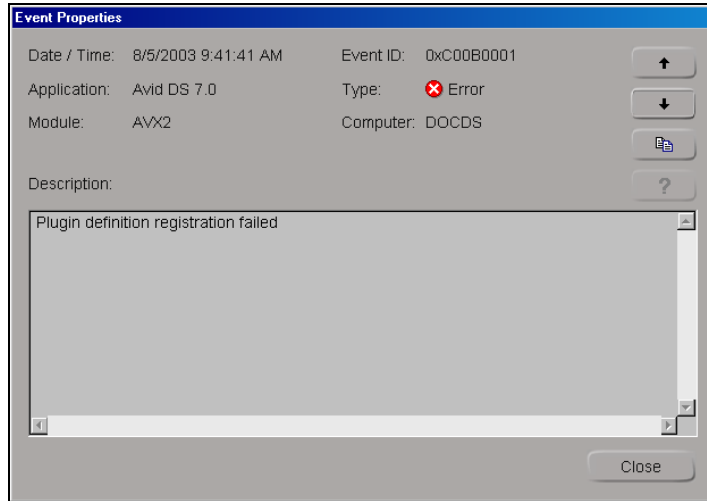
The Avid Event Log view is displayed in a bin, along with a list of software and hardware events that have occurred. If you open the log from the Views folder, bin tools are displayed at the top of the bin.





For more information on the Avid Event Log, click the Avid Explorer **Help** button.

2. Double-click an event log entry to display additional information.



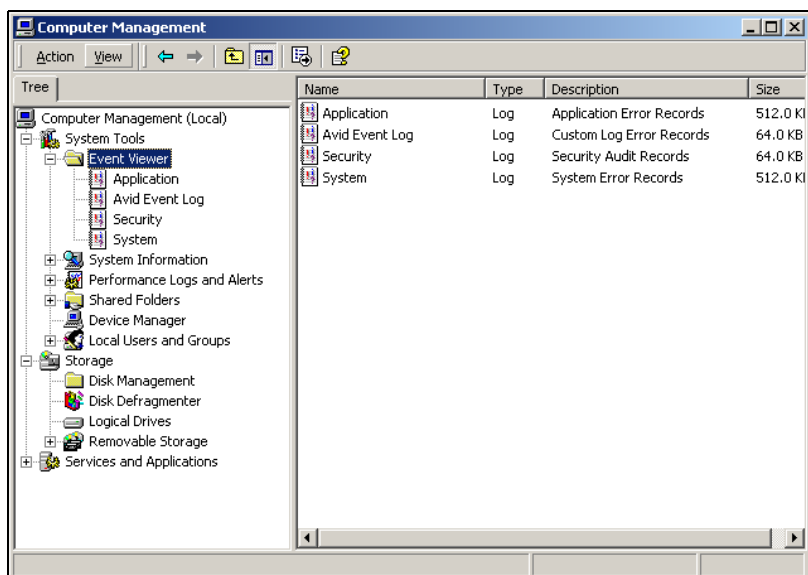
Viewing the Windows Event Log

If you cannot start Avid DS Nitris due to a fatal error, Windows also has an Event Viewer so that you can browse through the event logs. In the Windows Event Viewer, events from all open applications, the operating system, and other system services are logged.

To view the Windows event log:

1. On the Windows desktop, right-click the My Computer icon and select **Manage**.
2. Click **System Tools > Event Viewer**.

An event log is displayed for the different Windows applications.



3. Double-click the Avid Event Log to view the Avid DS Nitris events.

Sorting Columns and Events

You can reorder the columns and events that are displayed.

To set the column order:

- Click on a column heading and drag it left or right to a new position.

To sort the list of events:

- Click on the column heading to sort the contents below the column in ascending or descending order.



You can perform secondary sorts on multiple columns for better grouping of events. For instance if you want to sort the events by type and then by time, click the Type column heading, press Ctrl and click the Date - Time heading. A (0) and a (1) appear in the respective columns.

You can also sort the columns in the reverse order by pressing Ctrl and clicking the column heading again. An up or down arrow appears in the column heading to indicate the direction of the sort.



Chapter 2

Working with Sequences

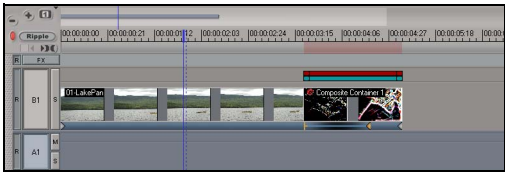
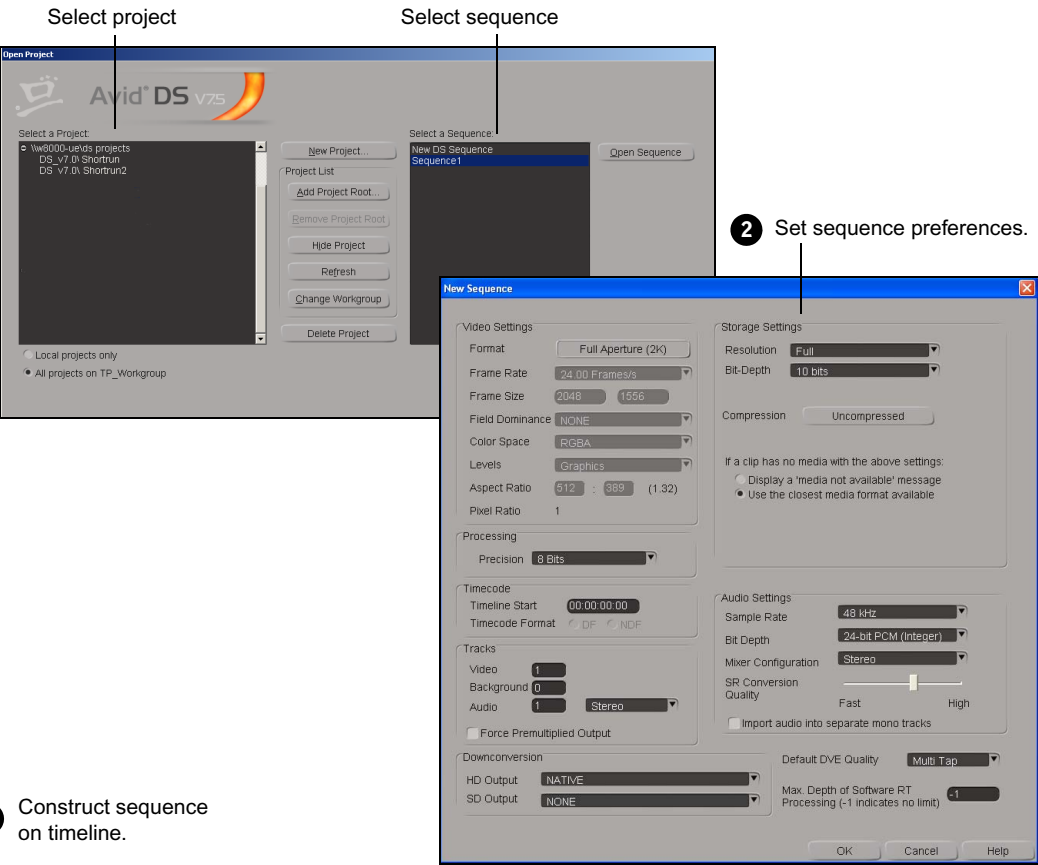
This chapter describes how to work with sequences, search for sequences, and set your video and audio preferences.

- [Workflow: Working with Sequences](#)
- [Opening Sequences](#)
- [Setting Sequence Preferences](#)
- [Working with Media of Different Qualities](#)
- [Saving Sequences](#)
- [Searching for Sequences](#)
- [Deleting Sequences](#)

Workflow: Working with Sequences

Before you open a sequence, you must first select the project to which it belongs. The following illustration shows a simple editing scenario in Avid DS Nitris.

1 Open project and sequence.



Sequence preferences can be changed during the course of a project so that you can work with media at different qualities.

Opening Sequences

You can easily create, open, and manage the sequences in your project using the Open Project dialog box. A sequence is an arrangement of clips on the timeline; it contains information about edit decisions, applied graphics and effects, animation settings, and working preferences.

When you open a sequence in the timeline, you can immediately begin audio/video editing, compositing, painting, titling, or audio mixing. Because the Avid DS Nitris environment is nonlinear, these tasks can be performed in any order, changed at any time, and moved to any location.

Avid DS Nitris also gives you the flexibility to work with different media qualities within your sequence. For example, working with media at a higher resolution increases processing time, so initially, you may want to process your clips at lower resolution to obtain quicker results. When you're ready to output the final sequence, you can recapture the media at a higher resolution, and reprocess the effects.

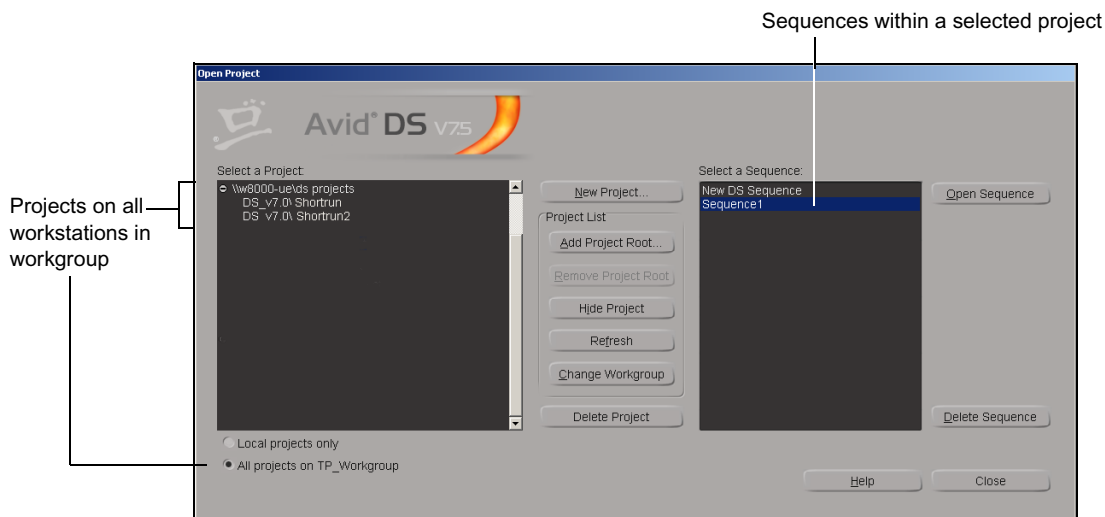


Sequences always belong to a particular project. To access your sequences, you must first select the project to which it belongs. To get a quick view of all the projects on any workstation in your workgroup, use the Open Project dialog box.

To access the list of projects and sequences:

1. Select **File > Open > Project**.

The Open Project dialog box is displayed.



2. If you want to see all projects and sequences in your workgroup, select **All Projects on *workgroup_name***.

For detailed information on the Open Project dialog box, click the **Help** button.

Creating a New Sequence

You must create sequences from within a project. You can either select a project from the Open Project dialog box and then create a new sequence, or if your project is already open, you can create a new sequence directly from the File menu.

To create a sequence:

1. Select **File > Open > Project**.
The Open Project dialog box is displayed.
2. From the Select a Project box, select the project to which your sequence will belong.
The Select a Sequence box opens any other sequences that belong to this project.
3. From the Select a Sequence box, select **New DS Sequence** from the list.
4. Click the **New Sequence** button.

The New Sequence dialog box displays the sequence preferences.

By default, the sequence preferences are inherited from the settings established when the project was created. These settings can be changed. For more information, see [“Setting Sequence Preferences” on page 68](#).



Avid DS Nitris requires at least 10% of your system memory (RAM) to be free at all times. If not, you may not be able to create sequences with custom formats that have resolutions much greater than the standard video resolution, such as 2000×1500.

5. Click **OK** to accept the settings.

A new sequence is opened and the Editing layout is displayed.

To create another sequence within the current project:

1. Select **File > New Sequence**.

If the sequence you’re currently working on has not been saved, you are prompted to do so.

2. Click **Yes** to save the sequence.

A new sequence is opened in your current project with the same preferences as those of the project.



*If you want to create a new sequence with preferences that are different from the project, select **File > New > DS Sequence**.*

For detailed information on these sequence preferences, click the **Help** button.

Opening an Existing Sequence

You can open a sequence in one of three ways:

- From the File menu (if you want to open a sequence from the current project)
- From the Open Project dialog box (if you want to open a sequence from another project)
- By double-clicking the sequence in the Avid Explorer



Each time you start Avid DS Nitris, you can automatically load the last sequence on which you were working by selecting the Load Last Sequence at Startup option in the User Preferences dialog box. For more information, see “Setting User Preferences” on page 32.

To open a sequence from the File menu:

1. Select **File > Open > Sequence**.

If the sequence you are currently working on has not been saved, you are prompted to do so.

2. Click **Yes** to save the current sequence.

The Load Sequence dialog box is displayed.



3. Browse through the folders and select a sequence. (All sequences are indicated by the sequence icon.)
4. Click **OK** or double-click the sequence to open it.

To open a sequence from the Open Project dialog box:

1. Select **File > Open > Project**.

If the sequence you are currently working on has not been saved, you are prompted to do so.

2. Click **Yes** to save the current sequence.

The Open Project dialog box is displayed.

3. From the Select a Project box, select the project to which your sequence will belong.

The Select a Sequence box displays all sequences that belong to this project.

4. From the **Select a Sequence** box, select a sequence and click the **Open Sequence** button.

To open a sequence from the Avid Explorer:

- Double-click the sequence in the Avid Explorer.

Importing Sequences and Master Clips from Another Project

If you need to use the same sequence or master clips in more than one project, you can import the sequence and/or master clips from one project to another (as long as that project is on a workstation in your workgroup).

You then have the option of linking to the existing media or creating copies of the media. By creating a link to the media, the media is shared between the two projects, which saves space on your storage device.



If you import a sequence or master clips from a workstation in another Avid DS workgroup, you cannot link to or copy the media. You will have to recapture this media once the sequence/clip has been imported to your project.

Importing of sequences is useful when there are one or more users in the workgroup that need to work on the same project. A project can only be opened by one user at a time. Therefore, if you need to work on a sequence within a project that is heavily used by other users, you should create a project on your own workstation, and then import the sequence into your project. Avid DS will automatically link to the media. When you have completed the sequence, you can import it back to the original project.



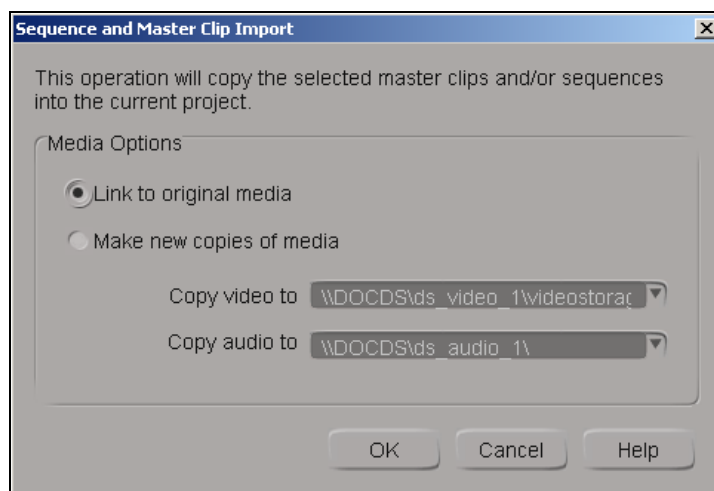
A shared storage device can be a storage area on your local workstation or anywhere on the network. The limitation with media sharing is that, unless you are connected to an Avid Unity™ system, the storage device may not have sufficient bandwidth to provide real-time access to the media for more than one user at a time.

If you are not getting real-time playback on effects, you can either reprocess your effects or copy the media from the shared storage to your local storage. For more information, see “Copying Media” on page 446.

To import a sequence or master clips from another project:

1. In the Avid Explorer, locate and open the folder that contains the sequence or master clips you want to import.
2. Right-click the sequence or master clips and select **Import to Current Project**.

The Sequence and Master Clip Import dialog box is displayed.



3. Select an option:

- **Link to original media** links the new sequence or master clips to the original media
- **Make new copies of media** creates copies of the media at the locations you specify for the new video and audio media.

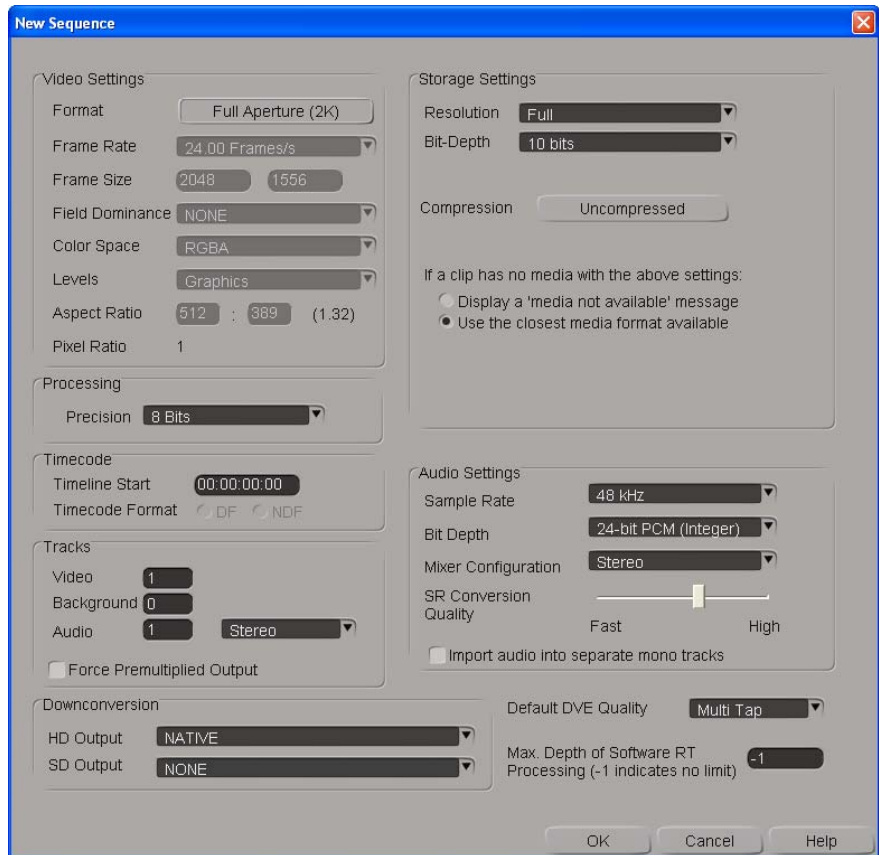
4. Click **OK**.

A new folder is displayed in the current project folder, entitled “Imported from project *projectname*”, containing the sequence and master clip files.

Setting Sequence Preferences

Sequence preferences define the format and quality of the audio and video clips in your sequence. By default, the sequence preferences are inherited from the settings you created for the current project.

During the course of building your sequence, you can switch your sequence preferences to work with video at a lower resolution, or with compression. Working at a lower resolution is useful when producing a rough cut of your sequence, because your clips are processed at a much faster rate. Working with compressed media lets you save storage space on your storage device. For more information, see [“Working with Media of Different Qualities” on page 72](#).



For descriptions of all the options in this dialog box, click the **Help** button.

To set the sequence preferences:

1. In the Video Settings box, select a video format from the **Format** list.

When you select a video format other than Custom, Avid DS Nitris automatically sets the aspect ratio, color space, frame rate, frame size, field dominance, and pixel ratio based on the format you chose—see [“Understanding Video Settings” on page 75](#).



These settings cannot be changed after you save your sequence preferences.

2. Set the **Precision** at which you want to process the effects in this sequence—see “[About Bit Depth](#)” on page 84.



The processing settings apply to all effects in the sequence but can be changed when you process effects individually.

3. Set the **Timecode Start** if other than 00:00:00:00.



If you select a drop-frame video format, such as NTSC, you have the option of displaying timecode as either drop frame or non-drop frame. This option only affects the timecode display and not the sequence frame rate. For more information, see “[About Video Format](#)” on page 75.

4. Set the number of **Video**, **Background**, and **Audio** tracks you will require in your sequence.
5. In the Storage Settings box, make a selection from the **Resolution** list.

Setting it at **Full** resolution results in large, high-quality media and cache files, while lower resolutions result in smaller, lower-quality media and cache files—see “[About Video Quality](#)” on page 78.



To play your effects in real-time while you’re editing, set your sequence preferences at a lower resolution. When working with film formats, the Real-time Proxy resolution is actually HD resolution. This is an excellent visual quality for editing your sequences, while giving you the efficiency of using lower resolution media.



For film-based formats (2K or 4K), playback is supported in the Viewer, but not in the external monitor. In addition, any RT effects will need to be processed.



For HD formats. On some workstations where the processing power and bandwidth does not allow you to work with HD media at full resolution, you can work in quarter resolution mode to play your effects in real-time. On these workstations, there will be additional options for Quarter Resolution working mode.

6. Set the **Bit Depth** to be used when capturing your media.
7. Select one of the following options:
 - **Uncompressed** to work with media that is not compressed.

- **Compressed** to work with compressed media. From the Preferred Ratio list, select a compression ratio that best suits your needs.



When you are in passthrough mode, all compressions (codecs) may not be available.

Since Avid DS Nitris supports multiple qualities for your video material, you can select the version of the captured media that you want to use. For more information, see [“Understanding Video Quality Matching” on page 79](#).

8. Select one of the following options:

- **Use the closest media format available** if it is not crucial that you have an exact video media match with your sequence preferences. If Avid DS Nitris cannot find an exact match, it finds and displays the closest alternative.
- **Display a “media not available” message** if you only want to work with video media of a specific quality.

Avid DS Nitris uses only the media that matches the selected resolution and compression settings. If it cannot find an exact match for both, a “Media Not Available” message is displayed in the viewer as you playback your clips. This serves as a good indicator when you’ve captured video that does not conform to your sequence preferences.

9. Select a **Sample Rate** for your sequence. The higher the sampling rate, the more accurate the audio—see [“Understanding Audio Quality Matching” on page 84](#).

Audio quality defines the sample rate and bit depth at which an audio signal is captured. You can set the sample rate conversion quality, so that Avid DS Nitris can convert audio material that has a different sample rate than the current sequence. The higher the sample rate, the more accurate the digital representation of the signal. A higher sample rate, however, does use more disk space.



When you place audio clips on the timeline that contain different sampling rates than the current sequence, you are prompted to convert the clip to match the current sequence sampling rate. If you do not convert the clip, you will not have access to the audio media unless you change the sequence preferences.

10. Select a **Bit Depth** value from the list. The higher the value, the more precise the audio will be.
11. Drag the **SR Conversion Quality** slider in the direction of one of the following:
 - **Fast** to convert the sample rate quickly, but at a low quality.
 - **High** to preserve quality, but this setting takes longer to convert the sample rates.
12. Select **Import audio into separate audio tracks** to import a multi-stream audio file into single-stream files. This is especially important if you are going to share the audio file with another Avid editing system. For more information, click the Help button.
13. Click **OK** to save your settings.



When working with sequences of custom formats with resolutions that are much greater than the standard video resolution, such as 2000×1500 , a minimal amount of system memory (RAM) must be kept available at all times. Otherwise, you may notice significant slowdown when working on your system.

Working with Media of Different Qualities

You can work in HD at full, half, or quarter resolution (Avid DS Nitris Editor only), and with compressed media at different ratios. This multi-quality feature lets you balance image quality and system performance during the different phases of your work. The working video settings (compression and resolution) determine the quality at which your media is displayed in the viewer, as well as the quality at which it is processed by Avid DS Nitris. You can change the video settings at any time if you want to display or process media at a different quality.



The video format cannot be changed once you create the sequence.

The quality you choose to work with at any given time depends on the task at hand. Media can use up large amounts of disk space, and the higher the quality of the media, the more disk space is consumed.

If you want to conserve disk space, you can do your rough cut on material captured at low resolution or in compressed form. When your sequence is ready for finishing, you can redigitize a specific clip, so that you can work at the quality at which you will be outputting.

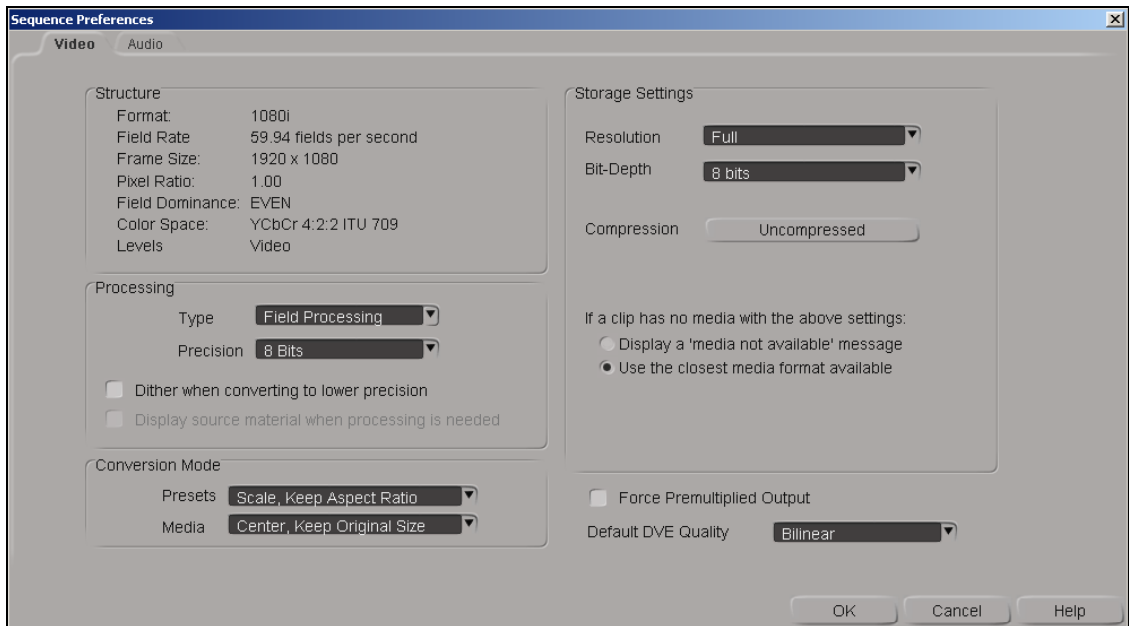
When you're ready to output the entire sequence, you only need to recapture the portions of the master clips actually used in the sequence at full, uncompressed resolution before you output to tape.

If you're working with only compressed media, you can mix different compression ratios within a sequence. If you're working with both compressed and uncompressed media, you may encounter circumstances where both cannot be used at the same time within the same sequence.

To change the sequence preferences:

1. Select **File > Sequence Preferences**.

The settings that you chose for this sequence are displayed.



For descriptions of all the options in this dialog box, click the **Help** button.

2. In the Processing box, select the **Type** of processing.

This selection depends on the type of source material that you have—see [“Processing in Fields versus Frames” on page 85](#).

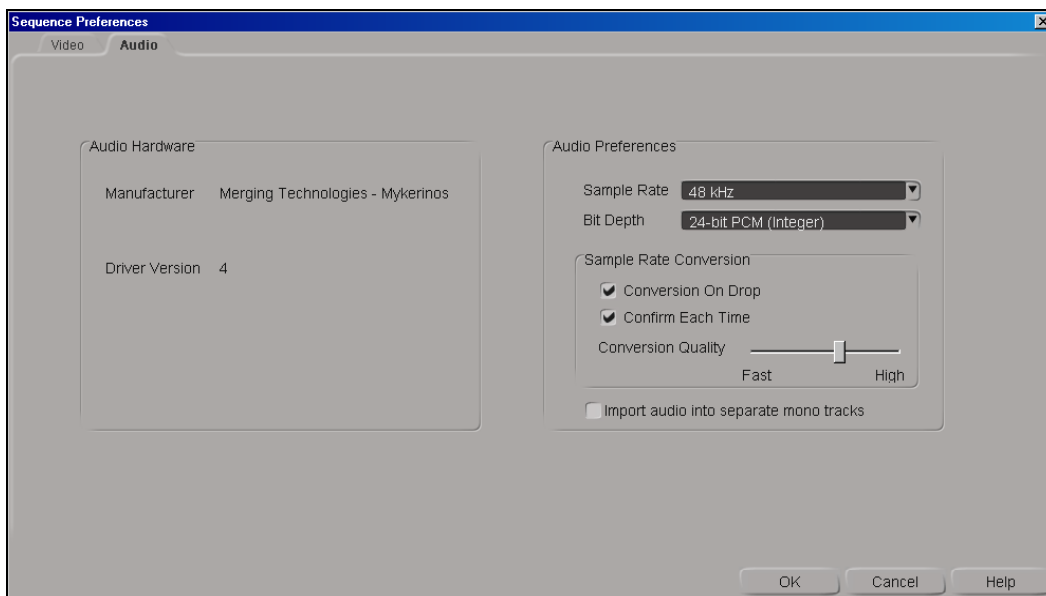
3. Set the **Precision** at which you will process the video effects.
4. From the Conversion Mode box, select a mode for **Presets** and **Media**.

From now on, when you place clips or sequences on the timeline, they will be converted using the mode you selected—see [“Understanding the Working Conversion Mode” on page 86](#).



You can still change the conversion mode for an individual clip on the timeline by right-clicking the clip and selecting Properties.

5. Set the video resolution, bit depth, and compression at which you will be capturing your media—see [“About Video Quality” on page 78](#).
6. To change the audio settings, select the **Audio** tab.



7. From the Sample Rate Conversion box, select the **Conversion on Drop** option if you want to convert all sample rates imported into your sequence to the sample rate of the current sequence.

8. Drag the **SR Conversion Quality** slider in the direction of one of the following:
 - **Fast** to convert the sample rate quickly, but at a low quality.
 - **High** to preserve quality, but this setting takes longer to convert the sample rates.
9. Click **OK** to save the new settings.

Understanding Video Settings

Although Avid DS Nitris automatically sets the industry-standard video size and frame settings for the video format you choose, you may want to read about the various video settings, especially if you intend to work on a custom format.

About Video Format

Video format refers to the size or aspect ratio of a picture frame. Depending on your hardware configuration, you can work in a variety of video formats, such as PAL D1, NTSC D1, 720p, 1080i, 1080p, or other custom formats. When you select a video format (other than Custom), Avid DS Nitris automatically sets the industry-standard video size and frame settings.

Drop Frame versus Non-Drop Frame

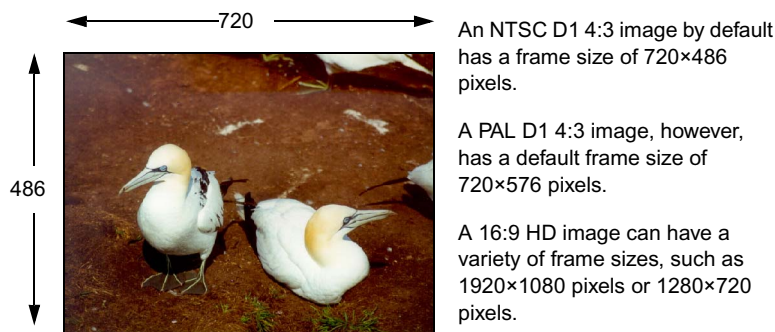
Some formats such as NTSC (the standard North American video format), may require a timecode adjustment if you are making a video that has to fill an exact time slot.

NTSC video runs at 29.97 frames per second, and since timecode counts at 30 frames per second, it means that the timecode will gain on actual time at a rate of about 3.6 seconds per hour.

Using non-drop timecode (which runs at 30 frames per second), will gradually differ from actual time. If you use drop frame timecode, however, it will make slight adjustments by skipping frame numbers periodically to keep the timecode synchronized with real time. Depending on your purpose, you may either keep the timecode synced with real time or count the frames exactly. It is important to understand that no frames in the video are actually dropped when you choose drop frame. The video is identical in both cases with only the timecode counter being modified.

About Frame Size

The frame size is the dimensions of a picture frame in Avid DS Nitris. These measurements are based on pixels.



About Pixel Ratio

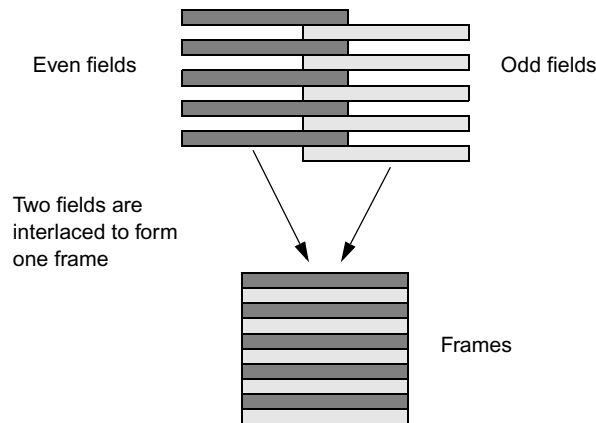
Aspect ratio is the numerical ratio of picture width to height. The standard aspect ratio for NTSC and PAL video and television is 4:3. For material shot on film or HD, 16:9 is the standard aspect ratio. You can also create non-standard aspect ratios.

Pixel ratio refers to the shape of one pixel. Different video standards have different pixel ratios. NTSC and PAL pixels have ratios of 0.9 and 1.07 respectively, while computer-generated image, typically have square pixels with a ratio of 1.0.

Avid DS Nitris can compensate for different pixel ratios so that a captured image does not appear distorted. When you capture material from file, you must set the file's pixel ratio, which tells Avid DS Nitris the original state of the material. For example, if you are importing a computer-generated image, set the pixel ratio to 1.0.

About Field Dominance

Video images are displayed half a frame at a time, where each half, referred to as a *field*, is comprised of alternate lines of video information (odd and even). The two fields are combined (interlaced) to form one frame.



The order in which odd and even fields occur over time is referred to as *field order* or *field dominance*. With even field dominance, even fields come first. In odd field dominance, odd fields come first. With NTSC, the first field contains all the odd numbered scan lines and the second field contains all the even. PAL is the opposite of NTSC in terms of field dominance. That is, field 1 contains all the even-numbered scan lines and field 2 contains all the odd lines.

NTSC, PAL, and HD video material can either be interlaced or progressive, such as 1080i or 1080p. Interlaced video contains two fields, which make up every frame. Progressive video, however, creates full frames by scanning each line sequentially. As a result, field dominance is not an issue.

When you need to invert your fields, you can deinterlace your material, then reintertace and invert the field dominance. You can also deinterlace a clip to display the odd and even fields as separate frames. This is useful when retouching clips or creating paint animation and field-based rotoscoping. For more information, see [“Applying a Deinterlace Effect” on page 324](#) and [“Applying an Interlace Effect” on page 326](#).

About Color Space

Color space determines how the color components of the video signal are stored in Avid DS Nitris. There are three pixel formats available in Avid DS Nitris: YCbCr 4:2:2 (601), YCbCr 4:2:2 (709), and RGBA. Avid DS Nitris converts all imported material to the color space of the



sequence. All material imported in RGBA color space uses 32 bits per pixel, even if you did not import the alpha channel. YCbCr 4:2:2 uses 16 bits/pixel and YCbCrA (YCbCr with alpha) 4:2:2 uses 24 bits/pixel.

Cache media, created from processed effects, transitions, or composites, is treated the same way as source media. Some effects, however, require an internal conversion to RGBA. As a result, some banding may occur when you're working with a YCbCr sequence with these effects. To solve this problem, you can apply the RGB-YCbCr Dither effect. For more information, see [“Color Space Adjustment Effect”](#) in the Help.

About Video Quality

Video media quality is determined by three factors:

- Resolution, which is the amount and degree of detail in a video image,
- Compression, which is a technique used to reduce the amount of space necessary to store video data, and
- Bit depth, which is the number of bits per pixel, per channel.

The resolution of an image depends on the number of pixels in the image, and the bit-depth of each of those pixels. Naturally, the larger your image format, the higher the clarity of the image, and the larger the number bytes required for storage.

For example:

Format	Size (in pixels)
SD	720 x 576
720-HD	1280 x 720
1080-HD	1920 x 1080
2K Film	2048 x 1536

The resolution quality that you set in Avid DS Nitris (Full, Proxy, Half or Quarter), affects the size of the captured or processed media. The higher the resolution, the larger the media. Setting the resolution to ‘Half’, reduces the pixels along the width and the height by half. For instance, for 720-HD media, half resolution would be 640 x 360 pixels.

Similarly, the higher the bit depth, the more tones (grayscale or color) that are available for storage, and more accurate color representation in the digital image. Higher bit depth also increases file size.

When you're performing a rough cut, you can increase throughput and limit storage requirements by working at low resolution. Later on in the editing process, you can use high-resolution media to obtain better results.

Compression is a technique used to reduce the amount of space necessary to store video information. Compression keeps the same amount of pixels in the original image, but uses some form of encoding to lower the byte size of the media. Compressed data can suffer some loss or degradation from the original source (depending on whether you choose lossy- or lossless-type compression).

You can compress material at capture time to reduce the size of the media file. High compression is useful when you capture media for your initial edit. This lets you store large amounts of material using the least amount of storage space. After you've done a rough cut, you can purge the compressed media, and recapture the edited material with less or no compression. For more information, see [“Working with Media of Different Qualities” on page 72](#).

Understanding Video Quality Matching

When you set your video storage sequence preferences, such as the working resolution, bit depth, compression, or sample rate, you defined the quality at which clips are previewed and processed. If a video clip was captured at a different quality than the option set in your sequence preferences, Avid DS Nitris can either:

- Display no media, or
- Use the media which best approximates the resolution, compression ratio, bit depth, or audio sample rate.



Quality matching is different for audio than it is for video—see [“Understanding Audio Quality Matching” on page 84](#).

Working with Exact Media Matches

If you choose to display only the media that *matches your sequence preferences*, Avid DS Nitris looks for an exact match when the position indicator passes over the clip on the timeline.

- 1. **Resolution:** Checks if there is media captured or processed at the specified resolution.
- 2. **Precision:** For caches only. Checks if there are caches processed with the same precision as the sequence settings.
- 3. **Aspect ratio:** Checks if the aspect ratio matches that of the current sequence.
- 4. **Frame rates:** Verifies that the frame rates are identical.



Linked clips use the frame rate of the sequence.

- 5. **Compression ratio:** Checks if there is media captured or processed at the specified compression. For the purposes of quality matching, uncompressed media has a compression ratio of 1.0.
- 6. **Field dominance:** Checks if the field dominances are compatible. For this criteria, the match does not have to be exact, since some media files, such as stills, can be tagged as having a field dominance of None. The matching criteria works as follows:

Media Quality			
Field Dominance Sequence preference	None	Even	Odd
None	Yes	Yes	Yes
Even	Yes	Yes	No
Odd	Yes	No	Yes

- 7. **Image formats:** Verifies if the following are identical:
 - Color space
 - Frame size
 - Pixel ratio
 - Bits per Channel (Number of bits used to encode a channel)
- 8. **Compatible Resolution:** Checks if the current hardware settings support real-time effects in this resolution.

9. **Compression type and ratio:** Checks if there is media captured with the same cache and at the same ratio than the sequence settings.
10. Only caches generated in Exact match mode are accepted in exact match (This restriction does not apply to media).

The checks are done sequentially. If it finds video media that meets all the criteria, then the media is displayed in the viewer. If any one of the criteria fails, then the “Media Not Available” message is displayed in the viewer.

Working with Closest Media Matches

If you choose to display media that is *closest to your sequence preferences*, Avid DS Nitris first verifies that you have media that matches your frame rate.

1. **Frame rate:** Verifies if the frame rate is identical, except for linked clips.
If, after this search, no candidates are found, the “Media Not Available” message is displayed in the viewer.

If more than one candidate is found, Avid DS Nitris uses the following criteria to determine which media file is a closer match and will be displayed:

2. **Captured versus linked media:** Captured media is considered a closer match than linked media.
3. **Conversion needs:** Media with an image format, size, resolution, compression, bit depth, or field dominance that does not need to be converted to match the preferences of the current sequence is a closer match than media that needs to be converted.
4. **Compression:** If the compression type or ratio of the two qualities are different, then a quality match will be based on criteria in the following order:
 - its codec type and ratio exactly matches those of the sequence.
 - its codec type is the same as the sequence but not its ratio.
 - its codec type can be read in real-time by the hardware.
5. **Resolution width:** If none of the candidates match the resolution width of the current sequence, then the media with the greater resolution width is the closest match.
6. **Resolution height:** If none of the candidates match the resolution height of the current sequence, then the media with the greater resolution height is the closest match.



7. **Image format:** Uses the exact or closest match.
8. **Aspect ratio:** Uses the closest match.
 - **Width in square pixels:** If none of the candidates have the same width as the current sequence, then the media with the greater width is determined to be a closer match.
 - **Height in square pixels:** If none of the candidates have the same height as the current sequence, then the media with the greater height is determined to be a closer match.
9. **Bit depth:** If none of the candidates has the same bit depth as the current sequence, then the one with the greatest bit depth is the closest match.
10. **Processing precision:** For caches only. If none of the candidates has the same precision as the current sequence, then the one with the higher precision is preferred.

Once it finds the candidate that is the closest match, Avid DS Nitris determines if it needs to convert the media to fit into the current sequence. The conversion method is based on the following properties:

1. **Image format:** If the image format is different than the current sequence, it will need to be converted.
2. **Image size:** If the image size is different than the current sequence size, it will need to be converted.
3. **Resolution:** If the resolution is different than the current sequence, it will need to be converted.
4. **Field Dominance:** If the field dominance is set to None, then no conversion is needed. Odd and even are incompatible, so a field conversion is required. The following table shows where conversion is required:

Media Quality			
Field Dominance Sequence preference	None	Even	Odd
None	No	No	No
Even	No	No	Yes
Odd	No	Yes	No



5. **Compression:** If the compression type is not hardware real-time playable, a conversion is needed.

Quality Matching Example

Here’s an example of video quality matching. Your sequence preferences have been set to:

- 4:3 aspect ratio
- Half-resolution
- 4:1 compression
- Use the closest media format available

You have the following media available on disk:

- Quality 1 – 4:3 aspect ratio, half-resolution, uncompressed
- Quality 2 – 4:3 aspect ratio, half-resolution, 2:1 compression
- Quality 3 – 4:3 aspect ratio, half-resolution, 3:1 compression
- Quality 4 – 16:9 aspect ratio, half-resolution, 3:1 compression

Using the quality matching formula in Avid DS Nitris:

Step	Discards	Reason
Step 1	None	All media segments are at the same resolution.
Step 2	None	No match for compression ratio. Keeps all but notes that the smallest compression ratio will be the closest.
Step 3	Quality 4	Does not match the aspect ratio.

Between Quality 1, 2 and 3, Quality 1 is chosen because it is the least compressed of the three.



Processed media (caches) are also created based on the video resolution and compression settings. The same quality matching method is used to select the quality of the cache during playback.

Understanding Audio Quality Matching

An audio clip can have media at multiple sample rates, just like a video clip can have media at multiple resolutions, compression ratios, or aspect ratios.

With audio, Avid DS Nitris first tries to play media that matches the sample rate set in your audio sequence preferences. If it doesn't find such media, the audio tracks turn red and you're prompted to convert the audio media to the sample rate of the current sequence.

If an exact audio media match is found, then that audio media is used. If more than one candidate meets this match, then Avid DS Nitris looks at the following criteria:

1. **Captured versus linked media:** Captured media is considered a closer match than linked media.
2. **Bit Depth:** If none of the candidates match the bit depth, media with a greater bit depth is the closest match.

Understanding the Processing Settings

The media resolution, bit depth, compression, or sample rate that you set in your Sequence preferences define the quality at which clips are captured. During processing, you can use these same settings, or you can change them to process the captured media at a different resolution, bit depth, or compression. This is useful if you want to process your effects at a lower quality for preview purposes, and save on processing time. When your sequence is ready for finishing, you can change the settings back to a higher quality and reprocess the effects.

About Bit Depth

Bit depth is used to describe the number of bits used to store information about each pixel of an image. The higher the depth, the more colors that are available for storage and more accurate color representation in the digital image.

In Avid DS Nitris, this is known as the Storage format bit depth, and is used when storing captured media and processed media (caches).

Avid DS Nitris supports 8 or 10-bit storage bit depth for non-Custom sequences, and up to 16 and 32-bit for custom sequences.

Setting the Processing Bit Depth

Effects can be processed at 16 or 32-bit depth. This is known as Precision.

Avid DS Nitris supports 8, 10, 16 or 32-bit media and caches. This Precision can be set for the individual effects that support these levels, or it can be set in your sequence preferences and applied globally to all effects that support these levels. For a list of 16 bit/32 bit float effects, see [“Effects Supporting 16 or 32 Bits \(Float\) Processing”](#) in the Help.



Although Avid DS Nitris can support higher bit depths during processing, the storage of the caches (for non-Custom sequences) is still done at either 8 or 10-bit depth. Note that, using a higher precision bit depth generates smoother effects during processing, and still produces better quality output even though some quality is lost when storing the cache at the lower bit depth.

Processing in Fields versus Frames

When applying effects, you must decide whether to apply the effect to each frame or each field. This will usually depend on the type of source material you’re using. Knowing how your source material was created will play a role in determining how to process your effects. If processed incorrectly, you may notice unwanted jittering or unusual artifacts.

- **Field** to convert the image to fields, which processes each field of your effects and graphics separately (using different property values if there is animation), and then reconverts the video information to frames to display the results. This option is better for animated effects, such as dissolves, fades, and motion paths.
- **Frame** processes the entire frame (both fields together) using the same property values. Use this option with frame-based source material. Static graphics images, 30 fps film, and 30 fps CGI (computer-generated images) are some examples of frame-based material.

Understanding the Working Conversion Mode

Since Avid DS Nitris is resolution independent, you can work with media and sequences with different size and resolutions, all within the same sequence. When dealing with media of different formats, you can specify how Avid DS Nitris should handle the conversion.

There are different situations in which media is converted:

- When media is imported
- When linking to media from within a sequence
- When using media of different formats than the current sequence

When you digitize or import media, it is digitized according to the video sequence preferences or capture settings—see [“Understanding Video Settings” on page 75](#).

Since the scale/pan settings applied to the media are fixed, you cannot change these settings when you recapture the media.

In the second and third cases, you’re dealing with how clips are converted when they’re placed on the timeline. The conversion mode you select determines how clips and sequences of different resolutions are displayed when they’re placed on the timeline.

You can set the conversion mode in the Sequence Preferences dialog box.



The clips that are already on the timeline will not be affected. Only clips placed on the timeline after the sequence preferences are changed will be converted.

You can also set the conversion mode for each clip individually using the conversion mode settings in the Clip Properties property page. This overrides the conversion mode in the Sequence Preferences dialog box.

As previously explained, when you place a clip on the timeline which has a different resolution than the current sequence, the image will be converted using the method you set in the Sequence Preferences dialog box.

However, when you place a sequence on the timeline, the conversion becomes a little more complicated, since you may be dealing with various resolutions within that sequence. Avid DS Nitris treats the clips within that sequence as a single unit in order to preserve the relationship between the clips. By doing so, Avid DS Nitris ensures that the ratio between each clip remains the same. Once the clips are grouped together, Avid DS Nitris uses the conversion mode you set in the Sequence Preferences dialog box to convert all the clips as a single unit.



If your clip is converted more than once, it can't be assigned one of the defined conversion modes. Instead, a separate conversion mode called "Multiple Conversions" is used to specify that the clip has been converted multiple times.

When you insert a sequence within another sequence, you can always override the current sequence preference conversion mode by modifying each clip's conversion mode individually in the Clip Properties property editor. Only the clip whose conversion mode you modified will be affected. All other clips will remain as they are.



If you use a sequence that has processed effects within another sequence, the caches will remain valid as long as both sequences have the same settings. If, however, you change the conversion mode, you must process the effects again.

The following table summarizes how each item is converted in Avid DS Nitris:

Items	Media conversion treatment
Captured clip	Frame size, at the time of capture, is scaled and panned to the current sequence size
Linked clip	Image size is scaled and panned to the current sequence size
Sequence	Sequence size is scaled and panned to the current sequence size

Example

The following is an example of how a sequence, which contains linked images of various resolutions, is converted when inserted into a sequence that has a different resolution.

Sequence A is an NTSC D1 sequence at 720×486 resolution. It contains the following images:

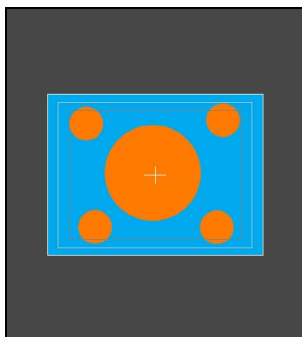


Image 1: 1440×972 linked image set to Scale to Fit.

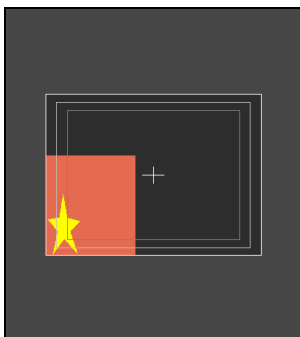


Image 2: 300×300 linked image set to Keep Original Size and Position.

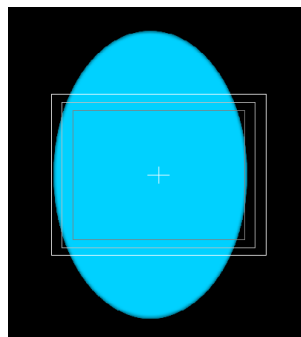
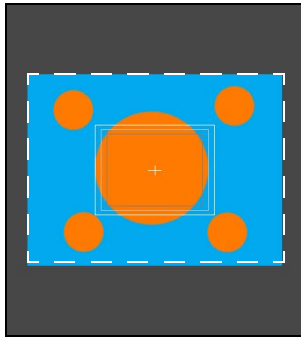


Image 3: 1000×1000 linked image set to Center, Keep Original Size.

Sequence B is a custom sequence at 360×243 resolution. The conversion mode in the Sequence Preferences dialog box is set to Center, Keep Original Size. When you place sequence A into sequence B, the following occurs (the original frame size of sequence A is outlined in white):



The clips are grouped together and treated as a single unit. Since image 1 was centered in the original sequence, it will remain centered in the new sequence. Since sequence B has a smaller resolution, the image just fills up more of the viewer. This clip has been converted in both sequences, so its conversion mode will be set to Multiple Conversions.

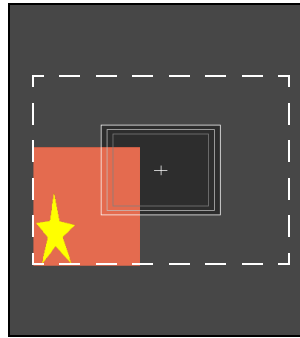
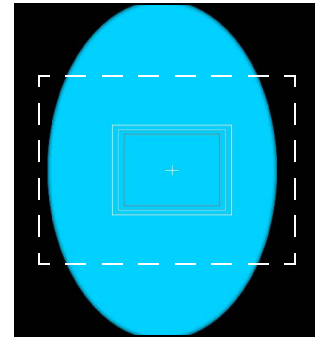
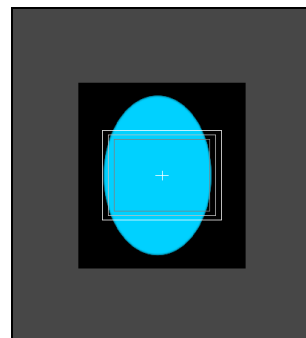
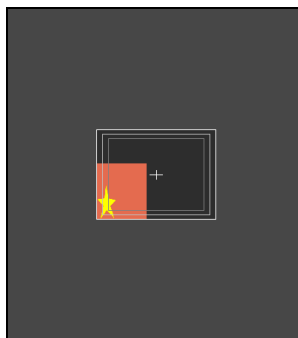
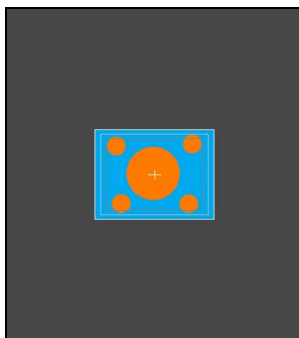


Image 2 was not centered in the original sequence, so in this sequence, the star gets cut out of the viewer. Since the original linked clip was set to Keep Original Size and Position, it has only been converted once and its conversion mode will be set to that of the current sequence.



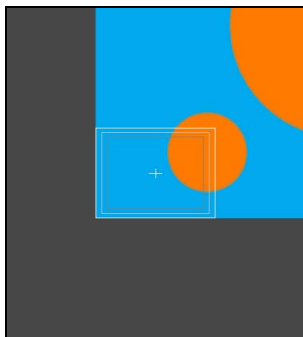
Since image 3 was centered in the original sequence, it remains centered. Because the circle is so large, it fills the entire viewer. This clip has been converted in both sequences, so its conversion mode will be set to Multiple Conversions.

If you change the conversion mode in the Sequence Preferences dialog box to Scale to Fit, and place sequence A into sequence B again, the following occurs:



If you compare these images with the images in the original sequence, they will be exactly the same, except smaller. Since the images are grouped together as a sequence, the individual images are not scaled to fit the resolution of the current sequence. Instead, the whole sequence is scaled down to fit the new sequence resolution, which, in this case, produces a smaller version of the original sequence.

You can then go into the Clip Properties property page and change the conversion mode for each clip individually.



When applying a conversion mode to a clip individually, the original sequence settings are ignored and Avid DS Nitris refers back to the original image.

For example, the conversion mode for image 1 was set to Keep Original Size and Position. Notice how the displayed image is the 1440×972 clip. If Avid DS Nitris had referred back to the original sequence, then the clip would have been displayed at 720×486 resolution.

After changing the conversion mode of an individual clip, you can always change it back to its original setting.

Saving Sequences

When you save a sequence, you are saving the contents of the timeline. Any clips, container clips, transitions, caches, effects, and edit markers are saved with the sequence.

It is good practice to save your sequences at regular intervals, or when you have completed an important part of your work. The first time you save a sequence, all information related to the sequence is saved. However, the next time you save the sequence, only the modifications to the sequence are saved, so it takes less time.



You can also create a crash recovery file for your current sequence at regular intervals. This lets you recover the latest work on your sequence in the event of a system failure. For more information, see “User Preferences Dialog Box” in the Help.

To save a sequence for the first time:

1. Select **File > Save**.

The Save Sequence dialog box is displayed.

2. Use the Avid Explorer tools to navigate to the folder in which you want to save the sequence.
3. Type in a name for your sequence in the **File Name** text box and click **OK**.

The sequence is saved and a sequence icon with the sequence name is displayed in the Avid Explorer. You can now continue editing or close the current sequence, and begin work on a new sequence or project.

To save an existing sequence:

- Select **File > Save**.

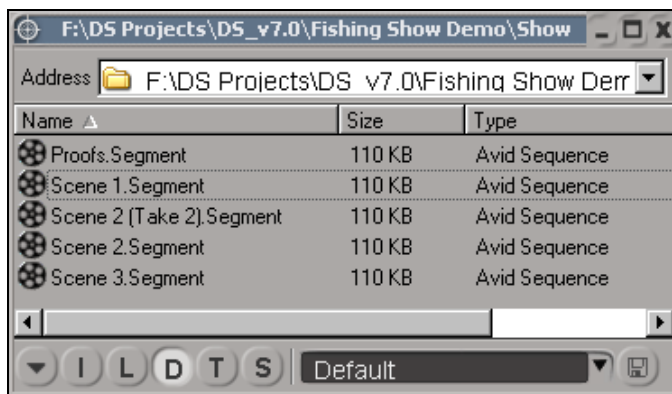
The existing sequence is overwritten.

The sequence is saved and a sequence icon with the sequence name is displayed in the Avid Explorer. You can now continue editing or close the current sequence, and begin work on a new sequence or project.

Creating a Copy of a Sequence

You can save different versions of a sequence in a project folder. If, for example, you've been hired to create a series of spots for a client, you create a project that is completely contained in a single folder. Inside that folder, you create a number of subfolders to store elements, such as master clips, presets, mattes, and backgrounds.

Inside that project, you create a sequence for the first spot by dragging clips to the timeline, and saving the sequence in your project folder. For the second spot, make a copy of the sequence calling it "Scene 2 (Take 2)", and make the necessary adjustments. Continue to do the same for each of the spots.



To save a copy of a sequence:

1. Select **File > Save As**.
2. Type a new name for the sequence.

The sequence is saved. You can now make the necessary edits to this sequence.



Another way to create versions of your sequence is by selecting the sequence in the Avid Explorer, pressing the Ctrl key, and dragging the file to an empty area of the folder. Copying the sequence in the Avid Explorer takes less time than creating a copy with the Save As command.

Searching for Sequences

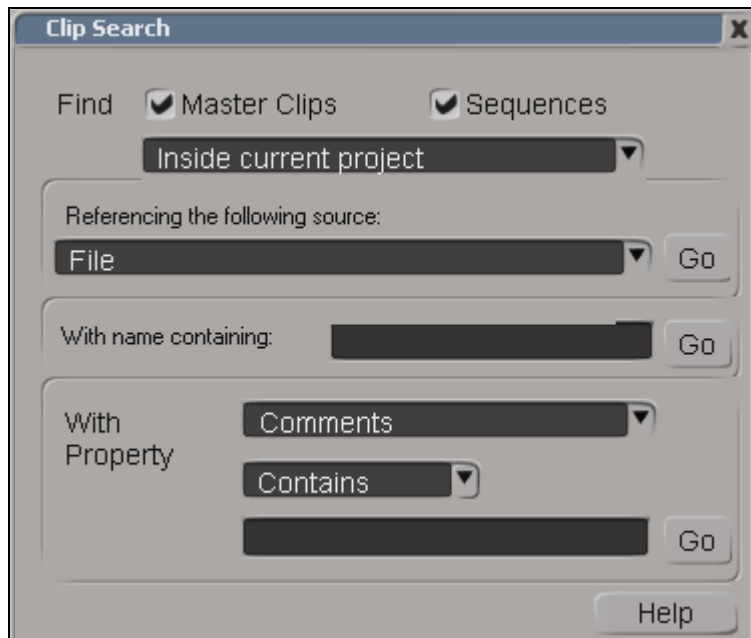
Large projects can contain many sequences and even more master clips. Although you can use the Avid Explorer to find a particular sequence or clip, it can be more efficient to search for sequences and master clips using the Clip Search tool.

The Clip Search tool lets you search for master clips or sequences within your current project. You can do searches by source, file name, or file properties. All clips found in the search appear in the clip tray.

To search for sequences or master clips:

1. Select **View > Single-Instance Views > Clip Search**.

The Clip Search dialog box is displayed.

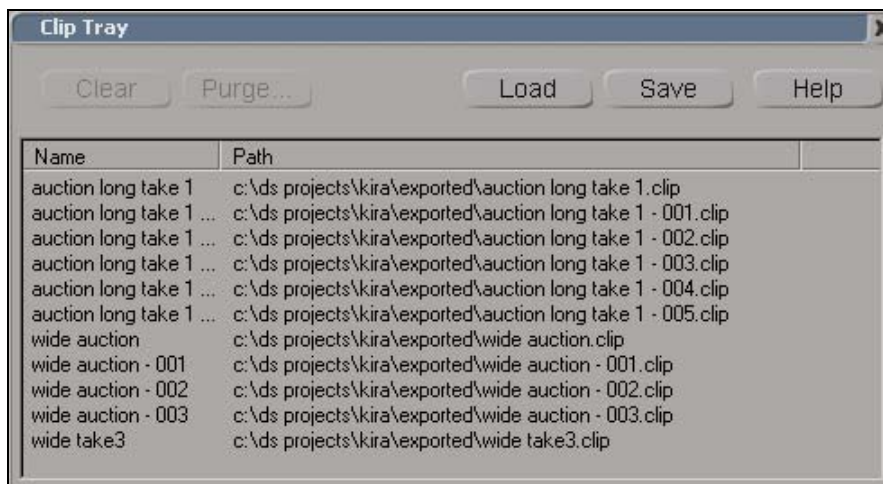


2. Select the **Master Clips** and/or **Sequences** option(s) to search for one, the other, or both.

3. To search by:

- **Source:** Select a tape source name or file from the Referencing the Following Source list and click **Go**.
- **File name:** Type the file name in the With Name Containing text box and click **Go**.
- **File property:** Select an attribute from the list, either Contains or Equals, type the text you are searching for in the text box, and click **Go**.

The clips and/or sequences found in your search are displayed in the clip tray.



You can only perform a clip or sequence search using one filter option at a time.

For detailed information on the Clip Search dialog box, click **Help**.

Deleting Sequences

If you no longer require a sequence, you can create an archive of the project in which it resides (see “[Archiving Projects](#)” on page 454) or delete the sequence from the project. Be careful when you delete a sequence, because deleting a sequence can also delete media, depending on the option that you choose.

To delete a sequence:

- ▶ In an Avid Explorer bin, right-click a sequence that is not currently open and select one of the following:
 - **Delete Clip & Unused Media:** Deletes the selected sequence and its associated media if the media is not used by a master clip or another sequence. This option deletes cache media that is used only by the sequence.
 - **Delete Clip & All Media:** Deletes the selected sequence and its associated media even if the media is used elsewhere. Although this is a quick way to create more disk space on your drive, it can be risky. You should only do this when you’re absolutely sure that you no longer need the sequence’s cache media and master clips.

A dialog box asks you to confirm the deletion. Click **Yes**.



Selecting the Delete option under the Windows section of the menu or pressing the Delete key deletes the selected sequence but does not delete the associated media.





Chapter 3

Working with Film

This chapter describes how to work with film:

- [The Digital Intermediate Process](#)
- [Film Editing on Avid DS Nitris](#)

The Digital Intermediate Process

The main stages of film production are image capture, intermediate editing, image output, and distribution.

Traditionally, the intermediate stage is done manually by the film lab. This involves the cutting and splicing of the film negatives, adding special effects, and then printing of the final copy for distribution.

Advances in technology now allow the intermediate stage to be handled digitally. Not only is it a cleaner and more flexible alternative to the traditional approach, but it also offers an easy and cost-effective way to create masters at different resolutions and formats such as film, HD, or DVD.

The *digital master* is the original source material scanned from film into digital format. The negative is scanned once, and no further manipulation is required. In Avid DS Nitris, the digital intermediate workflow allows you to link to your digital master and edit and add effects in real-time. The digital master resides on a mass storage device. This device must be connected directly to your workstation, as film-based media is large and requires high bandwidth and fast disk access. For a complete list of supported storages, refer to the Avid DS Customer Support site.

The *digital intermediate* is the state between the original source and the final distribution form, where the film sequence can be digitally enhanced through the process of editing, visual effects, and color correction.

During this process, you have a choice of displaying and processing in full resolution or real-time proxy resolution. Processing in full resolution has the advantage of highly accurate processing using 4:4:4 RGB value. When working in full resolution the results of the processing can only be seen in the Avid DS Nitris viewer.

On Nitris DNA workstations, you can switch to Real-time Proxy resolution and make use of HD/SD down conversion formats to view your proxy film output in the external monitor. The proxy is a lower-sized resolution (actually HD resolution) that still provides good visual quality for editing and previewing your sequence.

You can add effects and view the results at the lower, real-time proxy resolution to quickly review the sequence. If any effects require processing, the results are also generated in real-time proxy resolution to save disk space. Also, real-time effects do not need to be processed.



If any effects were previously processed in full resolution, then Avid DS Nitris will use these caches over the proxy 4:2:2 caches.

Important Considerations when Working on Film-based Projects

Before opening your project in Avid DS Nitris, here are some points to consider when working on a film-quality production.

- know your original film format (e.g. Full Aperture, Cineon, Academy).
- know the quality at which your film master was scanned. The most popular is the 10-bit format and the most frequently used resolution is 2K.
- know the frame rate (fps) at which your film master was scanned.
- Decide which look-up tables (LUT) you will use (if any) for decoding and encoding. Avid DS Nitris provides you with default LUTs and also allows you to create your own custom LUT.
- Ensure that you have storage that is large and fast enough for high throughput. (Typically, 2K data takes up over 1 TB per hour of footage.) To get realtime playback of your media, the master must reside on your local storage that is connected directly to your Avid DS Nitris DNA workstation.

You can place your master on an Unity or other shared storage device, however, you will not be able to playback in real time until you process the media in Avid DS Nitris.



Film Editing on Avid DS Nitris

Avid DS Nitris integrates elements of both film and video editing, with a range of tools that extends the possibilities of cinematography.

- An external video monitor can be used to view your sequence in the format and resolution closely matching your final distribution format.
- Your Nitris DNA workstation will instantly let you play back any edits and effects applied to your sequence.
- Look-up tables can be applied to simulate the look of projected film.
- You can perform color correction interactively the same way as with video.
- You can read timecode from, and output timecode to, DPX files. The timecode tracking display is based on the conventional time-oriented techniques of video postproduction.

Setting up Storage and Media for Film Projects

Ideally, you should place your digital master on your local storage drive as film-based media is large and requires high bandwidth and fast disk access. This storage must be configured in Avid DS Nitris. This way you can link to the master and still get realtime playback in Avid DS Nitris.



For a complete list of storages supported for film-based media, refer to the Avid DS Customer Support site.

You can still place your master on a shared storage, such as Unity, however you will have to capture the file into Avid DS Nitris—see “[Capturing from DPX Files](#)” on page 101.

1. Copy the digital master onto a fast local storage device connected to your workstation.

Place the file in an appropriate folder under the \videostorage folder on the storage device.

For example: D:\videostorage\DPX\Commercial\...

2. Check that your storage device has been configured in Avid DS Nitris—see “Configuring Storage for your Workstation” of the *Avid DS Nitris Installation and Administration Guide*.

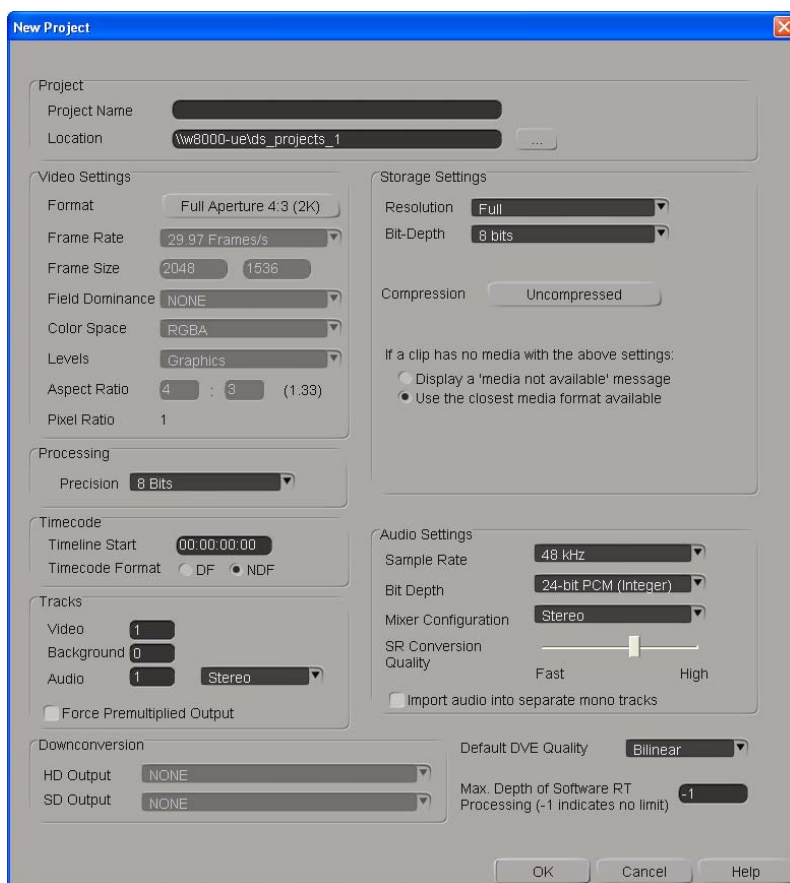
Opening a Film-based Project

Avid DS Nitris offers 2K/4K digital intermediate capabilities, including a large number of preset sequence types for various film scanning resolutions and aspect ratio.

To create a film-based project:

1. When you start Avid DS Nitris, the Open Project dialog box displays. Click the **New Project** button.
2. In the New Project dialog box, give your project a name.
3. There are a number of film resolutions and apertures that you can choose from. Select the film format at which your material was scanned.

When you select the format, the frame details are set automatically.



4. Set the **Processing Precision** to 16-bit.

A higher resolution gives the best quality for your processed effects, even if the media will later be output at a lower resolution.

5. For the **Storage Settings**:

- Set the **Resolution** for capturing/linking video media to **Full**.
- Set the **Bit Depth** to the format at which the film was scanned (typically 10-bit).

6. Select **Use the closest media available**, to allow Avid DS Nitris to display media of mixed resolutions and frame rates in your sequence.
7. For the **Audio Settings**, set the **Sample Rate** and **Bit Depth** at which you will output your audio media.
8. Leave the **Down Conversion** settings at default.
9. Click **OK** to save project preferences.

Capturing from DPX Files

DPX (Digital Picture eXchange) is an industry-standard, SMPTE file format that is used to transfer film-originated images to a series of digital files (also called scanned image files). The Cineon image file format is a subset of the DPX format.

DPX and Cineon files usually store pixel values using a log representation. To be able to apply effects or simply visualize these images, a linearization pass using look-up tables (LUT) is usually preferable. These look up tables can be applied at capture, or you could apply them later to the clips on the timeline.

You need to determine what LUT should be used. Your film house should provide you with the appropriate LUT specific to the digital master. You can import this LUT, or use a standard LUT. If you use a standard LUT, you can choose either a linear transformation or a log-to-linear transformation. For more information, see [“Linearizing Film-Based Material”](#) in the Help.



Instead of capturing the digital master into Avid DS Nitris, you can link directly to the file on your local storage. Linking to the file also allows you to mix resolutions and frame rates of different clips on your timeline while keeping the original pixels.

When linked, 10-bit RGB DPX files stored on your local videostorage are realtime (except for Academy and Cinemascope).

To link or capture from Cineon or DPX files:

1. In the Avid Explorer, navigate to the local storage folder where you have your digital master.
 2. Select the file (s) that you want to link/capture. The scanned image files, which are consecutively numbered, should be included by default in one or more Avid DS Nitris Group folders.
 - To select a series of files, click the first file, hold down the Shift key, and click the last file. To select multiple files, hold down the Ctrl key and click each file name.
- or
- Right-click on the group folder or file and select **Capture Settings**. The Capture Settings dialog box opens.
3. Select the settings that apply to the files to which you want to capture/link, including the following:
 - **Input Levels:** Graphics
 - **Pixel Ratio:** Auto



Since linked files are brought into Avid DS Nitris at their original resolutions, there is no need to convert them to the current sequence's resolution. As a result, the Media Conversion modes are not applicable if you link the file.

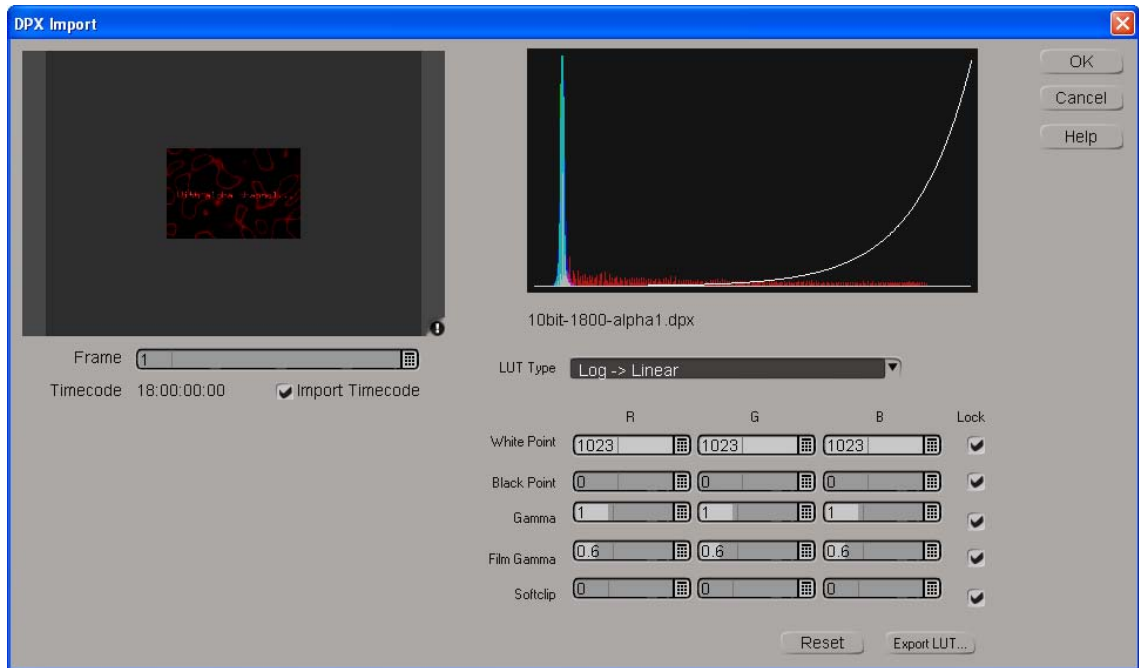
4. Close the Capture Settings dialog box.
5. Right-click the selected files and select either **Link** or **Capture**.



If you selected a sequential list of still files of the same type (such as all .jpg or all .bmp), you are given the choice of combining the files into one master clip or capturing individual still frames.

The DPX Import dialog box displays.

The first file (first frame of the transfer) is displayed in the viewer.



6. Indicate the type of look-up table the capture requires.
 - If you don't want to apply the LUT now, set the **LUT Type** to **Linear** (to preserve log values) and click the **Reset** button.
 - If you want to use a standard log-lin LUT, select **Log>Lin** and set the appropriate values.
 - If you want to apply a specific LUT, select **LUT from file**. A dialog box opens. Select the .lut file, and click **Open**. The name of the file appears in the box beneath the **LUT from file** option. (To change the file, click the filename.)
7. If you are using a standard look-up table, you can adjust the color values.
 - a. By default, R, G, and B values are equivalent, even if you adjust one. If you want to adjust an individual R, G, or B value, clear the box in the Lock column for the parameter.
 - b. Type the new values or use the sliders. The result of the new values are shown in the viewer and the histogram display.

For a linear LUT, you can adjust only the White Point and the Black Point. For a log-lin LUT, you can also adjust Gamma, Film Gamma, and Softclip.

To return to the default values, click the **Reset** button.

To save your values in a file, click the **Export LUT** button. A dialog box opens for you to name and save your file.



The inverted LUT is saved as well.

8. You can also choose to Import Timecode if you want to preserve the timecode from the digital master.

When importing a DPX or Cineon file, 24-fps SMPTE timecode may be included in the clip information. If you import the timecode, the information is inserted in the header of each frame, and will be read and saved for later use in Avid DS Nitris.

9. When you are satisfied with your settings, click **OK**.

As the material is linked/captured, the clip(s) appear in the target bin that you specified in the Capture Settings. For linked clips, the clip icons are underlined in red to indicate that no media has actually been captured.

10. Drag the master clips from the Avid Explorer to the timeline to build your sequence.

Working in Film Proxy Mode

If you are working with 2K DPX files on an Avid DS Nitris DNA workstation, you can play and edit your film-based sequences in real-time even when working at full resolution.



In Full resolution, the external monitor is disabled. Also, effects need to be processed before they can be played back.

On Nitris DNA workstations, you can switch to Real-time Proxy resolution and make use of HD/SD down conversion formats to view your proxy film output in the external monitor. The proxy is a lower-sized resolution (actually HD resolution) that still provides good visual quality for editing and previewing your sequence.

The correct aspect ratio is preserved in the Avid DS viewer as well as in the external HD monitor. Even an SD monitor can be used when working with 23.97, 29.97 and 25-fps sequences.

Color space is also automatically taken into account by Avid DS Nitris to make the use of these proxies as transparent as possible.

Avid DNxHD compression ratios are also available to you when you use proxy mode. For a description of these ratios, see “Avid DNxHD Compressions” in the Help.

In proxy mode, all real-time effects are available. If any effects require processing, the results are also generated at the real-time proxy resolution to save disk space.



If any effects were previously processed in full resolution, then Avid DS Nitris will use these caches over the proxy 4:2:2 caches.

To set your sequence preferences to work in proxy mode:

1. Select **File > Sequence Preferences**.
2. Set the Resolution to **Real-time Proxy** so that you can edit and add effects in real-time.



*On a non-Avid DS Nitris DNA workstation, you only have the choice of working in **Full** resolution. This also gives you real-time playback of your media in the viewer, but not the external monitor.*

3. On Avid DS Nitris DNA workstation, you can change the **Compression** to one of the Avid DNxHD compression formats.

This will save you space on your storage device while you are editing your sequence.

4. Set Down Conversion of **HD/SD output** to the appropriate setting so that you can feed your output to an external monitor and view the results as they would appear in the final presentation.

In the Avid DS Nitris viewer, the real-time proxy mode compensates for change in aspect ratio. For the external monitor output, you have the flexibility to either see a cropped version of the frames, or a centered and padded version. Internally, Avid DS Nitris still holds the entire frame.

5. Click **OK** to set the preferences.

6. Perform the necessary edits, color correction, and addition of effects to your sequence.



If you need to create mattes for any images, switch back to full resolution, so that you can key your images at better resolution.

7. Any effects that you apply to your sequence will have to be processed in full resolution.

Outputting Film Sequences

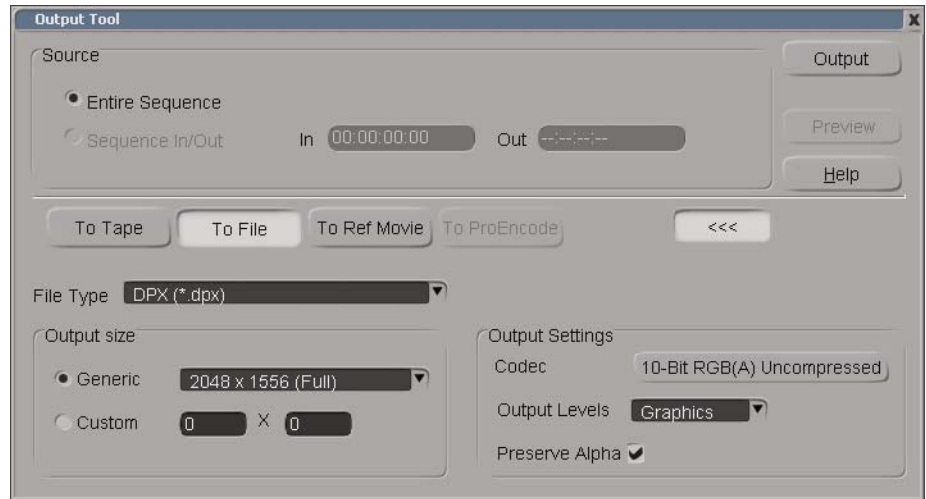
When you've finalized all your edits, make sure that:

- your sequence preferences are set to the quality settings (resolution, compression, bit-depth) required for output.
- although the maximum bit depth for output is 10-bit, you should process your sequence at a resolution higher than 10-bit to get the best quality for your processed effects.

If you are outputting your file for final print to film, export your file in DPX/Cineon format. If you would like to use your final master for broadcast or to create tape copies for distribution, you need to first downconvert your film sequence to HD or SD—see [“Downconverting a Film Sequence to HD or SD Format” on page 109](#).

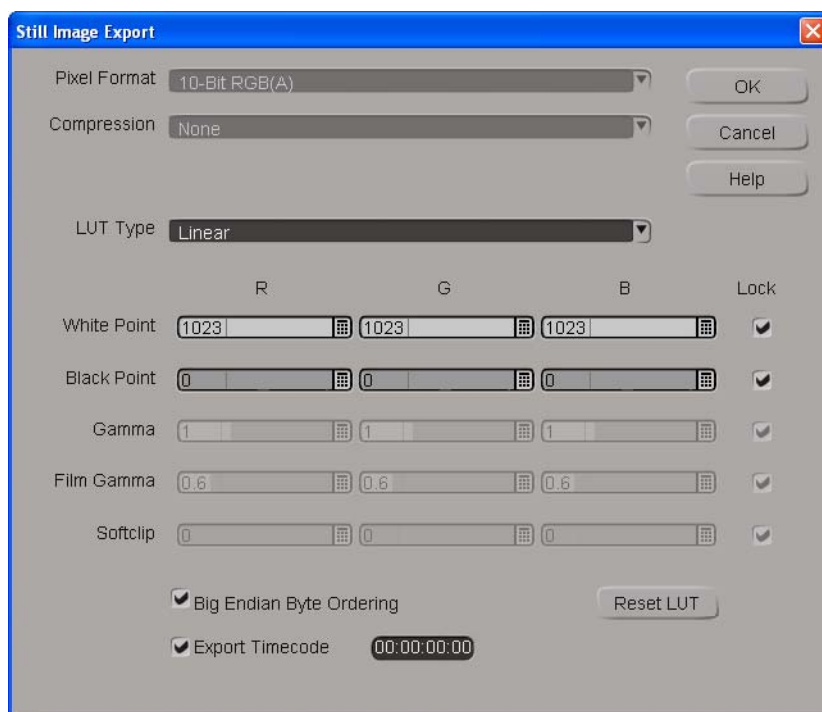
To output a sequence to file:

1. Select **View > Single-Instance Views > Output Tool**.



2. Select the material to output.
3. Click the **To File** button.
4. Select the file format to which you want to export (DPX or Cineon if it's the final for film mastering).

The Still Image Export dialog box opens.



5. For DPX or Cineon formats only. If you want to apply an LUT to match the appropriate film settings, select **Linear**, **Lin>Log** or use a specific LUT file. If you don't want to apply a LUT, then set the **LUT Type** to **Linear** and click the **Reset** button.



*If you are using a specific LUT file, the settings should be the opposite of what was used when you imported the file into Avid DS Nitris. Use the inverted LUT file that was automatically created when you originally saved your custom LUT file. Otherwise, click the **Invert LUT** button.*

6. For DPX or Cineon formats only. Select **Export Timecode**, and set the appropriate timecode start time, if you want to save a timecode on each frame in the file.
7. Click **OK** to save the settings.
8. Keep the frame size to the default.
9. For the Output Settings, select the appropriate **Codec** (if applicable).

10. Select the **Preserve Alpha** option if the sequence includes an alpha channel that you want to keep in the output file.

This is useful if you plan to reuse the matte information in future compositing or graphics projects. Not all file formats support alpha channels.

11. Click the **Output** button to begin the export.
12. Select a folder in which to save your material, enter a name for the file, and click **Save**.
The material is processed, if necessary, exported to file, and placed in the selected folder.
13. Close the Output Tool dialog box.

Downconverting a Film Sequence to HD or SD Format

When working in real-time proxy resolution on Avid Nitris DNA workstations, the Output Tool lets you downconvert a film sequence into one of several high-definition (HD) or standard-definition (SD) formats.

To output to tape in SD or HD:

1. Select **View > Single-Instance Views > Output Tool**.
2. Select all/portions of the timeline that you want to output.
3. Click the **To Tape** button.
4. Set the appropriate tape and deck settings.
For more information click the Help button.
5. Click the **Downconvert** button.
6. Select the required output formats.

The options that are available depend on the current video format. For a list of the available formats, see “Downconverted Output Formats and Sync Sources” in the Help.



You can also specify the Downconvert format in the Sequence Preferences dialog box.

7. Click the **Insert** button to begin the output process.





Chapter 4

Building a Rough Cut

This chapter describes how to perform basic editing tasks, such as preparing source clips, arranging clips on the timeline, and synchronizing clips to create a rough cut.

- [Workflow: Editing Audio and Video](#)
- [Creating Sequences](#)
- [Marking In and Out-points on the Timeline](#)
- [Displaying Timecodes](#)
- [Viewing a Sequence as a Hierarchical Tree Structure](#)
- [Playing Sequences](#)
- [Manipulating Clips](#)
- [Using Locators](#)
- [Finding Frames, Clips, and Bins](#)
- [Extracting Parts of a Sequence](#)
- [Grabbing Frames](#)
- [Rippling Clips](#)
- [Synchronizing Clips](#)
- [Referencing Sequences](#)



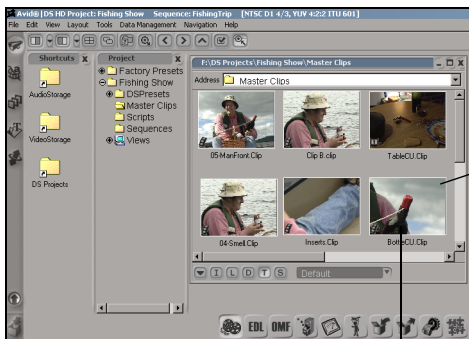
Workflow: Editing Audio and Video

Editing is the process of assembling audio and video clips on the timeline, creating transitions between these clips, and synchronizing the sound with the images. Because the timeline is an integral part of the editing process, it is found in many of the layouts. The tasks in this chapter focus on the timeline and how to use it with other tools to edit your media.

All editing tasks are based on what you select. Each time you make a selection on the timeline, the Record viewer, timecode boxes, and tool panels are updated to give you information on the selected object.

The following illustration shows how you can build and edit a sequence in Avid DS Nitris.

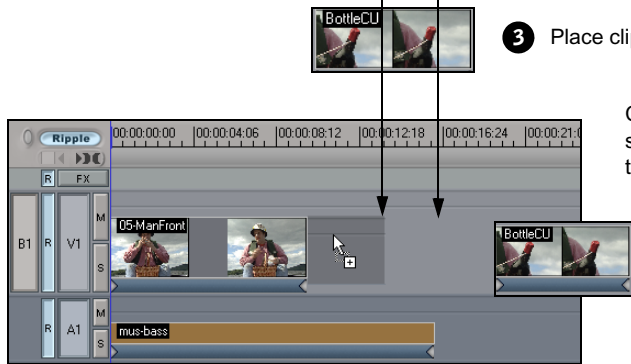
1 Locate and prepare media for editing.



2 Preview and trim your source media in the Source viewer.



3 Place clips on the timeline.



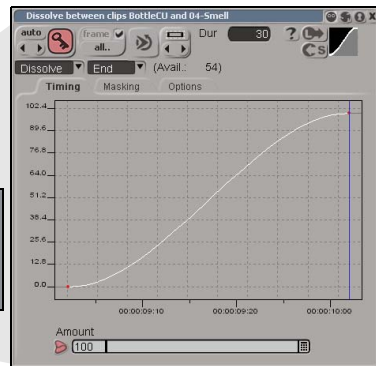
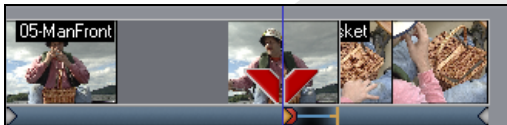
Create a rough cut of your sequence by dragging clips to the timeline.

4 Manipulate clips.

Move, trim, slip, slide, and nest clips on the timeline.

5 Apply transitions.

Create cuts, wipes, dissolves, crossfades, and DVE-type transitions.



6 Synchronize audio with video.

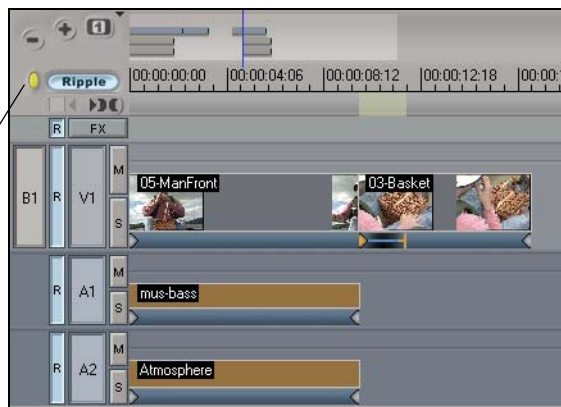
Synchronize video or audio events by using locators.



7 Process the sequence.

Process all transitions and container clips in the sequence to play the results in real time.

Click Process button.



Creating Sequences

A sequence is an arrangement of clips on the timeline. It contains information about edit decisions, applied graphics and effects, animation settings, and working preferences.

Before constructing your sequence, it's important to realize that the edits you make to clips are non-destructive. That is, you're not actually editing the source media. The clips that you see in the bin and on the timeline are simply references to the media on the storage device.

Setting up your sequence involves previewing and editing source clips, and then placing them on the timeline. The quickest way to create your rough cut is to place clips directly on the timeline. You can, however, preview your source clips to set new in and out-points before placing them on the timeline.

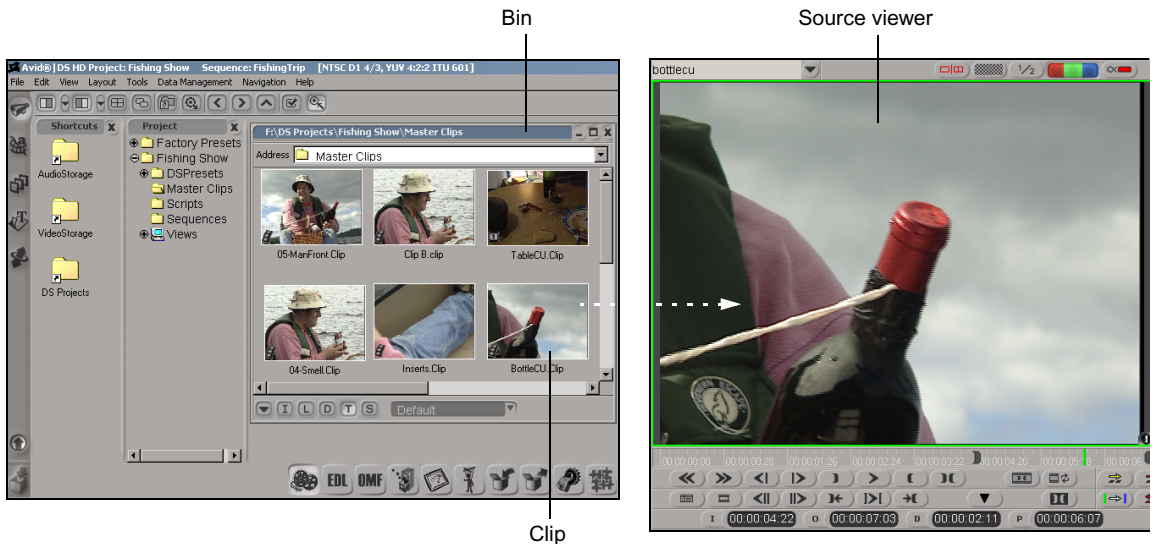
You may also want to bring in a project from an offline environment into Avid DS Nitris. You can import an AFE, AAF, Open Media Framework® (OMF®), or Edit Decision List (EDL) file into the Avid Explorer as logged clips, or onto the timeline as a sequence. For more information, see “Conforming AFE Files” and “Conforming OMF, EDL, and ALE Files” in the Help.

Preparing Source Clips for Editing

Before you place a clip on the timeline, you can prepare it in the Source viewer. If a single viewer is displayed, and you drag a clip to the viewer, it changes into a dual viewer that displays the Source and Record viewers. The Source viewer lets you view and edit source clips.

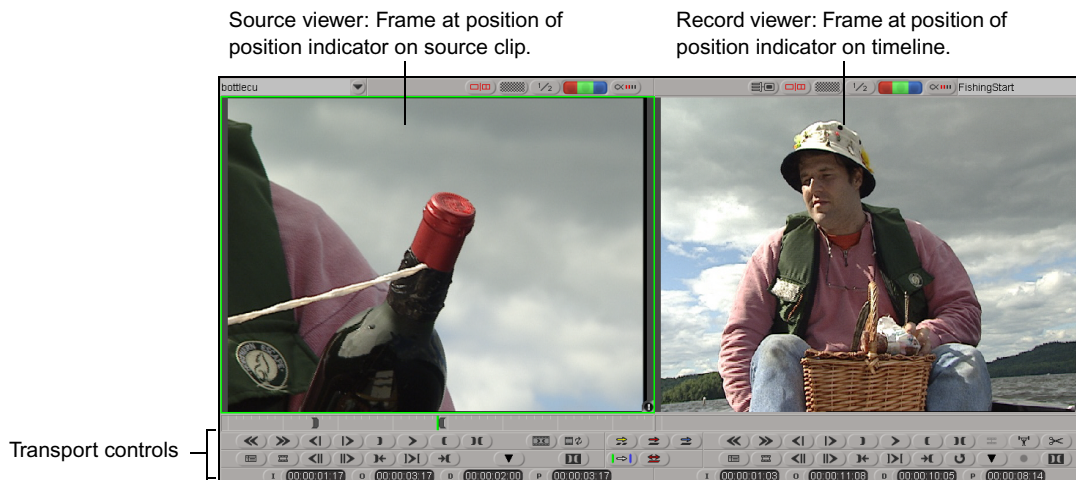
To move a clip to the Source viewer:

- Drag a clip from a bin to the Source viewer.



The source clip is displayed in the Source viewer. The Record viewer displays the frame (if any) at the current location of the position indicator on the timeline. This lets you compare a source clip with the clip on the timeline where it will be inserted.

For more information, see “Source and Record Viewers” in the Help.



Each viewer has its own set of controls for manipulating the source clips, timeline clips, or material on an external device. The controls under the Source viewer help you prepare source clips before inserting them on the timeline. You can continuously cue and mark your source material without affecting the sequence.

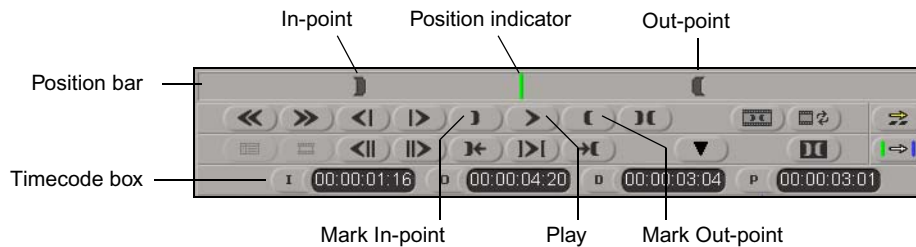
For an overview of all the controls in the Source viewer, see “Transport Controls” in the Help.

After marking the appropriate in and out-points on the source clip, use the Record viewer to locate the frame (in your sequence) on which the new clip is to be inserted. You can also decide whether or not to use all the channels of the source clip, and on which track you want to place the clip. For more information, see [“Patching Tracks” on page 125](#).

After the clip has been placed on the timeline, you can continue working in dual viewer mode or use a single viewer to display only the clips on the timeline.

Editing Source Clips

You can place master clips, container clips, or sequences in the Source viewer for previewing. This lets you cue or mark new in and out-points on the source clip, and then insert, overwrite, replace, or fit-to-fill clips on the timeline with it.



To edit a clip for use in your sequence:



1. Click **Play** below the Source viewer to play the source clip.



2. Click one of the following:



- ▶ **Mark In** button when the position indicator reaches the desired in-point.
- ▶ **Mark Out** button at the desired out-point.
- ▶ Type a timecode in the I (in) or O (out) timecode box and click the **I** or **O** button.

An in-point or out-point is displayed in the position bar. If you need to adjust these points, drag them to a new location.

3. Click **Play** again to stop playing the clip.
4. You can now place the clip directly on the timeline—see [“Placing Pre-edited Clips on the Timeline”](#) on page 123.

Creating Subclips

Instead of placing the marked clip on the timeline, you can first create a subclip from it. This leaves the original clip untouched while a copy of the original clip with new in and out-points is saved in a bin. The Capture Target option of the Capture Settings dialog box specifies the location for the new subclip, see “Media Capture Settings” in the Help.

Unlike master clips, subclips do not directly reference the original media. Subclips remain linked to the master clips from which they were created, and the master clips in turn reference the digitized media files located on your storage drives. As a result, none of the original footage is lost.

To create a subclip:

1. Verify the target location for the subclip, by doing the following:
 - a. In the Avid Explorer toolbar, click the **Capture Settings** button.
The Capture Settings dialog box is displayed.
 - b. In the Media Capture panel, verify the **Capture Target** settings and modify if needed.
2. Load a clip in the Source viewer.
3. On the position bar below the Source viewer, reposition the in and/or out-points of a clip.
4. Place the position indicator on the frame you want to display in the bin.
5. Click the **Create Subclip** button.
6. In the Create Subclip dialog box, type a name for the subclip.



You can use the default name, which is the parent clip name appended with a number, such as RealClip - 001.

7. Click **OK**.
The new clip is created and saved in the target bin.



The source clip maintains its original in and out-points.

To change the frame of the subclip displayed in the bin:

1. Open the subclip in the Source viewer.
2. Go to the frame you want to display.
3. Click the **Update Thumbnail** button to change the thumbnail frame of the subclip.



Switching Between the Source and Record Timeline

The Source timeline lets you see the timeline of the clip or sequence that is in the Source viewer. While viewing the Source timeline, you can place in and out-points, and zoom, pan and navigate the timeline. You cannot, however, do any editing on the Source timeline.

To view the Source timeline:



- ▶ With a clip or sequence in the Source viewer, click the **Toggle Source/Record Timeline** button on the timeline navigation bar.

The Source timeline is displayed and the Toggle Source/Record Timeline button turns green, as well as the position indicator.

To return to the Record timeline:

- ▶ Click the **Toggle Source/Record Timeline** button again.

To automatically switch between the Source and Record timeline:

- ▶ Right-click the Toggle Source/Record Timeline button and select **Auto**.

Selecting the Source viewer displays the Source timeline. Selecting the Record viewer displays the Record timeline.

Placing Clips on the Timeline

The timeline is where you place and edit clips to build a sequence. You can create any number of audio and video tracks on the timeline, and place clips anywhere on these tracks. While working with multiple tracks, you can use the Track selector to select, manipulate, delete, ripple, patch, and monitor your tracks. You can use multiple tracks to layer audio effects and sound, or to add video titles and other effects.



Before editing your clips, you can customize the timeline to suit your work by changing the settings to show, hide, or minimize some display areas. You can also change the ruler's time scale to display other time formats, including drop frame, non-drop frame, and frame numbers. For more information, see "Timeline" in the Help.

Dragging and dropping clips onto the timeline overwrites frames of existing clips. A clip cannot be placed on a track if the clip completely covers, or is completely covered by, another clip. However, if you activate the Ripple

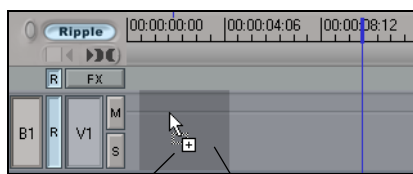
mode on the timeline, then clips are inserted at the timecode at which they are dropped. Existing clips are moved down the timeline to accommodate the inserted clip.



You can only place clips on selected tracks.



When you drag a clip from a bin to the timeline, the move cursor is displayed. As you drag over the timeline, a shadow is displayed to indicate the section where the clip will be placed.



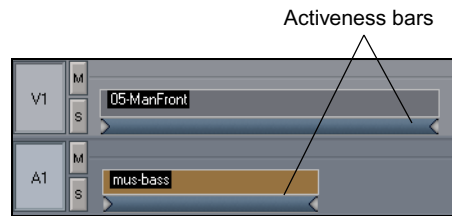
The move cursor Clip shadow

Clips assume *activeness* when you place them on the timeline. Activeness refers to the sections of a clip that can be used in the final sequence. These active frames are indicated by an activeness bar below a clip. Not all active clips in a sequence are included when you play the final sequence. Whether an active clip plays in a sequence or not depends on the position of the clip on the timeline and the track selector settings.

The behavior of clip activeness varies between audio, video, and background tracks.

- **Background tracks:** Only one video clip can be active at any given time.
- **Video tracks:** Multiple video clips can be active at the same time. The clips on the top tracks play on top of clips on the lower tracks. The effects and video clips with full-screen alpha clips placed on top tracks are composited over the active clips on the lower tracks.
- **Audio tracks:** All active audio clips play back. This lets you play multiple audio streams at the same time.

For more information, see [“Changing the Activeness of Clips” on page 172](#).



Video clips can be placed only on video tracks and background tracks, and audio clips only on audio tracks. When a clip with synchronized video and audio components is placed on the timeline, the video and audio are placed as separate clips on the audio and video or background tracks.

Same Track versus Multi-track Editing

Although you can easily place all your video clips on a single video track, working on multiple video tracks gives you more flexibility when editing. You can use video tracks to layer effects. When clips are active, the clips on the top video tracks play over the clips on the lower tracks. Any effects and video clips with full-screen alpha clips placed on the top video tracks are composited over the active clips on the lower tracks.

The active frames and position on the timeline determine the sequence of events. For example, you can place shots taken with different cameras on separate tracks. You can then easily switch the view from one camera to another by activating and deactivating clips. For more information, see [“Cutting to a Clip” on page 298](#).

The following example shows how the same sequence is produced on one video track and on multiple video tracks. The activeness bars in both scenarios indicate which frames are used in the sequence. However, when working with multiple tracks, the activeness of clips on the top tracks indicate the frames used. In both scenarios, the same frames on the clips are used.

Same-track editing:
Clip is added to the
same track.

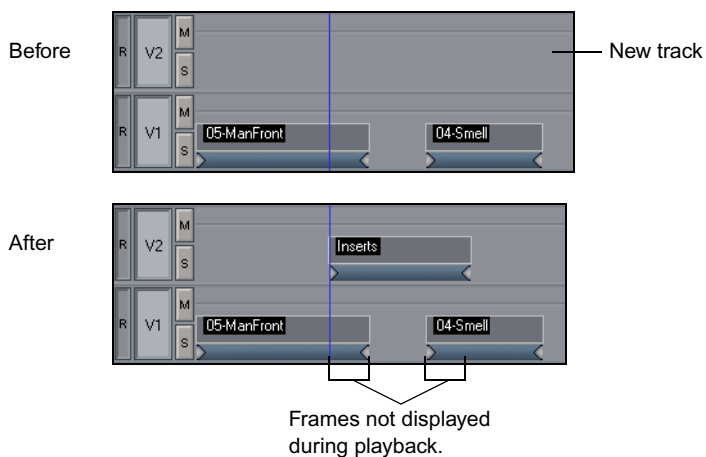
Before



After



Multi-track editing:
Clip is added to a
new track.



When you place clips on multiple tracks, you can reveal extra frames while editing. This is especially useful when you want to see how many frames are available for slipping or sliding. For more information, see [“Revealing Unused Material on Clips” on page 171](#).



When working with audio, placing your audio clips on different tracks lets you play multiple audio streams simultaneously.

Placing Multiple Clips on the Timeline

You can select multiple clips from a bin and drag them to the timeline or timeline ribbon for editing. This is a quick way to edit several clips together. For example, if you previously classified material by scene number, you can quickly sort clips by scene number and then drag them all to the timeline. Clips are placed on the timeline in the order in which you selected them. When you select all the clips in a bin, they appear in the order in which they were sorted.

To place multiple clips on the timeline:

1. In a bin, do one of the following:
 - ▶ To select clips randomly, hold down the Ctrl key and click any clips that you want to select.
 - ▶ To select clips sequentially, click the first clip and hold down the Shift key and click the last clip that you want to select.
 - ▶ To select multiple clips, drag over a region in the bin.

2. Drag the selected clips to the timeline.

Placing Pre-edited Clips on the Timeline

If you've previewed and edited your source clip in the Source viewer, there are different ways to place the clip on the timeline. You can manually drag it to the timeline, or use the Overwrite, Insert, or Replace buttons.



The following instructions apply only when the Ripple button is deactivated on the tracks. For more information, see “Rippling Clips” on page 191.

To drag a clip to the timeline:

1. Mark an in and/or out-point on the timeline—see “Marking In and Out-points on the Timeline” on page 137.
2. Click the Source viewer and drag the clip to a track on the timeline, moving it close to the in-point.
 - ▶ To insert the clip, hold down the V key.
 - ▶ To overwrite the existing clips, hold down the B key.

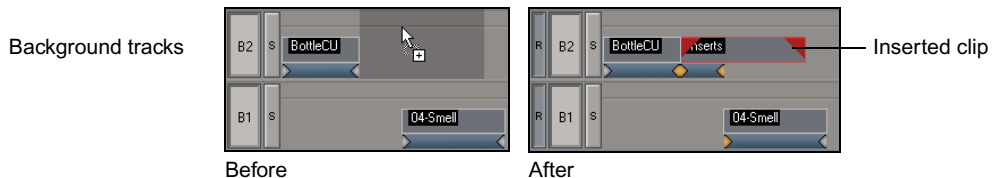
The magnetism of the in-point automatically draws the clip to the marked timecode.

 - ▶ To align the clip's source timecode with the source timecode of a clip on the timeline, hold down the U key.

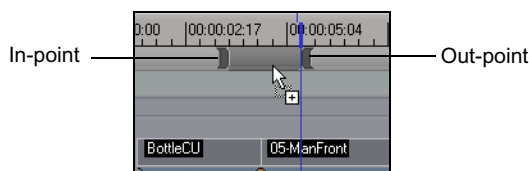


The Autoswitch command on the Trim Mode menu must be deselected before you can drag a clip from the Source viewer to the timeline.

When you drag a clip to a video or audio track, the clip becomes active. When you drag a clip to a background track, the clip becomes active only in areas where there are no other active clips. The following illustration shows a clip being dragged to a background track.

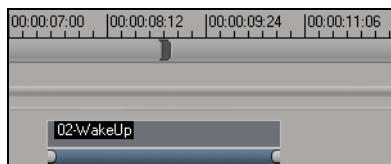


If you want to perform three-point editing, set both an in-point and out-point on the timeline. As a general rule, the in-point and out-point on the timeline determine the amount of space inserted into the sequence. For example, if the clip is longer than the marked region on the timeline, the out-point of the clip is trimmed to fit the specified duration. If the clip is shorter than the marked region on the timeline, a gap is added in areas not covered by the inserted clip. The following illustration shows a clip being placed between marked points on the timeline.



To insert or overwrite a clip on the timeline:

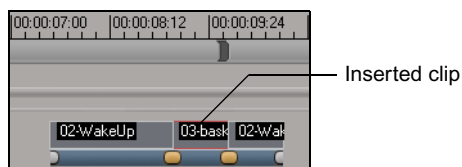
1. Mark an in-point at the timecode where you want to place your clip.



2. If you want to edit source audio or video onto a track other than the parallel track displayed in the Track selector, see [“Patching Tracks”](#) on page 125.
3. Click one of the following buttons:



- **Overwrite Clip** to place the clip at the in-point and overwrite any existing clips over the section that it covers.





- **Insert Clip** to place the clip at the in-point and ripple all subsequent clips on the timeline.

The clip that is inserted on the timeline becomes active regardless of other active clips on the timeline.



- **Fit to Fill** to size the clip to fit perfectly between the marked in and out-points on the timeline. To use this option, you must also have specific in and out-points marked on the clip.



If the clip is longer or shorter than the marked region on the timeline, the clip is placed in a timewarp container clip and stretched or shortened accordingly. This speeds up or slows down the action in the clip.

To replace a clip on the timeline:



1. On the timeline navigation bar, click the **Selection Mode** button.
2. Select a clip on the timeline.
3. If you want to edit source audio or video onto a track other than the parallel track displayed in the Track selector, see [“Patching Tracks” on page 125](#).



4. Click the **Replace Clip** button to overwrite the selected clip with the one that is currently in the Source viewer.

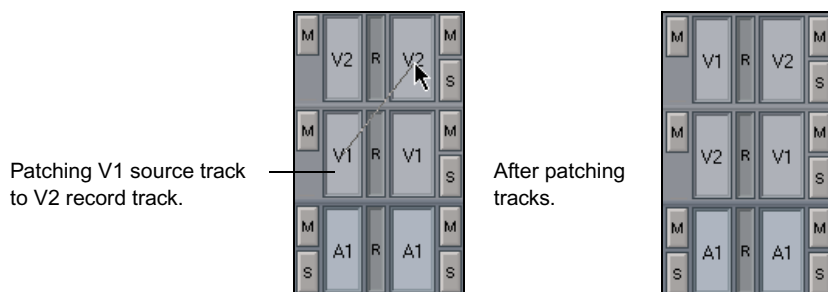
Patching Tracks

When working with multiple tracks, you can encounter a circumstance where you must edit source audio or video onto a track other than the parallel track displayed in the Track selector. To edit the source material onto another record track above or below it, you must patch the source track to the targeted record track.

You can perform only one patch per edit, but there is no limit on the number of times you can patch from the same source track. Audio can patch only to audio tracks, and video only to video or background tracks.

To perform a patch:

- In the Track selector, drag from a source track (audio or video) to the targeted record track (a black line is displayed during the patch).



The selected source track moves beside the record track to which it is patched. The patched track remains selected in preparation for your edit.

Placing Video Clips on the Timeline

A video clip can consist of live action, graphics, animation, or imported images. You can place video clips on video tracks or background tracks. Placing clips on the video tracks lets you composite over other clips on the tracks below it. Active clips on video tracks are composited in the order in which the video tracks appear on the timeline. For more information, see [“Placing Clips on the Timeline” on page 119](#).

As you drag video clips to background tracks, the clips detect areas that are occupied, so that you don’t overwrite clips that have already been positioned in time.

To place a video clip on the timeline:

1. Mark an in and/or out-point on the timeline—see [“Marking In and Out-points on the Timeline” on page 137](#).
2. Drag a clip from a bin or Source viewer to the timeline ribbon, video track, or background track on the timeline, and align it close to the in-point.

A shadow is displayed on the timeline to indicate the area where your clip will be placed. The *magnetism* of the clip is attracted to other objects in close proximity. This helps you align clips with other clips, in-point, or out-points.



To temporarily deactivate magnetism, hold down the Shift key as you drag an object.

3. If you're satisfied with the location, release the clip.

The clip is automatically placed on the timeline and becomes active. If the video clip is placed on a background track, then the video clip is only active on areas where there are no other active clips on background tracks.



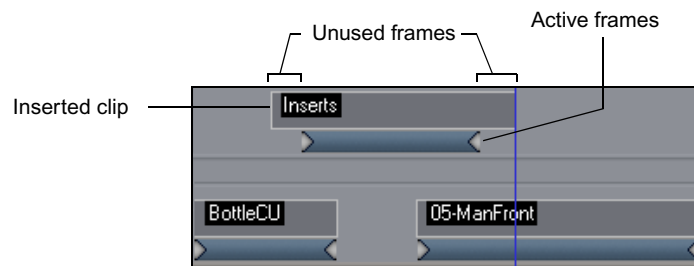
You can also insert or overwrite clips on your tracks and specify the track on which to place a clip. To do this, right-click a clip and drag it from the bin to any video track. This opens the Track Router dialog box from which you can select a video or background track.

When you place a clip on the timeline, the in-point moves to the end of the clip. The out-point (if any) is deleted.



You can display the unused frames of the clip by right-clicking on the overview area and selecting Display > Display Unused Material before placing the clip on the timeline.

The following illustration shows the timeline after a video clip is added to a video track. The inserted clip shows unused material.



Placing Audio Clips on the Timeline

Audio clips are the sound portion of your sequence. They contain material like sound effects, music, and dialogue.

When you place an audio clip on an empty timeline, an activeness bar is automatically displayed under the audio clip. Multiple audio clips can be active at the same time span, as long as they're on different tracks.

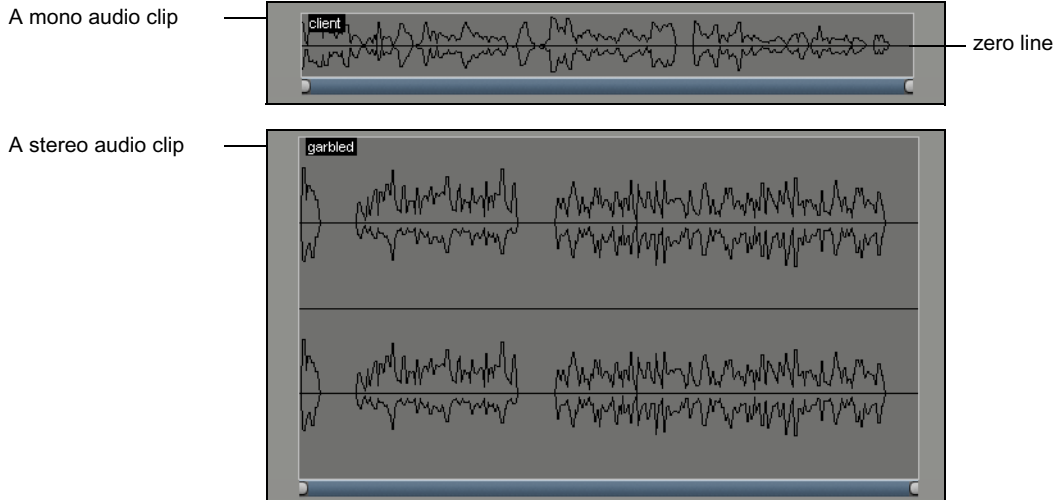


Audio clips that do not have the sample rate specified in the user preferences can still be placed on the timeline. However, you will not be able to hear the clips until you recapture the audio material at the proper sampling rate. For more information, see “Converting the Audio Sample Rate” on page 419.

The following table lists the audio clip types and the channels contained with each type of audio clip, depending on how many audio channels the audio clip has.

This type of audio clip...	Contains these audio channels
Mono	A single audio channel
Stereo	Two audio channels: Left and right
Quadraphonic	Four audio channels: Left, right, left rear, and right rear
LCRS	Four audio channels: Left, right, center, and surround
4 streams	Four generic audio channels: Output 1, output 2, output 3, and output 4
5.1	Six audio channels: Left, right, center, LFE, left surround, and right surround
6.1	Seven audio channels: Left, right, center, LFE, surround center, side left, and side right
7.1	Eight audio channels: Left, right, center, LFE, left surround, right surround, left center, and right center
8 streams	Eight generic audio channels: Output 1 to 8

When you place an audio clip on the timeline, it generates a waveform to display the audio channels. Each channel has a distinct waveform. For example, a mono clip has a single waveform, a stereo clip has two waveforms, and an 8-stream clip has eight. Each waveform has a zero line running through the middle.



Like audio clips, audio tracks can also be mono, stereo, quadraphonic, LCRS, 4 streams, 5.1, 6.1, 7.1, or 8 streams. You can place any kind of audio clip on any kind of audio track. For information, see “Track Property Editor” in the Help.

If the clip and the track are not the same type:

- ▶ The clip is yellow to indicate that the clip and track formats do not match.
- ▶ The clip’s audio channels are assigned to the track’s audio channels, as much as possible.

For example, if you place a stereo clip on an 8-stream track, the stereo clip’s two audio channels will be assigned to the first two audio channels in the 8-stream track. Conversely, if you place an 8-stream clip on a stereo track, the 8-stream clip’s first two audio channels will be assigned to the stereo track’s two channels, while the other six channels in the 8-stream clip are ignored. You can adjust the way that a clip’s audio channels occupy a track’s audio channels in the mixer. For more information, see [“Adjusting the Mixer Outputs” on page 414](#).



You can also mix different audio signals by creating an audio container clip. Audio container clips let you group several audio clips, mix them together, and treat them as a single clip on the top or parent timeline. For more information, see [“Creating an Audio Container Clip” on page 310](#).

To place an audio clip on the timeline:

1. *Optional.* Mark an in and/or out-point on the timeline—see [“Marking In and Out-points on the Timeline”](#) on page 137.
2. Drag a clip from a bin or Source viewer to the timeline ribbon or audio track on the timeline, and align it close to the in-point.



If you want to select a specific track on which to place the clip, right-click the clip and drag it from a bin to any of the audio tracks on the timeline. This opens the Track Router dialog box from which you can select an audio track.

A shadow is displayed on the timeline to indicate the area where your clip will be placed. The *magnetism* of the clip is attracted to other objects in close proximity. This helps you align clips with other clips, in-points, or out-points.



To temporarily deactivate magnetism, press Shift as you drag an object.

3. If you're satisfied with the location, release the clip.

The clip is automatically placed on an audio track on the timeline and becomes active even where there are existing audio clips because you can play multiple audio tracks simultaneously.

When you place a clip on the timeline, the in-point moves to the end of the clip. The out-point (if any) is deleted. Audio clips can be active simultaneously.

Placing Clips on the Timeline Using Sync Point Editing

Sync point editing lets you overwrite or insert material onto your sequence in such a way that a particular point in the source material is in sync with a particular point in the sequence. For example, you can sync an action in the source video with an audio event such as a musical beat in the sequence, and then edit it so that the action occurs on the beat.

Sync point editing uses the relative location of the position indicator in both the source and record material as the sync point. Sync point editing determines the duration of the new edit according to marks that you set. You can apply these marks across multiple tracks when marking a sequence. This lets you add overlap cuts.

Sync point editing requires two pieces of information:

- **Sync points:** These are the points where the synchronized relationship between the source and record material is established.
- **Duration of the relationship:** This is determined by the positions of the head and tail frames (and sometimes by the position indicator). Both marks can be in one monitor, or one mark can be in one monitor and the other mark in the other monitor. The duration of the material being edited into the sequence must be sufficient for the size of the edit.

To perform a sync point edit:

1. Load a clip or sequence into the Source viewer.
2. Load a sequence into the Record viewer.
3. Mark the material, do one of the following:
 - ▶ Mark in and out points in either the Source or Record viewer, leaving the opposite monitor clear of marks.
 - ▶ Mark an in or out-point in the Source viewer, or an in or out-point in the Record viewer. For example, if you marked an in-point in the Source viewer, mark the out-point in the Record viewer.
4. Move the source position indicator to the sync frame in the clip. This establishes the source sync point.
5. Move the record position indicator to the sync frame in the sequence.
6. Click the **Sync Point Editing** button to active sync point editing.
7. Select the source and record tracks for this edit.
8. Do one of the following:



- ▶ Click the **Overwrite Clip** button to overwrite any existing marked material on the timeline.
- ▶ Click the **Insert Clip** button to place the clip in the sequence an ripple all subsequent clips on the timeline.
- ▶ Click the **Replace Clip** button to overwrite the selected clip on the timeline.

The sync point edit is complete.

To turn off sync point editing:

- ▶ Click the **Sync Point Editing** button.

Working on the Tracks

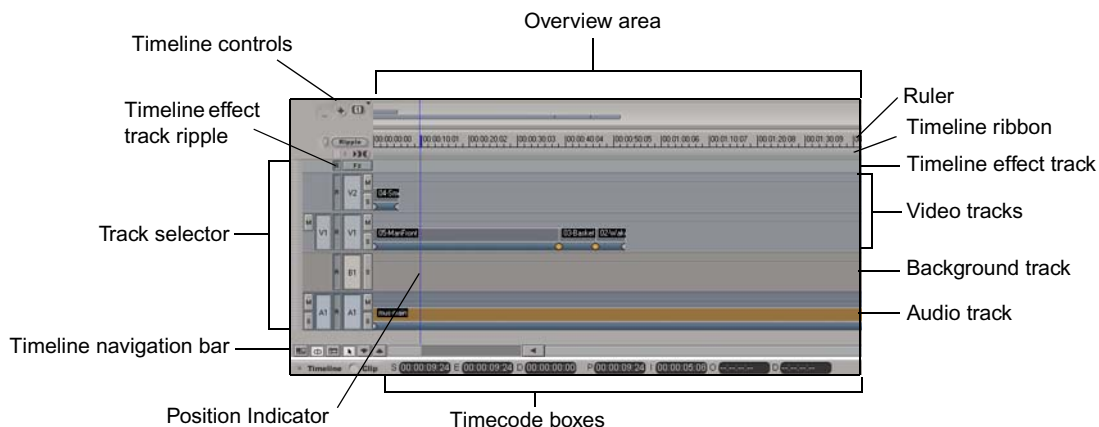
There are three types of tracks on the timeline:

- **Audio tracks** contain the audio clips and audio container clips of a sequence.
- **Video tracks** contain the video clips and container clips that are composited over clips on the video and background tracks.
- **Background tracks** contain the video clips and background/composite container clips of a sequence.

While working with multiple tracks, you can use the Track selector to select, manipulate, delete, ripple, patch, and monitor the tracks. You can use multiple tracks to layer audio effects and sound, or to add video titles and other effects.

You can change track properties, such as the track name or the level of detail at which clips are displayed on a track. By default, tracks are numbered sequentially (V1, V2, A1, A2, and so on) as they are created on the timeline.

You can also scroll and adjust the heights of tracks.



For more information, see “Track Selector” in the Help.

To show or hide the Track selector:

- ▶ Right-click the overview area and select **Display > Display Control Area**.

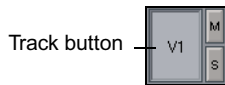
Selecting Tracks

You can select one or more tracks at the same time. When you select a track, you can perform editing operations on the entire track. For example, you can select two tracks and apply a track-based effect by clicking Video Effect from the toolbar and choosing an effect from the pop-up menu. This effect will be applied over all the clips on the selected tracks.

To select a track:

- ▶ From the Track selector, click the **Track** button.

The Track button for the selected track is highlighted.

**To deselect a track:**

- ▶ From the Track selector, click the **Track** button of a selected track.



*You can also activate and deactivate tracks by right-clicking a track and selecting **Live Track**.*

To select a region on multiple tracks:

1. Drag over a section of the track to select a region.
2. Hold down the Ctrl key and click another track.

The region is highlighted on all selected tracks.

Adding and Deleting Tracks

You can add any number of audio, video, or background tracks to the timeline. Video tracks are added to the top of the timeline, and audio tracks are added to the bottom of the timeline. Background tracks are inserted between the audio and video tracks.

You can also delete tracks that are no longer required in the sequence.

To insert a track on the timeline:

- ▶ Right-click the overview area and select **Create Audio Track**, **Create Video Track**, or **Create Background Track**.

An empty track is added to the timeline.



Tip: You can automatically insert a track when dragging a clip from a bin to the timeline. Simply drag the clip to the timeline ribbon.

To remove a track from the timeline:

- Right-click an empty area of the track and select **Delete Track**.
The selected track and all the clips on it are deleted from the timeline.

Reordering Tracks

You can change the order of the video, audio, and background tracks. You cannot, however, place a video track below a background track.

To reorder tracks:

- Drag the **Track** button to a new location.



Setting the Track Height

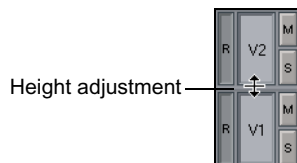
You can enlarge or reduce the height of the tracks to improve visibility and display more information within the tracks. You can reduce the track height if you need more space on the timeline to view other tracks.



Reducing the track height may hide any effects you have applied on the timeline.

To enlarge or reduce the height of tracks:

- Press Ctrl and drag the line between the **Track** buttons to change the height of the track above the line.

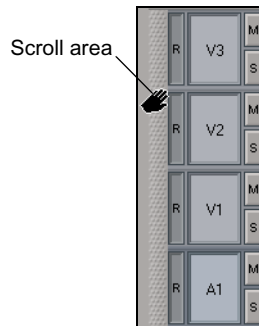


Scrolling Tracks

As you add more tracks, the tracks at the bottom of the timeline scroll off the desktop. Similarly as you add more clips to a track, they scroll to the right or left of the desktop.

To scroll tracks vertically:

1. Place the pointer at the far left of the Track selector.



2. When the hand icon is displayed, drag up or down to view additional tracks.



If you hide the Track selector, you can still scroll the tracks vertically by holding down the X key and dragging the timeline up and down.

To scroll tracks horizontally, do one of the following:

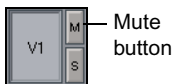
- Hold down the X key and drag left or right on the timeline.
 - Click the scroll bar on the timeline navigation bar and drag left or right.
- The timeline scrolls left or right.

Muting Audio and Video Tracks

If there are several tracks on the timeline and you need to exclude clips from the preview, you can turn off the audio signal on selected audio tracks or turn off the video on a selected video track. When the sequence is played, you do not hear clips on audio tracks that are muted and you do not see video clips in the viewer for video tracks that are muted.



Muted tracks do not contribute to the output sequence.



To turn off the sound on an audio track:

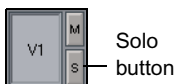
- Click the **Mute** button on an audio track.
The Mute button turns red.

To turn off the video playback on a video track:

- Click the **Mute** button on a video track.
The Mute button turns red.

Setting Tracks to Solo

When you solo a track, it plays the contents of that track during the preview. Both active and inactive video clips are displayed in the viewer. With video, you can only solo one track at a time. With audio, however, you can solo more than one track. Any tracks that do not have the Solo button activated are not viewed or heard.



To solo a track:

- Click the **Solo** button of the tracks that you want to preview.
The Solo button turns green.



The status of the Solo button on each audio track is saved along with the sequence.

Changing Track Properties

You can view track information, such as the start and end times, track type, and number of clips on the track. You can change the properties of any track, including the track name and level of detail that each clip displays.

To access track properties:

- Right-click an empty area of the track and select **Track Properties**.
The Track property editor is displayed.
For information about the Track properties, click the Help button.

To set the level of detail on a track:

1. In the Track property editor, select the **General** tab.
2. From the Level of Detail list, select one of the following:
 - **Low** to display clips or waveforms with the least amount of detail.
 - **Medium** to display the start and end thumbnails of clips.
 - **High** to display the thumbnails of clips at regular intervals and a detailed view of the audio waveform. You must increase the height of the track to see the waveform.



***Tip:** You can also change the level of detail of each clip by right-clicking and selecting Properties.*

3. From the Effect Size list, select one of the following:
 - **Small** to display the effect bar with no detail.
 - **Large** to display the name of the effect.

To rename a track:

1. In the Track property editor, select the **General** tab.
2. In the Name text box, type a name.



Depending on the height of your track, you may not be able to view the full name. If you place the pointer over the track name, however, a tooltip with the full name is displayed.

Marking In and Out-points on the Timeline

When you create a new sequence, an in-point is automatically placed at the beginning of the timeline. If you want to place the clip at a specific timecode, you can mark the in-point on the timeline where you want to place the clip. After you place a clip at this in-point, the in-point moves to the last frame of the clip, ready for you to place the next clip in the sequence.

In-points and out-points let you mark points on the timeline, where you can insert clips, or replace or overwrite existing clips.

After the in-point and out-point are set on the timeline, the I (in) or O (out) timecode boxes display the exact timecodes. You can change the position of the in-point or out-point by typing a new timecode in the corresponding timecode box, or by dragging the marker along the timeline ribbon. For more information, see “Timeline Ribbon” in the Help.

Using the Mark Buttons to Set In and Out-points

The Mark In, Mark Out, and Mark In/Out buttons provide an easy way to set in-points and out-points on the timeline.

To mark an in-point or out-point on the timeline:

1. Place the position indicator at the location where you want to place the in-point or out-point.
2. Click the **Mark In** or **Mark Out** button below the Record viewer.



An in-point or out-point is displayed on the timeline ribbon and in the position bar below the viewer.

To place an in-point and out-point on a selected region:

1. On the timeline navigation bar, make sure the **Selection Mode** button is selected.
2. On the timeline, select a clip, effect, or activeness bar, or drag to define a region where you want to set the in-point and out-point.
3. On the timeline controls, click the **Mark In/Out** button.



An in-point and an out-point are displayed on the timeline ribbon and on the position bar below the viewer.

Using Timecode to Set In and Out-points

You can set an in-point or out-point at an exact timecode by typing the timecode in a corresponding timecode box. For example, if you type 12:00:00:22 in the I (in) timecode box and press Enter, an in-point is marked at that timecode.

You can also use the scratch pad control to set in and out-points to an exact timecode.

To mark an in-point or out-point using the scratch pad control:

1. Click the viewer that is displaying a clip or sequence.
2. Press any number on the keyboard.

A timecode box is displayed in the selected viewer.



3. Type the timecode of the frame you want to mark by using the keyboard, followed by one of the following:



When typing a timecode value you can skip fields by typing a dot (.). For example, type 12..22 for timecode 12:00:00:22.

- ▶ Press the I key to mark the in-point.
- ▶ Press the O key to mark the out-point.
- ▶ Press the D key to set the duration. Positive timecode changes the out-point and negative timecode changes the in-point.

If you type in a positive timecode, and the in-point is undefined, it is treated as negative timecode. If you type in a negative timecode, and the out-point is undefined, it is treated as positive timecode.

The in-point, out-point, or duration for the clip or sequence is set.



You can move the in-point, out-point, or position indicator a set number of frames. In the timecode box, type the number of frame followed by a + (plus sign) or - (minus sign). Then press I or O to move the appropriate marker.

To close the timecode box:

- ▶ Press the Esc key.

To place an in-point and out-point on a portion of the sequence:

1. Do one of the following:
 - ▶ Mark an in-point on the timeline.
 - ▶ Mark an out-point on the timeline.
2. In the D timecode box, type the duration of the area you want to mark.

The other marker (in-point or out-point) is displayed on the timeline to mark the area.

Displaying Timecodes

The timecode boxes on the status bar display timecodes for a selected object on the timeline. You can also use the timecode boxes to enter new values for the start, end, or duration of a selected object.

The Clip and Timeline options refer to the source and sequence timecodes. The source timecodes are the actual times taken from the source tape. These timecodes are displayed when you select a clip that was captured from tape. The sequence timecodes reflect the current position of clips on the timeline. These timecodes are used when outputting media.

When you select an object on the timeline, the Start, End, and Duration boxes display the timecodes of a clip, activeness bar, effect bar, region selection, transition, or edit point. The In, Out, and Duration boxes display the timecodes of in and out-points on the timeline ribbon and the duration between them.

You can also use the Timecode view to display the timecodes for a selected object on the timeline. You can customize the Timecode view to display various timecodes. For more information, see [“Displaying Timecodes in the Timecode View” on page 140](#).

For more information, see “Timecode Boxes (Timeline Status Bar)” in the Help.

Displaying Timecodes in the Timecode View

The Timecode view displays the timecodes for a selected object on the timeline. You can choose which timecodes to display, show the name and comments of the clips, and further customize the view. Enlarging the size of the timecode display allows you to view the timecode from a distance.



The Timecode view is essentially a toolbar that you can customize.

You can choose to display the frame counts of various timecodes with the main timecode being the time base of the timeline. For example, when you are working with a 24 frame project the timecode frame count is:

Timecode^a Frames

24	00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 00
25	00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
25P	00 01 02 03 04 05 06 07 08 09 10 11 13 14 15 16 17 18 19 20 21 22 23 24 00
30	00 01 03 04 05 06 08 09 10 11 13 14 15 16 18 19 20 21 23 24 25 26 28 29 00

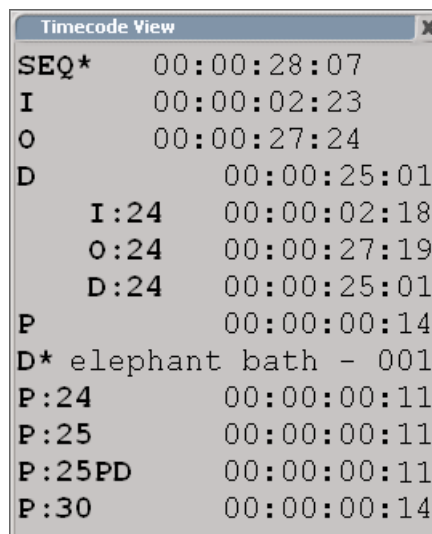
- a. The timecodes are listed as 24 for 24 fps, 25 for 25 fps, 25P for 25 (PAL with pulldown), and 30 for 30 fps (the count skips six frames to fit 30 frames into 24 fps).

In the example above for the 30 timecode, drop and non drop frame conventions are observed. The 02, 07, 12, 17, 22, and 27 frames are dropped because it is assumed that 01:00:00:00 is an “A” frame.

When in a 30 timecode project, the main timecode is 30 (drop and non drop frame conventions observed, and the 24 frame timebase has duplicated timecodes to represent pulldown.

To open the Timecode view:

- ▶ Select **View > Single-Instance Views > Timecode View**.



To add a timecode display to the Timecode view:

1. Right-click an empty area of the Timecode view.
2. Select **Add Timecode Display**.

To customize the timecode displays:

1. Right-click any of the timecodes in the Timecode view.
2. Select options from the **Timecode Display** menu—see “Timecode Display Menu” in the Help.

To customize the Timecode view:

- Right-click on the Timecode view and use the Toolbar commands—see “Toolbars” in the Help.

Displaying the Source Timecodes of a Clip

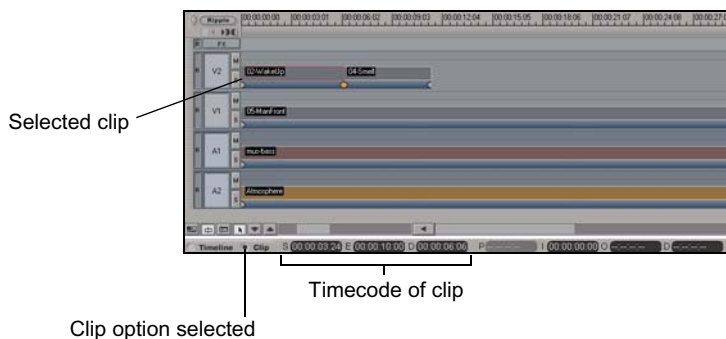
You can display the source timecodes of a selected clip. You can also display the source timecode of a selected frame.

If you want to display the source timecode of a frame between the start and end of the clip, you must place a reference locator at that frame.

To display a clip’s start and end source timecodes:

1. On the timeline, select a clip.
2. On the status bar, select the **Clip** option.

The clip’s start and end source timecodes are displayed on the status bar.



To display the source timecode at a specific frame:

1. Place the position indicator on the frame where you want to display the source timecode.
2. On the timeline, select the corresponding clip and press M.
A reference locator is placed on the clip at the position indicator.
3. Place the pointer over this locator.
A tooltip displays the source timecode at that frame.



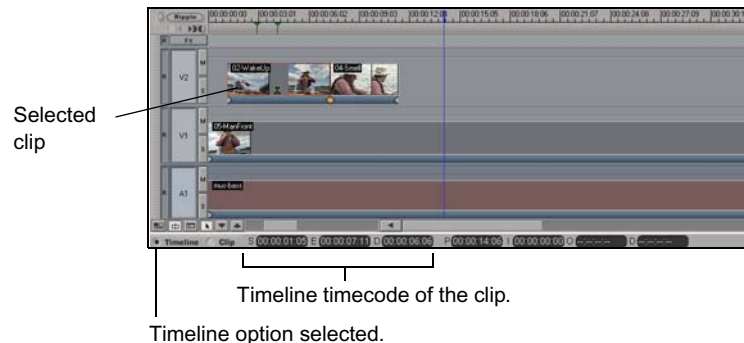
Displaying the Sequence Timecodes of a Clip

The sequence timecodes display the current position of an object on the timeline. You can display the start, end, and duration of a clip, activeness bar, effect bar, region selection, transition, or edit point.

To display a clip's timecode in relation to the timeline:

1. On the timeline, select a clip.
2. From the status bar, select the **Timeline** option.

The clip's start, end, and duration on the timeline are displayed in the timecode boxes. If you move the clip on the timeline, the timecode boxes automatically reflect its new position.





Moving or Trimming Objects Using the Timecode Boxes

Instead of dragging a clip on the timeline or trimming its end times, you can type values in the timecode boxes to change the start, end, or duration of a clip.

In addition, you can use relative input methods to change the timecode values. This lets you offset the current timecode by a given amount.

The following table summarizes the various means of typing values in timecode boxes, assuming that the current timecode is 01:12:34:00.

You type	NTSC Result	PAL Result	Description
Absolute Input Method			
5223	00:00:52:23	00:00:52:23	Replaces the current timecode
/5223	01:12:52:23	01:12:52:23	Replaces the rightmost portion of current timecode
.40	00:00:01:10	00:00:01:15	Replaces the current timecode with this many frames (direct frame entry)
10:00.40	00:10:01:10	00:10:01:15	Combines timecode value with direct frame entry
3:::1	03:00:00:01	03:00:00:01	Skip fields by typing colons
Relative Input Method			
110+	01:12:35:10	01:12:35:10	Increases or decreases the current timecode by the value typed
110-	01:12:32:20	01:12:32:15	
.110+	01:12:37:20	01:12:38:10	Increases or decreases the current timecode by the number of frames typed
.110-	01:12:30:10	01:12:29:15	
1.10+	1:12:35:10	1:12:35:10	
1.10-	1:12:33:20	1:12:32:15	

You type	NTSC Result	PAL Result	Description
]	01:12:34:01	01:12:34:01	Nudges the current timecode up or down by 1 frame
or [	01:12:33:29	01:12:33:24	
Ctrl-]	01:12:34:01	01:12:34:10	Nudges the current timecode up or down by 10 frames
or Ctrl-[	01:12:33:20	01:12:33:15	

For example, to move a clip 10 frames forward, type 10+ in the Start timecode box to move the clip forward by 10 frames. If the Ripple button was activated when you typed the new start timecode, then the edit will ripple across the timeline. Similarly, to move a clip backwards by 10 frames, type 10- in the Start timecode box.

Adjusting the Timeline

Framing the media on the timeline lets you make better use of the overview area. This is particularly useful when media starts at a timecode other than 00:00:00:00. The Avid DS Nitris system considers the start time of the media and frames it according to the earliest timecode on which material is present, as opposed to 00:00:00:00.

To trim the timeline to the media:

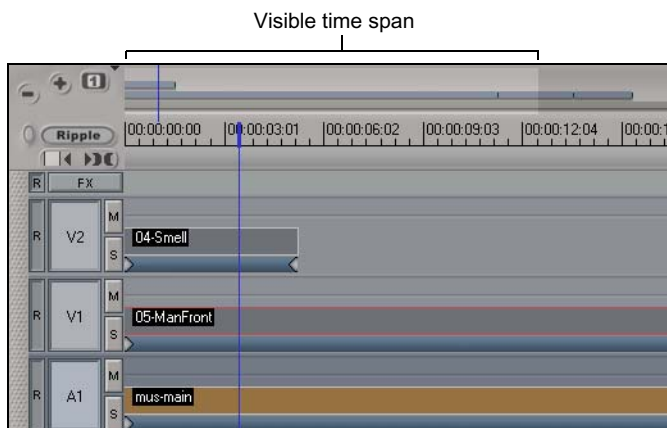
- ▶ Right-click the overview area of the timeline and select **Trim Timeline to Media**.

The overview area adjusts to show the full length of your sequence.

Changing the Visible Time Span

The visible time span represents the section of the sequence that is currently visible on the timeline. The visible time span is adjustable, so you can display individual frames in the sequence, another section of the sequence, or the entire sequence in the timeline.

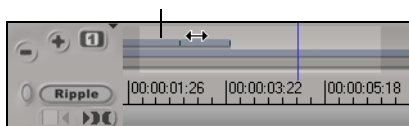
Any clip bars that are within the visible time span are displayed on the tracks in the timeline. You can stretch out the visible time span interactively to zoom in or out on the timeline. You can also use the timeline controls to adjust the length of the visible time span.



To move the visible time span:

1. Place the pointer over the visible time span.
A double-headed arrow is displayed.

Pointer in visible time span.



2. Drag the visible time span to the section of the timeline that you want to view.

The timeline displays the clips within the visible time span.

Framing the Timeline to View Selected Objects

You can zoom the view of the timeline to show more detail of selected objects.

To display selected objects on the timeline:



1. On the timeline navigation bar, click the **Selection Mode** button.
2. Click the objects you want to frame, such as clips or effect bars.
3. Click the **Frame Selection** button.

The timeline zooms in to display the selected objects.



The Frame Selection button is available from the Customize Toolbars window. For information about adding buttons to toolbars, see “Customizing Toolbars” in the Help.

Panning and Zooming the Timeline

To display a specific region on the timeline:

1. Drag over a section of the timeline to select a region.
2. From the timeline controls, click the **Zoom In** or **Zoom to Frame** button.

Zoom In button



Zoom to Frame button



The timeline zooms in to display the selected region, while the visible time span in the overview area scales to highlight the selection.

Using the Zoom Controls

You can change the magnification of the timeline using the zoom controls. These controls let you zoom in or out to view more or less clip detail.

The displayed region is always centered on the position indicator. As you move the position indicator, notice how the visible region adjusts to indicate the section of the sequence that is currently in view.

To zoom the timeline interactively, do one of the following:

- ▶ Hold down the Z key and drag left or right over the tracks.
- ▶ In the timeline navigation bar, drag the scale bar left or right.

To zoom in on a specific clip on the timeline:

- ▶ In the overview area, press Ctrl+F and click a clip bar.

The track of the selected clip immediately comes into view and the entire clip is displayed.

To zoom in to display less frames:



- ▶ From the timeline controls, click the **Zoom In** button.

The timeline displays fewer frames, but in greater detail.

To zoom out to display more frames:



- ▶ From the timeline controls, click the **Zoom Out** button.

The timeline displays more frames, but at less detail.

To zoom in to one-frame intervals:

- From the timeline controls, click the **Zoom to Frame** button.

The timeline displays one-frame intervals between clip thumbnails. The position indicator splits to indicate a single frame, a solid blue line is displayed at the left of the frame, and a dotted blue line is displayed at the right of the frame. To return to the previous display, click the button again.

Panning the Timeline

If your sequence has several clips, they may not all be visible on the timeline. You can pan the timeline to focus on different sections of your sequence.

To pan the timeline, do one of the following:

- Hold down the X key and drag left or right over the tracks.
- In the timeline navigation bar, drag the timeline scroll bar left or right.

To zoom in or out using the visible time span:

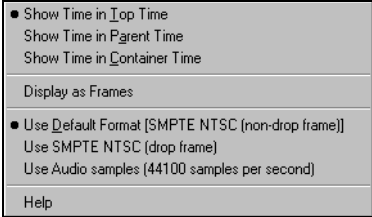
1. Place the pointer over the left or right edge of the visible time span.
An arrow pointing to the right or left is displayed.
2. Drag the edge of the visible time span left or right to zoom the timeline.
The time span lengthens or shortens to display more or less clip detail in the timeline.

To display all clips on the timeline:

1. In the overview area, place the pointer over the visible time span.
2. Double-click the visible time span.
The visible time span stretches out over all clips on the timeline, so that you can see all clips in the sequence.
3. Double-click the visible time span to return to the previous zoom area.

Changing the Ruler Display

The ruler in the timeline displays the time scale for your sequence. When working with video, you can change the time scale to display in frames, timecode drop frames, timecode non-drop frames, or audio samples. These options differ between PAL and NTSC formats.



To change the ruler’s time scale:

- ▶ Right-click the ruler and select the appropriate time scale.

The exact timecode at the position of the position indicator is displayed in the P timecode box on the status bar. Depending on the ruler time scale you select, the timecode is displayed in hours, minutes, seconds, and frames/audio samples.

Ruler time scale	Timecode display format
SMPTE NTSC drop frame	23:59:59;29
SMPTE NTSC non-drop frame	23:59:59:29
25 fps (PAL only)	23:59:59:23
Audio samples	23:59:59.47999
Display as Frames	1234567

Displaying Different Rulers

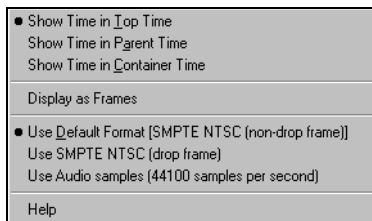
While working in a container clip, you can set the ruler to display the time scale of the current container clip, its parent container, or the top timeline. This is useful when you want to verify the location of a clip or effect in relation to the top timeline.



By default, a container clip's timeline always starts at 00:00:00. This makes it easier to determine the duration of the container clip.

To display a different ruler:

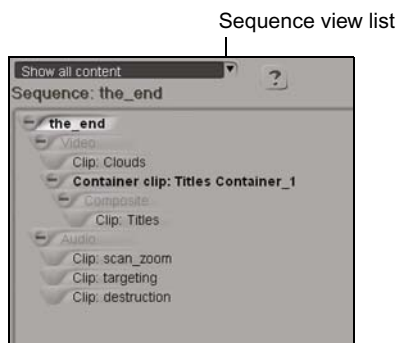
- Right-click the ruler and select a ruler.



Viewing a Sequence as a Hierarchical Tree Structure

The Sequence view displays the timeline as a hierarchical tree structure. The root of the hierarchy is your sequence, which you can expand to show individual video and audio clips, and container clips. Container clips can be further expanded to show their contents. Items that you select in the Sequence view are also selected on the timeline.

There are two viewing modes in the Sequence view: Show All Content and Show Content at Time. You can select a viewing mode from the drop-down menu at the top.



To access the Sequence view, do one of the following:

- ▶ Select **View > Single-Instance Views > Sequence View**.
- ▶ From the view switcher, click the **Sequence view** button.



To view all the clips in your timeline:

- ▶ From the Sequence view list, select **Show all content**.

The Sequence view displays all the clips in your sequence, from the top timeline on down through all your container clips.

To view all the clips at the current playback position:

- ▶ From the Sequence view list, select **Show content at time**.

The Sequence view displays all the clips in your sequence at the current playback position, from the top timeline on down through all your container clips.

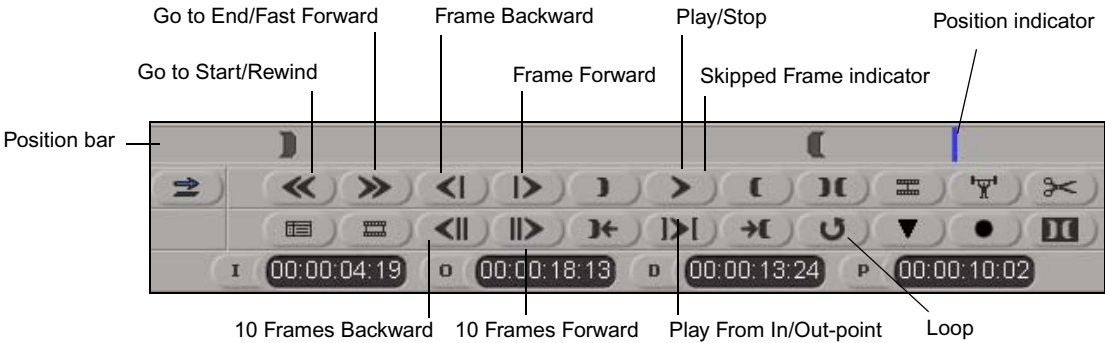
Playing Sequences

You can use various Record viewer buttons, the position indicator, and keyboard keys to play and shuttle your sequence.

Using the buttons below the Record viewer, you can play back your sequence in the Record viewer and on the external monitor. When you play the sequence, only its active frames are displayed in the Record viewer (or heard on the speakers), allowing you to view the sequence as it will appear in the final sequence. While previewing, however, you can play selected tracks of your sequence to isolate some sounds or images. For information, see [“Working on the Tracks” on page 132](#).



You can use variable-speed play controls (J-K-L keys on the keyboard) to shuttle, step, or pause during playback. For more information, see [“Varying the Playback Speed” on page 154](#).



For more information, see “Transport Controls” in the Help.

While playing a sequence, you might see one of the following messages display in the viewer:

Message	Description
Processing Needed	Some clips, on which you’ve placed effects, need to be processed before you can see the results.
Media not Available	There is no media for this clip at the quality (resolution and compression) that you have specified in your sequence preferences—see “Understanding Video Quality Matching” on page 79 .
Media not Found	Avid DS Nitris could not find the media for this clip. The media may have been deleted or moved to another location, or the connection to your storage may be faulty. If the media has been deleted, you will need to recapture it at the quality specified in your sequence preferences.

To play a sequence:

1. Deselect the **Mute** button on the Track selector for all tracks.



Muted tracks do not play back.



2. Click the **Go to Start** button below the Record viewer.

The position indicator moves to the start of the sequence.

- Click the **Play** button below the Record viewer.

If you're playing a video sequence, the Record viewer updates accordingly.



When playing your sequence, the Play button may turn amber if any frames are skipped during playback. Frame skipping may occur when it reaches a point where a frame cannot be computed before display time. For more information, see “Playing Real-Time Effects” on page 291.

To stop playing a sequence during playback, do one of the following:

- ▶ Click the **Play** button below the Record viewer.
- ▶ Click the Record viewer.
- ▶ Click the timeline ruler.
- ▶ Press the space bar.

The position indicator moves to the position you clicked and playback stops.

To skip to a new position on the timeline and keep playing:

- ▶ Press Shift and click the new position on the timeline ruler.

To scrub clips on the timeline:

- ▶ On the timeline ruler, drag right or left to play or rewind the clips at your own speed, or
- ▶ Drag the position indicator in the position bar below the Record viewer.

To isolate specific tracks when playing the sequence:

- In the Track selector, do one of the following:

- ▶ Click the **Solo** button on the video or audio tracks that you want to play.
- ▶ Click the **Mute** button on the audio tracks that you do *not* want to play.

- Click the **Play** button below the Record viewer.

Only the images or sounds from the selected tracks are played.





Varying the Playback Speed

The J-K-L keys on the keyboard let you play back, step, and shuttle through footage at varying speeds. This feature, also referred to as *three-button* or *variable-speed* play, lets you use three fingers to manipulate the speed of playback for greater control. You can also use the J-K-L keys to perform smooth audio scrubbing of selected tracks.

To shuttle through the footage using the J-K-L keys on the keyboard:

1. Deselect all objects in the timeline before shuttling through the footage.
2. Use the following keys to shuttle at varying speeds:
 - ▶ Press the L key to move forward through the footage at normal speed. You can increase the speed by pressing the L key a number of times.

Press the L key	To play footage at	NTSC rate	PAL rate	24p rate
2 times	2x normal speed	60 fps	50 fps	48 fps
3 times	3x normal speed	90 fps	75 fps	72 fps
4 times	5x normal speed	150 fps	125 fps	120 fps
5 times	8x normal speed	240 fps	200 fps	192 fps

- ▶ Press the J key to move backward at the same shuttle speed increments.
 - ▶ Press the K and L keys together for slow forward (8 fps for NTSC, 6 fps for PAL, and 6 fps for 24p projects).
 - ▶ Press the K and J keys together for slow backward.
 - ▶ Hold down the K key and press the L or J key to step through footage one frame at a time.
3. Press the K key to pause the shuttling.
 4. Press the spacebar to stop the shuttling.

To shuttle clips using the position indicator do one of the following:

- ▶ Drag the position indicator in the position bar right or left to fast forward or rewind the clips on the timeline.

- ▶ On the timeline ruler, drag the position indicator left or right. The farther you drag, the faster the playback speed.

Moving to Points on the Timeline

There are several ways to move around on the timeline. You can move the position indicator manually to any frame in your sequence, use the buttons below the Record viewer, or type a timecode in a timecode box to quickly move to marked points on the timeline.

To move the position indicator, do one of the following:

- ▶ Click any point in the Timeline Ruler.
- ▶ Click any point in the position bar below the Record viewer.
- ▶ Deselect the **Selection Mode** button in the timeline navigation bar, and then click any point on the timeline.



The position indicator moves to this position and the Record viewer displays the frame at this timecode.



- ▶ Click the **Go to In** or **Go to Out** button if there is an in-point or out-point in the timeline ribbon.

The position indicator moves to the specified point.

To move the position indicator to a specific timecode do one of the following:



- ▶ Drag the position indicator left or right while reading the timecode displayed in the **P** (position indicator) timecode box.

The exact position of the position indicator is displayed.

- ▶ Type a value in the **P** (position indicator) timecode box.
- ▶ Without selecting any timecode boxes, type a timecode value and press Enter.



When typing a timecode value you can skip fields by typing a dot (.). For example, type 12..22 for timecode 12:00:00:22.

- ▶ Select a reference locator from the Locator view.

Moving to Edit Points on the Timeline

You can move the position indicator to the next or previous edit point in the sequence.

To move the position indicator to an edit point:



1. Right-click **Trim Mode** button and deselect **Autoswitch**.
2. Do one of the following:
 - ▶ Press the , (comma) key to move the position indicator to the previous edit point.
 - ▶ Press the . (period) key to move the position indicator to the next edit point.

The position indicator moves to the specified point.

Looping Clips

You can play back a section of the timeline continuously by marking it with in and out loop markers. This is useful if you want to view a small section of the sequence while editing.

To loop a clip:



1. On the timeline navigation bar, click the **Selection Mode** button.
2. Do one of the following:
 - ▶ Select a clip.
 - ▶ Select a region by dragging over a section of the timeline.

The selected area or clip becomes highlighted.



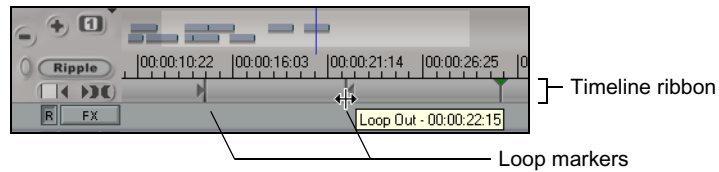
3. Click the **Loop** button below the Record viewer.

Loop markers are displayed on the timeline ribbon at the beginning and end of the selected region or clip including pre-roll and post-roll.



You can also select an effect bar, transition area, or activeness bar for looping. If no objects are selected on the timeline, then the loop markers surround the position indicator.

- Adjust the loop markers by dragging them to the appropriate timecodes.



- Click **Play** to play the clips within the specified region.
The marked section continues to play until you click Play again.
- Click the **Loop** button again to deactivate loop mode.

Viewing Unprocessed Frames

While playing a sequence, the message “Processing Needed” is displayed in the Record viewer if clip effects in your sequence have not been processed. To view a clip before processing its effects, you can either play it frame by frame or preview it. Previewing an effect reduces the quality of the picture during playback in order to process each frame at an acceptable speed.

To play a clip frame by frame:

- Press **Ctrl** and click **Play** to play your video clip frame by frame.
The playback is slow since each frame needs to be processed. Each processed frame is stored temporarily as an interactive cache, so the next time you visit that frame, the results appear instantly in the viewer.



In this mode, the video plays but the audio is muted.

- Click **Play** again to stop playing the clips.

To preview a clip with an effect:



- From the effect’s property editor, click the **Preview** button.

The preview will loop until you stop it. The playback is choppy since Avid DS Nitris drops frames in order to display the effect.



In this mode, the video plays but the audio is muted.

- Click the **Preview** button again to stop playing the clip.

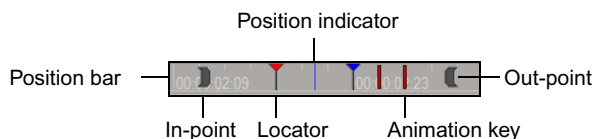
Using the Position Bar

The position bar, below the Source and Record viewers, lets you view the location of the position indicator, locators, animation keys, and timecode as well as set an in-point and an out-point.

You can rescale the position bar below the Record viewer to zoom the object selected in the timeline.

The locators on the position bar correspond to the locators on the timeline ribbon. However, locators in the position bar cannot be moved, deleted, or edited. To do so, you'll have to access them from the timeline ribbon.

The animation keys in the position bar correspond to the animation keys in the animation editor. You can only view and reposition animation keys in the position bar. For any other type of editing of the animation keys, you will have to use the animation editor.



To move the position indicator and in/out-points:

- ▶ In the position bar, drag the position indicator or in/out-points and move it to a new location.

To delete in and out-points or animation keys:

- ▶ In the position bar, select the in or out-point or an animation key, and press Delete.

To show or hide locators, tick marks, animation keys, and timecode:

- ▶ Right-click the position bar and select an option.

To display the animation keys of a clip:

- ▶ Select the clip from the timeline.

To snap the position indicator to an animation key:

- ▶ Press Ctrl and select the animation key in the position bar.

To change the range of the position bar to the selected object:

1. Select an object on the timeline.
2. Right-click the position bar below the Record viewer and select **Zoom to Selection**.

For more information, see “Position Bar Menu” in the Help.

Switching Viewers

At times, it is useful to enlarge either the Source or Record viewer, or both, for a better view of your clips.

To switch between single and dual viewers:

1. Select the Source or Record viewer.
2. In the viewer tools, click the **Single/Dual** button above the selected viewer.



The selected viewer and its transport controls are displayed.

To enlarge or reduce both viewers:

- Press F12 to enlarge or reduce the size of the viewers.

The viewers are displayed full-screen.

Setting True Video Display

Since the ITU-R 601 standard specifies a higher horizontal than vertical resolution (or a 0.9 ratio), images appear stretched horizontally when displayed on your computer monitor. To get a more accurate view of your sequence as it will appear on a video monitor, you can set the viewer to display non-square pixels.

To display non-square pixels:

- Right-click the viewer and deselect **Square Pixels**.

The viewer displays your image in non-square pixels.

Zooming or Panning the Viewers

You can zoom or pan the viewer by using the Viewer menu or the keyboard shortcuts, which allow you to work interactively with the viewer.

The Viewer property editor provides settings for various zoom and pan controls. For example, you can set the options to automatically zoom and pan when you are using the interactive tools, such as graphics and paint tools, Shape tool in the Matte and Keyer effects, DVE tool, and Tracker tool. For more information, see “Viewer Property Editor” in the Help.



The keyboard shortcuts for zooming or panning the viewer also work on the timeline and animation editor.

To zoom in the viewer, do one of the following:

- ▶ Hold down the Z key and drag on the viewer using left mouse button to select a region to zoom or using right mouse button to zoom interactively.
- ▶ Right-click the viewer, select **Zoom > zoom level**.
- ▶ Position the pointer on the area of the viewer you want to zoom in on and press Alt+Q.
- ▶ Press Alt+Z to zoom by steps set in the Viewer Properties property editor.

To zoom out the viewer, do one of the following:

- ▶ Right-click the viewer and select **Zoom > zoom level**.
- ▶ Interactive zoom (X or Y axis): Hold down the Z key and right-drag on the viewer.
- ▶ Press Alt+Q again to return to the previous zoom level.
- ▶ Press Alt+X to zoom by steps set in the Viewer Properties property editor.

To incrementally zoom the viewer:

1. Right-click the viewer and select **Viewer Properties**.
2. On the Display property page, set the following:
 - In the Steps text box, set the level to zoom quickly or slowly with Alt+Z (zoom in) and Alt+X (zoom out).
 - In the Quick Zoom Level text box, type your preferred zoom level.
3. Position the pointer on the area of the viewer you want to zoom in and press Alt+Z repeatedly until you reach the desired zoom level.

To pan the viewer:

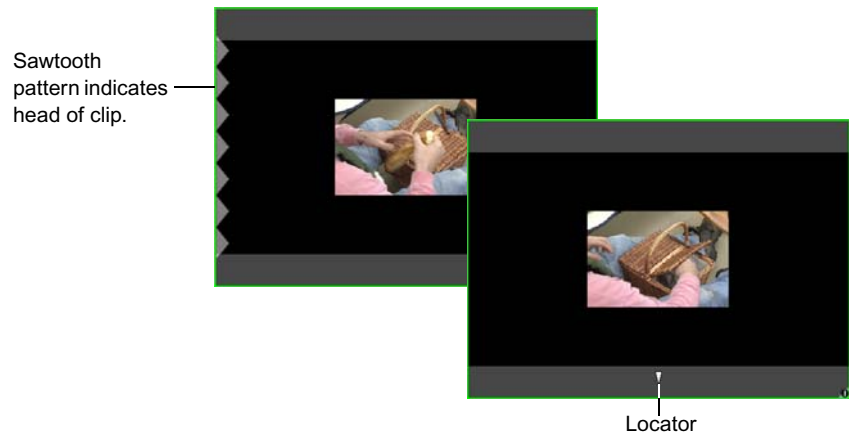
- ▶ Hold down the X key and drag on the viewer.

To reset zoom or pan, do one of the following:

- ▶ Hold down the Z key and click the viewer to reset zoom.
- ▶ Hold down the X key and click the viewer, or right-click the viewer and select Reset Pan & Zoom to reset pan.
- ▶ Hold down the Z+X key and click a viewer to reset zoom and pan.

Displaying Overlays

While working with the viewers, visual indicators for the head, tail, in and out-points, and locators make editing quicker. A sawtooth pattern indicates the head and tail of a clip.

**To display the viewer overlays:**

1. Select **File > User Preferences**.
2. On the Editing property page, select **Show Overlays in Viewer**.

The visual indicators for the head, tail, in/out-points, and locators are displayed in the Source and Record viewers.

Manipulating Clips

After placing all your clips on the timeline, you can begin arranging them to create a rough cut of your sequence. You can then adjust the edit points between clips, as well as move, copy, or delete them.



As you rearrange your clips, the impact on other clips and their activeness depends on what you select and whether or not the Ripple mode is activated. When the ripple mode is on, any change to the length of a clip propagates across the timeline to subsequent clips. For more information, see “Rippling Clips” on page 191.

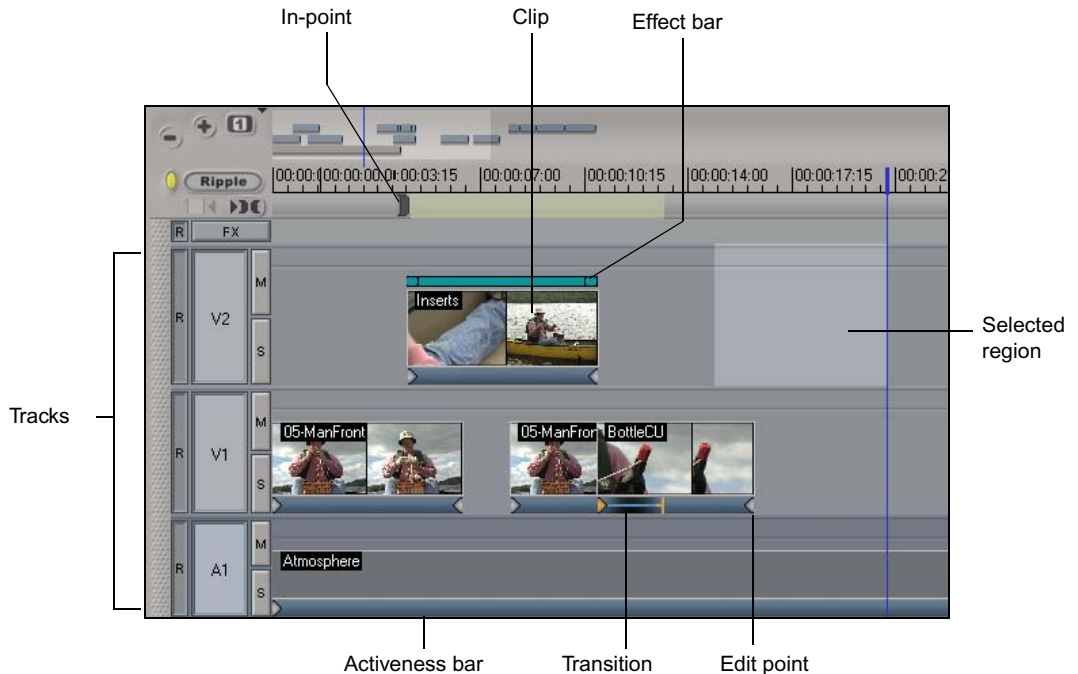
Selecting Clips

All editing tasks are based on what you select on the timeline. The clips are associated with tracks, activeness bars, edit points, transition bars, effect bars, and regions. Selecting and manipulating any of these objects affects the position and appearance of the clip in the final output. When editing clips, you typically work on one clip at a time.



Before you can select objects on the timeline you must click the **Selection Mode** button on the timeline navigation bar to enter Selection mode.

The following illustration shows the selectable objects on the timeline.



To select clips on the timeline:



1. On the timeline navigation bar, click the **Selection Mode** button.
2. Do one of the following:
 - ▶ To select a single clip, click a clip.
 - ▶ To select multiple clips, click the first clip, press Ctrl, and click any other clips you want to select.
 - ▶ To select multiple clips within the track area, hold down the Shift key and drag right to left over the clips you want to select.

The selected clip(s) are surrounded by a red border. When a single clip is selected the timecode boxes on the status bar reflect its start and end positions. The D (duration) timecode box specifies the length of time between the two points. You can adjust the in, out, and duration timecodes by typing values directly in the timecode boxes. This is useful when you know the exact timecode where you want to move a clip.



Moving Clips

You can drag clips along the same track to move them to a different point in time. You can also drag clips from one track to another.

Synchronized video and audio clips always move together. If you need to move them independently, you must unlock them first. For more information, see [“Synchronizing Clips” on page 196](#).

Moving Objects on the Timeline

You can use the J-K-L keys on the keyboard to move objects on the timeline to the timecode of the position indicator.

To move objects using the JKL keys:

1. Select **File > User Preferences**.
2. On the Editing property page, select the **Selectable Objects (J-K-L keys)** options for the objects you want to move.
3. Select one or more objects on the timeline. These could be either locators, markers, clips, activeness bars, effect bars, or edit points.
4. Press the J key or the L key to start playing.
5. Press K when you are at the desired frame. The selected object(s) are automatically moved to this timecode.

Moving Clips on the Same Track

You can drag a clip anywhere along a track. If there are other clips in its path, it passes directly over these clips if the Ripple mode is activated. If it is not, then you must move it around these clips.

To drag a clip horizontally:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Click a clip to select it.

A red border surrounds the clip and the pointer changes to a move cursor.

3. Drag the clip right or left.

To drag multiple clips horizontally:

1. On the timeline, select multiple clips.
2. Drag one of the clips in the selection right or left.

To move a clip with its activeness:

1. Press Shift and click the clip to select it.

A blue border surrounds the clip and the pointer changes to the Move with Activeness cursor.

2. Drag the clip right or left.

The clip retains its activeness and changes the activeness of any clips with which it collides.

To move multiple clips with their activeness on background tracks:

1. On the timeline, select multiple clips.
2. Press Shift and drag the clips in the selection right or left.

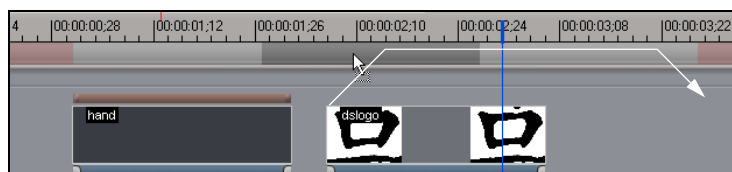
The clips in the selection retain their activeness and change the activeness of any clips with which they collide.

To move one clip past another on the same track:

1. Drag a clip to the timeline ribbon.

A shadow is displayed on the timeline as you drag the clip.

2. Without releasing the mouse button, drag the clip back to the original track and drop it at the new location.



Moving Single Clips between Tracks

When you move clips to a different track, clip shadows appear on the timeline where the clips will be placed.

To move a clip to a different track:

- Using the ruler as a guide, drag a clip to a different track.

To move a clip to a different background track with its activeness:

1. Press Shift and click a clip to select it.
2. Using the ruler as a guide, drag the clip to the appropriate track.

To move a clip to a different track and constrain it to the same timeline location:

1. Select the clip.
2. Press U and drag the clip to another track.

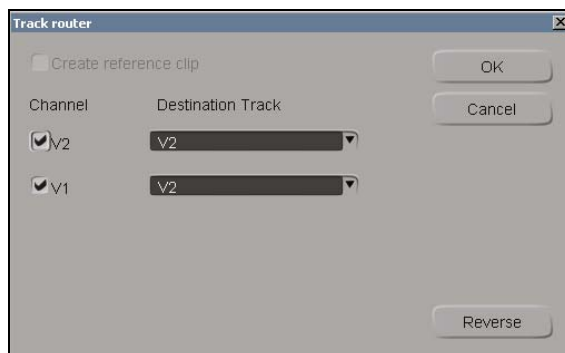
Moving Multiple Clips between Tracks

You can move multiple clips of different types between tracks simultaneously. The clips that you select do not have to be on the same track.

To move multiple clips to different tracks:

1. On the timeline, select multiple clips.
2. Using the ruler as a guide, drag a clip to a different track.

The Track Router dialog box is displayed.



3. Specify the destination track for the material in each selected track, and click **OK**.

The selected clips are moved to the specified destination tracks.

To move multiple clips to different tracks with their activeness:

1. On the timeline, select multiple clips.
2. Drag the clips to a different track.

The Track Router dialog box is displayed.

3. Specify the destination track for the material in each selected track, and click **OK**.

The selected clips are moved to the specified destination tracks.

To move multiple clips to different tracks and constrain them to the same timeline locations:

1. On the timeline, select multiple clips.
2. Press the U key, and drag a clip to a different track.

The Track Router dialog box is displayed.

3. Specify the destination track for the material in each selected track, and click **OK**.

The selected clips are moved to the same timeline locations on the specified destination tracks.

Renaming and Adding Comments to Clips

You can rename clips in a bin or on the timeline. Since clips on the timeline are copies of the clips in the bin, renaming a clip on the timeline has no effect on the name of the source clip in the bin. In the Clip property editor, you can also add comments to clips as notes or reminders for yourself.

To rename a clip on the timeline:

1. Right-click a clip in the timeline and select **Properties**.
2. In the Name text box, edit the name of the clip and press Enter.

The new name is displayed on the clip in the timeline.

To add comments to clips:

1. Right-click a clip in the timeline and select **Properties**.
2. In the Comments text box, type your notes and press Enter.

When you reopen the clip properties dialog box, the comments are displayed in the Comments box.

Cutting Clips

Cutting a clip in two lets you manipulate the pieces independently of each other.

To cut a clip:

1. Place the position indicator at the point where you want to apply the cut.
2. From the toolbar, click **Editing > Add Edit**.

Although the clips appear to have been cut into two, you can still stretch them both out to their original size by revealing the extra frames. For more information, see [“Revealing Unused Material on Clips” on page 171](#).



The Add Edit command duplicates the clip or container clip on the timeline. Although the duplicated clip or container clip doesn't appear on the timeline, it does double the size of the information on the timeline and every element in the container clip.

Copying Clips

You can easily copy clips on the timeline. When you copy a clip, you do not duplicate the media stored on disk. Both clips still refer to the original media.

When you make a copy of a clip on the timeline, the new clip's name is prefixed by “Copy of...”. For example, if the original name of a clip is *Car*, and you copy the clip to a new track, the copied clip is now called *Copy of Car*. If you copy the same clip again to another track, the name of the new clip is *Copy 2 of Car*. This numbering scheme continues for each copy you create of the clip.

To copy a clip:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Select one or more clips to copy.
3. Select **Edit > Copy**.
4. Place the position indicator at the precise timecode that you want to place a copy of the clip, and click the **Track** button.
5. Select **Edit > Paste**.

A copy of the clip is displayed at the location of the position indicator. You can stretch this new clip out to reveal the necessary frames. The name of the copy is prefixed by “Copy of...”.

Deleting Clips from the Timeline

You can delete any clip on the timeline. This removes the clip from the timeline. The master clip in the bin and its media are not affected.

To delete a clip, do one of the following:

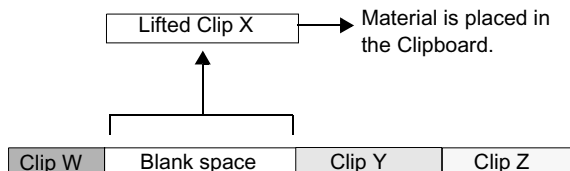
- ▶ Select a clip or group of clips, and press Delete.
- ▶ Right-click a clip or a multiple clip selection, and select **Delete Clip**.

The clip or selection is removed from the timeline.



If you created clips on the timeline from an AFE file, an AAF file, an EDL, or an OMF file without creating master clips in a bin, the clips on the timeline are the only instances of these clips. If you remove them from the sequence, they will no longer exist anywhere in your project. If there was media associated with these clips it will remain on your storage device, but you will not have access to it because it is no longer associated with any clip. The media will remain on your storage device until it is deleted when you purge unreferenced media.

Lifting lets you remove selected material from a track in the sequence and leaves a gap. You can later move or fill this gap with other footage. When you lift material, the overall duration of the track (or sequence) remains the same.

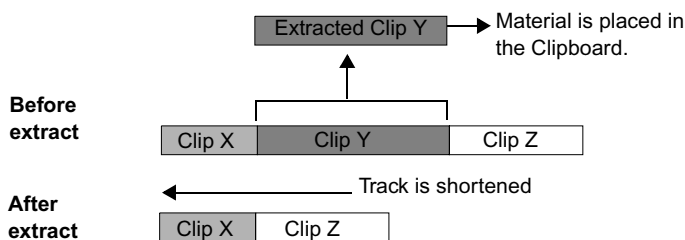


1. Mark in and out-points at the start and end of the material in the sequence that you want to lift.
2. Select the tracks that contain the material.

3. Click the **Lift** button to complete the edit.



Extracting lets you remove selected material from a track in the sequence and closes the gap left by its removal. When you extract material, the duration of the track or sequence is shrunk.



To extract material:

1. Mark in and out-points at the start and end of the material in the sequence that you want to extract.
2. Select the tracks that contain the material.
Material is extracted from the selected tracks only.
3. Click the **Extract** button to complete the edit.



If the clip is sync-locked with another audio or video clip, the other clip remains on the timeline. You must delete it independently.



If Ripple mode is on, however, all the sync-locked elements are deleted.

Revealing Unused Material on Clips

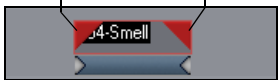
When editing, you often need to see how much material is available at the head or tail of a clip. When you display unused material, the selected clip displays red handles on its top corners. These are the reveal handles; when stretched out, they show any extra frames in a clip.

Reveal in handle

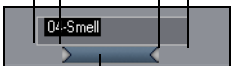
Reveal out handle

Shows extra frames at the head of Smell clip.

Shows extra frames at the tail of Smell clip.



Extra frames



Activeness bar indicates active frames in clips.

To display unused material:

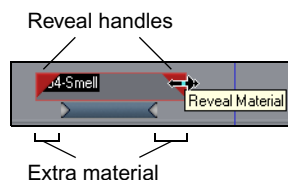
- Right-click the overview area and select **Display > Display Unused Material**.

To reveal or hide frames of unused material on a clip:



1. On the timeline navigation bar, click the **Selection Mode** button.
2. Select a clip.
3. Place the pointer over the reveal handle of a clip.

An arrowhead pointing left or right is displayed.



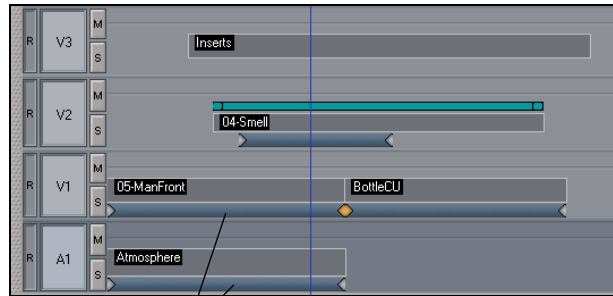
You can view extra material only when there is empty space on the track. Editing on multiple tracks gives you this flexibility.

4. Drag the reveal handles left or right to show or hide unused material.
 - To reveal more frames on the clip, drag the handle outwards. You can only reveal as far as the last frame on the source clip.
 - To hide frames on the clip, drag the handle inwards. You can only hide frames up to the active area of the clip.

Changing the Activeness of Clips

Activeness refers to the sections of a clip that are available for the final sequence. The timeline uses a bottom-up hierarchy for video tracks when playing sequences. When active clips on the top tracks overlap active clips on lower tracks, the clips on top track are viewed on top of the clips on the lower tracks during playback.

These active frames are indicated by the activeness bar below a clip. When you play a sequence, you can view and hear the active frames of a clip depending on the clip's location on the timeline and the track selector settings. Inactive frames still appear in the timeline, but are not seen or heard when the sequence is played.



Activeness bars indicate active clip frames.

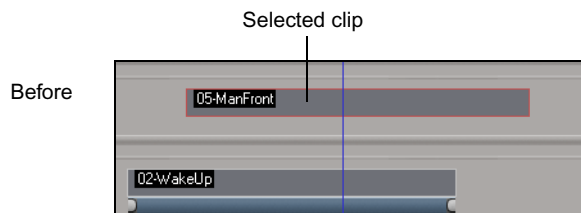
You can adjust the activeness bar to add or remove active frames at the head or tail of the clip. You can also activate or deactivate the entire length of the clip using the tools on the NLE Tools toolbar.

Activating and Deactivating Clips

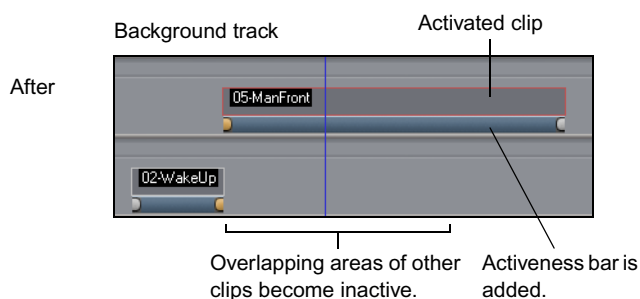
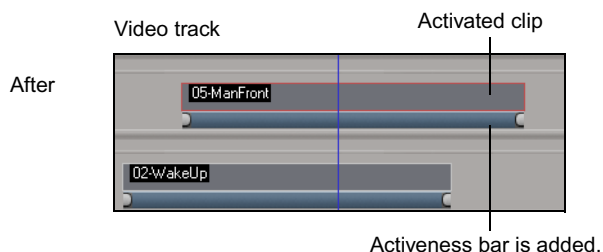
In addition to adjusting the activeness bar to trim the heads or tails of clips, you can also activate or deactivate all the frames in a clip. This is useful when you have multiple layers of video effects and need to isolate clips on lower tracks for viewing. Activating a clip on a video track does not change the activeness of any other clips that overlap it. However, when you activate a clip on a background track, the overlapping areas of other clips become inactive.

To activate or deactivate the full length of a clip:

1. Place the position indicator at the point where you want to apply the cut.



2. From the toolbar, click **Editing** and select one of the following:
 - **Activate** to make all the currently displayed frames in the selected clip active.

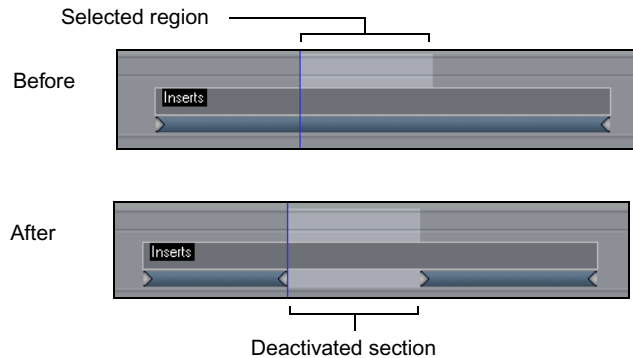


- **Deactivate** to make all frames on the selected clip inactive. Deactivating a clip does not change the activeness of any other clips that overlap it.

To activate or deactivate a region of a clip:



1. On the timeline navigation bar, click the **Selection Mode** button.
2. Drag over a section of a clip.
The selected region is highlighted.
3. From the toolbar, click **Editing** and select one of the following:
 - **Activate** to make all the frames in the selected region active.
 - **Deactivate** to deactivate the selected region.
 The activeness bar is removed from the selected region.



*You can also right-click an activeness bar and select **Delete Activeness**. This removes its activeness bar.*

Activeness of clips on background tracks is not always recalculated when you deactivate clips or move them on the timeline. You can activate any section of a selected clip on a background track where it does not overlap other active clips on background tracks, by using the Fill Activeness command.

To fill in the activeness of a clip:

- Right-click the clip that needs to be activated and select **Fill Activeness**.
The clip becomes active wherever there are no other active clips on background tracks.

Using Locators

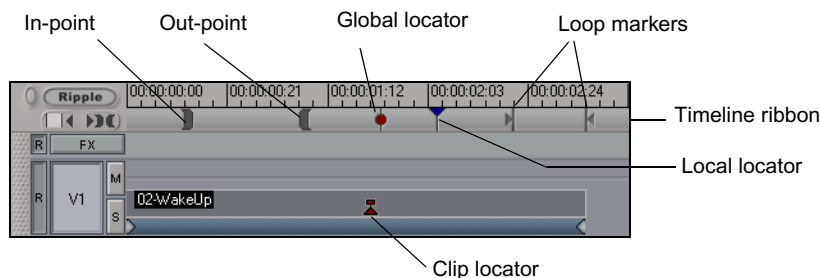
The timeline ribbon displays locators, in-points, out-points, loop markers, and indicates the portions of your timeline that may require processing.

Locators let you set reference points on the timeline, so that you can easily move to areas of interest. The locators can also be used to help synchronize clips. Locators display on the timeline ribbon and in the position bars.

You can add locators to clips in the Source viewer to mark a specific timecode.



Tip: All locators on the timeline ribbon can also be accessed from the Locators view in the Avid Explorer. For information, see “Displaying Locator Information” on page 176.



Locators and markers have *magnetism*, which pulls a clip in when it is moved within close proximity to a locator or marker.



Tip: At times, it may be difficult to position a clip because there are too many locators nearby. You can override magnetism by holding down the Shift key while dragging the clip.

There are two main types of locators:

- **Clip** locators are for marking a reference point on a clip.
- **Reference** locators are for marking a reference point on the timeline.

You can use locators to synchronize clips on the timeline. Once you set a locator, you can drag it to a new location, rename it, or add comments to the locator.

You can place locators on the timeline ribbon or directly on a clip. A locator placed on the timeline ribbon remains fixed on the timeline. A locator placed on a clip is fixed to that point on the clip. When the clip moves, its locator moves with it.

Displaying Locator Information

The Locators view displays information on all the locators on the timeline, including the timecode and author comments. Locators are a type of electronic bookmark, which allow you to find and identify specific frames during editing.

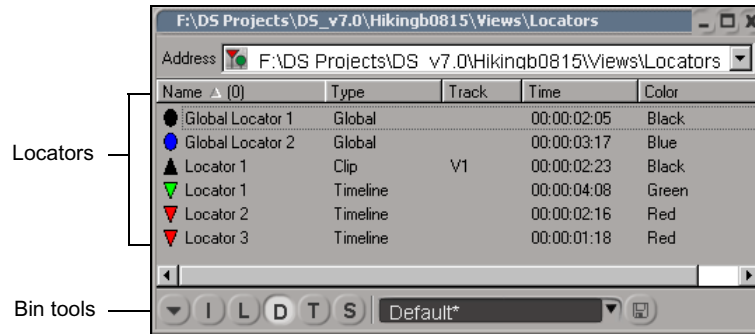
Using the Locators view as an outline for a show lets you easily jump to any position within a longer timeline without having to scroll through the timeline or zoom out and in.

You can also sort on various criteria in the Locators view headings, such as position, comment, type (clip/timeline/global), video/audio tracks, review and approval, created by, time, and version.

To access the Locators view:

- In the My System panel of the Avid Explorer, double-click **Views > Locators**.

The Locators view is displayed in a bin.

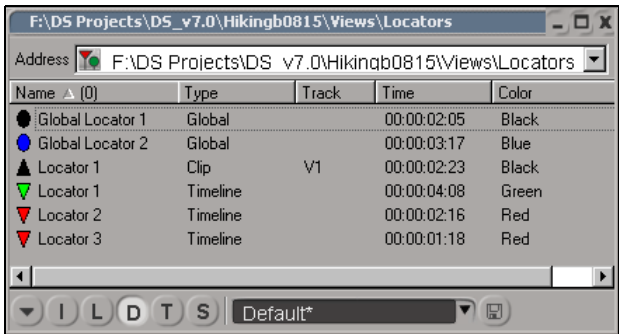


Sorting Information in the Locators View

Depending on how you like to view information, you can sort or reverse sort the locators.

To sort the locators:

- Click the column heading of the column that you want to sort.
If the information in the column was in ascending order, then the information is changed to descending order, and vice versa.

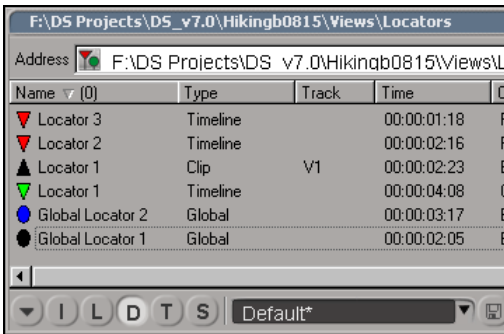


The screenshot shows a software window titled "F:\DS Projects\DS_v7.0\Hikingb0815\Views\Locators". It contains a table with the following data:

Name ▲ (0)	Type	Track	Time	Color
● Global Locator 1	Global		00:00:02:05	Black
● Global Locator 2	Global		00:00:03:17	Blue
▲ Locator 1	Clip	V1	00:00:02:23	Black
▼ Locator 1	Timeline		00:00:04:08	Green
▼ Locator 2	Timeline		00:00:02:16	Red
▼ Locator 3	Timeline		00:00:01:18	Red

Below the table is a toolbar with buttons labeled I, L, D, T, S, and a dropdown menu set to "Default*".

Name column in ascending order.



The screenshot shows the same software window as the previous one, but the locators are sorted by name in descending order. The table data is as follows:

Name ▼ (0)	Type	Track	Time	Color
▼ Locator 3	Timeline		00:00:01:18	Red
▼ Locator 2	Timeline		00:00:02:16	Red
▲ Locator 1	Clip	V1	00:00:02:23	Black
▼ Locator 1	Timeline		00:00:04:08	Green
● Global Locator 2	Global		00:00:03:17	Blue
● Global Locator 1	Global		00:00:02:05	Black

The toolbar at the bottom is identical to the previous screenshot.

Name column in descending order.

Setting Reference Locators

You can place reference locators on the timeline ribbon to mark a specific timecode at which you want to sync a clip or mark events for reference.

Reference locators can be either global or local. Global locators are visible on the current timeline and within any container clips. Local locators are visible only on the current timeline.

To place a local locator on the timeline, do one of the following:

- ▶ Double-click the timeline ribbon where you want to set the locator.
- ▶ Right-click the overview area and select **Add Locator at Playback Position** > *color*.
A numbered locator is set on the timeline ribbon at the specified timecode.

To place a global locator on the timeline:

- ▶ Right-click the overview area and select **Add Global Locator at Playback Position** > *color*.
A numbered locator is set on the timeline ribbon at the specified timecode.

To place a locator on a clip in the Source viewer:

1. Move the position indicator located below the Source viewer, to the point at which you want the locator to be placed.
2. Click the **Locator** button on the toolbar.



Tip: To change the name or color of the locator, and add comments, open the locator's property editor by right-clicking the locator and selecting **Locator Properties**.

Placing Locators on Clips

Locators are useful for synchronizing clips with other clips or specific points on the timeline. You can set locators at any point on a clip.

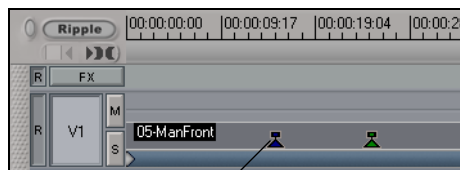


Clip locators do not move with the edit points. If you change activeness on a clip, you will have to re-mark the edit points.

To place a locator on a clip:

1. Move the position indicator to the point at which you want the locator to be placed.
2. Right-click the clip, and select **Add Locator > At Playback Position > color**.

A colored locator with a numbered label is set on the selected clip at the position indicator. Each time you add a locator to the clip, the number on the locator name increments. The numbering starts at 1 on each clip on which you place locators.



Clip locator

To set a locator at the start or end of a clip:

1. Right-click a clip, and select **Add Locator** and one of the following:
 - **At Clip Start** to add a locator at the in-point.
 - **At Clip End** to add a locator at the out-point.
2. Select a color for the locator.

To set locators at the edit points:

- Right-click a clip and select **Add Locator > At Edit Points > color**.

Moving Locators

After you have set locators, you can move them to different positions. You can even move a locator from a clip to the timeline ribbon or vice versa.

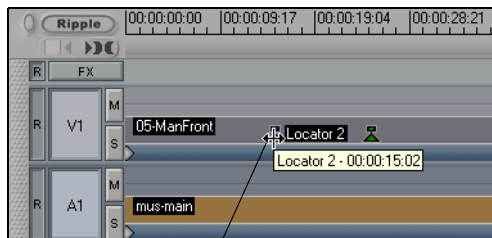
Clip locators have magnetism, which forces clips to snap to other timeline objects when they are in close proximity to each other.



If the Locator option is selected in the User Preferences dialog box (Editing property page), you can use the J-K-L keys to move locators in the timeline.

To move a locator on a clip:

1. On the clip, place the pointer over the triangular portion of a locator.
2. When the double-headed arrow is displayed, drag the locator to a new location.



Move Locator cursor

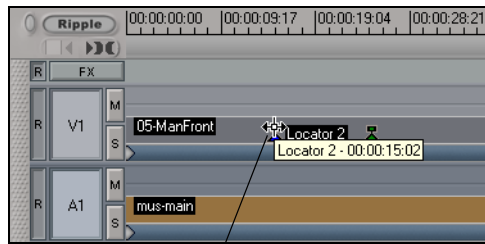
To move a locator on the timeline ribbon:

1. On the timeline ribbon, place the pointer over a locator.
2. When the double-headed arrow is displayed, drag the locator to a new location.

To move a clip with a locator:

1. On the clip, place the pointer over the square portion of a locator.
2. When the crosshair cursor is displayed, drag the locator left or right.

The clip moves with the locator as you drag it to a new location. The locator keeps its position on the clip.



Move Clip Locator cursor.

To move a clip locator to the timeline ribbon:

1. On the clip, place the pointer over the triangular portion of a locator.
2. When the double-headed arrow is displayed, drag the locator up to a position on the timeline ribbon.

The clip locator turns into a reference locator on the timeline ribbon.

To move a clip locator to the timeline ribbon and constrain it to the same timeline location:

- Hold down the U key and drag the locator up to a position on the timeline ribbon.

The clip locator turns into a reference locator on the timeline ribbon in the same timeline location.

To move a local locator to a clip:

1. On the timeline ribbon, place the pointer over a local locator.
2. Drag the locator to a position on a clip.

The local locator turns into a clip locator.

To move a local locator to a clip and constrain it to the same timeline location:

- Hold down the U key and drag the locator to a position on the clip.

The local locator turns into a clip locator at the same timeline location.

Deleting Locators

When locators are no longer needed, you can delete them through the Locators view or on the timeline.

To delete locators using the Locators view:

1. In the Locators view, select one or more locators.
2. Do one of the following:
 - ▶ Press Delete.
 - ▶ Right-click one of the locators and select **Delete Locator**.

The selected locators are removed.

To delete a locator on the timeline:

- ▶ On the timeline ribbon, right-click a locator and select **Delete Locator**.

To delete multiple locators on the timeline:

1. On the timeline ribbon, press Ctrl and click the locators that you want to delete.

The locator(s) are selected.



You can only select multiple locators of the same type. That is, clip locators must be selected separately from other types of locators on the timeline ribbon.

2. Press the Delete key.

To delete all locators:

- ▶ Right-click the timeline and select **Delete All Locators**.

Moving to Locators

Once you've placed locators on clips or the timeline, you can easily jump to these reference points. When you jump to a locator and there is an *active* frame at that point, it is displayed in the viewer.

To jump to a locator, do one of the following:

- ▶ In the Locators view, double-click a locator.
- ▶ In the Locators view, right-click a locator and select **Go To Locator**.

- ▶ On the timeline ribbon, select a locator.
- ▶ On the timeline ribbon, right-click a locator and select **Go to This Locator**.
The position indicator immediately moves to the selected timecode.
- ▶ On the NLE Tools toolbar, click **Navigation** > **Go to Next Locator** or **Go to Previous Locator**.

To move to an in or out-point:

- ▶ If there are any in-points or out-points on the timeline ribbon, click the **Go to In** or **Go to Out** button on the transport controls to place the position indicator at the respective points.
The position indicator immediately moves to the selected timecode.



In-points and out-points of clips on deactivated tracks are skipped when you move between edit points on the timeline. For more information, “Selecting Tracks” on page 133.

Annotating Locators

You can rename or add descriptions to your locators for future reference. Adding comments to locators is a convenient way of noting any specific frames that need color correcting, scratch removal, trimming, or review and approval by the client.

To annotate a locator:

1. On the timeline ribbon, right-click a locator and select **Locator Properties**.

2. In the Name text box, type a name for the locator.

This name is displayed next to the locator when you click it.

3. In the Comments text box, type a more detailed description for the locator.

Changing the Color of Locators

Identifying specific locators is easier with the use of color. With eight colors to choose from, you can, for example, use red to mark frames that contain scratches and blue for frames that need some color correction. Once you choose a color for a locator, it is used in the Locators view, timeline ribbon, and position bar.

To change the color of a locator:

1. In the Locators view, right-click a locator and select **Color**.
2. Select a color from the menu.

The color of the locator is changed in the Locators view, timeline ribbon, and position bar.

Finding Frames, Clips, and Bins

You can retrieve additional material from a master clip, a subclip, or subclip's master clip, as well as locate the bin in which you saved your clip.

When you perform a match frame, the master clip or subclip that corresponds to the currently selected frame is located, and the source master clip or subclip is loaded in the Source viewer.

Performing a match bin is the same as performing a match frame, but it also selects the original clip and displays its location in a bin.

Matching a Frame in a Master Clip or Subclip

You can locate the source clip (a master clip or subclip) for the frame currently displayed in either the Record viewer or Source viewer. This feature is useful when you want to relocate and reedit source material, such as subclips and master clips.

Match framing loads the source clip into the Source viewer for the frame currently displayed in the active viewer (Source viewer or Record viewer). It cues to the matching frame in the source clip and marks an in-point. Any original in-point or out-points are removed from the source clip.

You can also use the Match Frame feature to locate clips quickly, based on media relatives, when you have forgotten their location. For example, you can matchframe a cut in the sequence to its original subclip, matchframe the subclip to the original master clip, and then locate the bin in which the master clip is saved. Match framing stops when you reach the master clip.



You can also locate frames in a sequence that match a selected source frame—see “Performing a Reverse Match Frame” on page 186.

Match framing does not create a permanent sync relationship between clips but provides a convenient way of locating, marking, and editing matching material.

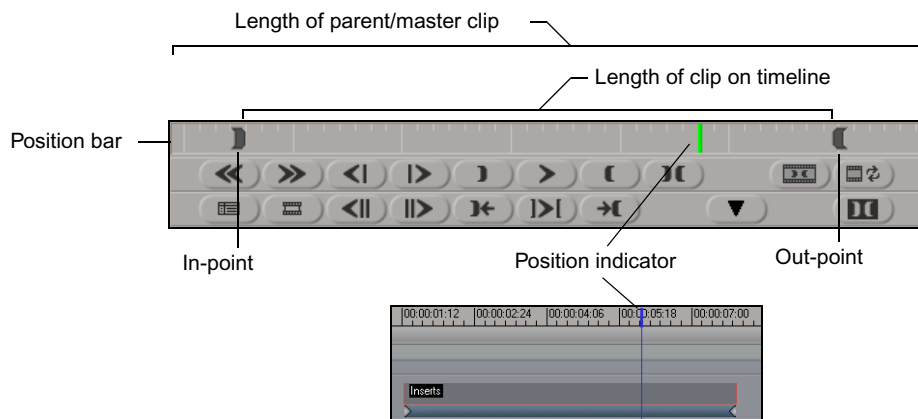
You cannot perform a match frame directly on a container clip, unless it is a timewarp container. You must first open the container clip and select the desired clip. For sync-locked master clips, select either the audio or video clip, and Avid DS Nitris will locate the corresponding video and audio components of the source media.

To locate the source clip of a selected frame:

1. Load a sequence on the timeline or a subclip into the Source viewer.
2. Move the position indicator to the frame you want to match.
3. Do one of the following:
 - ▶ If matchframing from a sequence, click the clip to select it.
 - ▶ In the Track selector, select the track for the frame that you want to match—see “Track Selector” in the Help.
4. Click the **Match Frame** button below the viewer displaying the desired frame to match.



The clip’s corresponding master or subclip is located and loaded into the Source viewer, and markers are added to indicate the source in and out-points of the clip. The position indicator below the Source viewer is placed at the precise timecode to match the frame you selected for match framing.



5. (Option) Click the **Match Frame** button below the Source viewer to locate the next corresponding parent clip.
6. If necessary, you can replace frames at this point—see [“Placing Pre-edited Clips on the Timeline”](#) on page 123.

Performing a Reverse Match Frame

You can locate the frames in a sequence that match the frame selected in the Source viewer. If the frame exists in more than one place, the sequence cues to the first location of the match frame and continues through the sequence to subsequent locations each time you click the Reverse Match Frame button.

You can perform reverse match frames on sequences that contain timewarp container and container clips. However, you might receive false-positives for position/speed timewarp container clips. For example, the timewarp is highlighted as containing the frame, but the frame is not present in the timewarp container clip.

To perform a reverse match frame:

1. Load a sequence on the timeline.
2. Load the source clip in the Source viewer.
3. In the Track selector, select the tracks you want to search for the matching frame—see “Track Selector” in the Help.
4. Move the position indicator to the frame that you want to match.
5. Click the **Reverse Match Frame** button.



The sequence is cued to the first matching frame.

- Click the **Reverse Match Frame** button again to continue locating matching frames in the sequence.

Finding the Bin for a Clip or Subclip

You can locate the bin for any clip selected on the timeline or displayed in the Source viewer. You cannot do this directly on a container clip. You must first open the container clip and select the desired clip. For sync-locked clips, you can select either the audio or video clip to find the bin containing the selected clip's master clip or subclip.

To find the bin containing a clip or subclip:

- Move the position indicator to the desired frame.
- Click the **Match Bin** button below the active viewer.



The bin containing the clip's corresponding master or subclip is displayed with the master or subclip selected. The master or subclip is loaded into the Source viewer and markers are added to indicate the source in and out-points of the clip on the timeline. The position indicator below the Source viewer is placed at the precise timecode to match the currently displayed frame on the timeline.

Extracting Parts of a Sequence

You can extract portions of your sequence to create new master clips. You can create master clips from selected regions on the timeline, or from selected objects.

This is useful when you're satisfied with the effects that you've applied to a clip, and you want to create a new master clip that includes the effects, or when you want to create a single master clip from the contents of a container clip. Combining effects or container contents in a single clip can help to reduce processing time.

You can convert individual clips, multiple clips, or regions of the timeline to new master clips. If you've selected regions of the timeline or multiple timeline objects, you can create a single new master clip that combines all of

the selected timeline material, or multiple new master clips; one for each selected object. You can automatically replace the existing timeline material with the new master clips.



If you create a single master clip from both audio and video material, the result is a combined audio and video clip.

You can also specify what types of tracks to convert from the timeline, and configure processing options.

Converted clips will include timeline material in different ways, depending on how you select material.

If you select...	The new master clip will include...
One clip	The clip and all of its effects.
Multiple clips on one track	All selected clips, all clip effects, and track effects. Frames in the new master clip are black for the duration of unselected material between clips.
Multiple clips on multiple tracks	All selected clips, all clip effects, all track effects, and timeline effects. Frames in the new master clip are black for the duration of unselected material between clips.
Time span on one track	All material in the selected time span, including clips, clip effects, and track effects. Frames in the new master clip are black for the duration of unselected material between clips.
Time span on multiple tracks	All material in the selected time span, including clips, clip effects, track effects and timeline effects. Frames in the new master clip are black for the duration of unselected material between clips.
Time span on the timeline effect track	All material in the selected time span.

Converting a Timeline Region or Object

You can convert a portion of your timeline or an object on the timeline to a master clip.

To convert a region of your timeline or a timeline object to a clip:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Do one of the following:
 - ▶ On the timeline effect track, drag to select a region.
 - ▶ Select one or more objects on the timeline.
3. From the toolbar, click **Generate > Timeline to Clip**.
4. In the Timeline to Clip Options dialog box, select the appropriate options.
5. Click **OK**.

The new clip is processed and saved to the bin you specified.

For detailed information on the Timeline to Clip properties, click the **Help** button.

Creating Multiple Clips

You can convert a timeline region or multiple selected clips into multiple master clips.

To create multiple clips from objects on the timeline:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Do one of the following:
 - ▶ On the timeline effect track, drag to select a region.
 - ▶ Select one or more objects on the timeline.
3. From the toolbar, click **Generate > Timeline to Clip**.
4. In the Timeline to Clip Options dialog box, select the appropriate options, making sure to deselect **Create one clip** and click **OK**.

For detailed information on the Timeline to Clip properties, click the **Help** button.

The new clips are processed and saved to the bin you specified.



You cannot create multiple clips from a selected timeline region. To create multiple clips, you must multi-select objects on the timeline.

Replacing Timeline Material

Replacing the timeline material overwrites the Timeline to Clip source material with the new master clip.

To replace material on the timeline with new master clips:



1. On the timeline navigation bar, click the **Selection Mode** button.
2. Do one of the following:
 - ▶ On the timeline effect track, drag to select a region.
 - ▶ Select one or more objects on the timeline.
3. From the toolbar, click **Generate > Timeline to Clip**.
4. In the Timeline to Clip Options dialog box, select the appropriate options, making sure to select **Replace Selection**.
For detailed information on the Timeline to Clip properties, click **Help**.
5. Click **OK**.

The new clip is processed and saved to the bin you specified. The Timeline to Clip Options dialog box is closed, and you are returned to the timeline. The new clips appear on the timeline in place of the selection.



You cannot replace a region of the timeline with multiple clips, even if the region spans multiple clips. Instead, clips, or parts of clips in the selected region, will be replaced with a single clip.

Grabbing Frames

You can create master clips or image files from the frame currently displayed in the Record viewer.

Creating a Master Clip from a Snapshot

You can create a master clip from the image on which the position indicator is currently positioned. The master clip is automatically captured (logged and digitized) under the name and location you specify. The resulting master clip is identical to other master clips and lets you to recapture it at a different resolution or compression ratio. You can specify the length of a master clip.

To create a master clip:

1. On the timeline, move the position indicator to the desired frame.
2. From the toolbar, click **Generate > Snapshot to Clip**.
3. In the Save Snapshot dialog box, specify the bin and file name, and click **OK**.



The Snapshot to Clip command works best with images that are set to uncompressed and full D1 resolution.

A master clip is created in the bin you specified.

Creating an Image File from a Snapshot

You can export an image of the frame on which the position indicator is currently positioned. The image is exported as a bitmap image file in one of several formats and saved in a bin you specify.

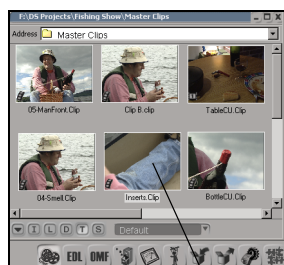
To create an image file:

1. On the timeline, move the position indicator to the desired frame.
2. From the toolbar, click **Generate > Snapshot to File**.
3. In the Export to File dialog box, specify the bin, file name, and file type and click **OK**.
4. Depending on the file type you select, a dialog box might display that lets you to set options, such as video levels, bit depth, and compression.

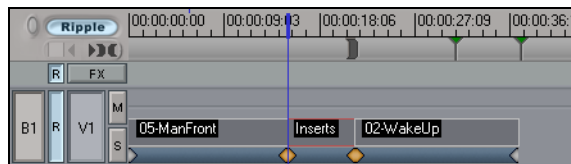
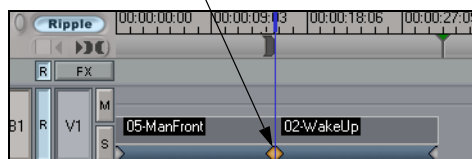
The image file is saved in the bin you specified. You can import the file into Avid DS Nitris or use it in other applications.

Rippling Clips

The Ripple mode lets you preserve the integrity of previous edits as you continue to perform other edits on the timeline. As you move, trim, insert, or delete clips on the timeline, you can decide if the clips that follow the edit point should move to accommodate the change.



Inserting clips in Ripple mode.



You can ripple all tracks (timeline effect, video, background, and audio) across the timeline or limit the rippling only to the video tracks or other selected tracks. For example, if you've already edited your video clips, and now want to work on the audio alone, simply activate the Ripple mode only for the audio tracks.



When you activate the Ripple mode on any background track, it is also activated on all background tracks. Only the audio and video tracks can be rippled on a per track basis.

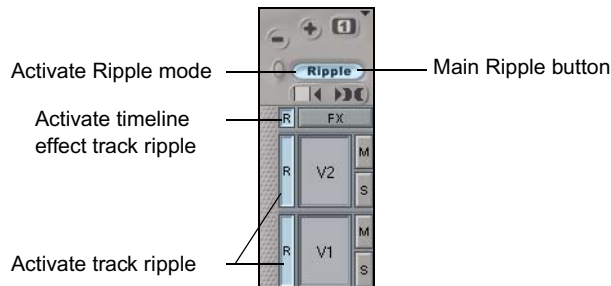
Working in Ripple mode is like working in *insert* mode. When you insert a clip anywhere along the timeline, any successive clips are automatically pushed later in time. Any clips that are sync-locked, such as the audio and video components of a clip, are rippled in sync. The edits of any preceding clips are not affected.

When you're not in Ripple mode, you're in the default *overwrite* mode. Any clip that you place on the timeline occupies the space in which it was placed. It does not change the position or activeness of the other clips.

To activate or deactivate Ripple mode:

1. From the timeline controls, click the main **Ripple** button.

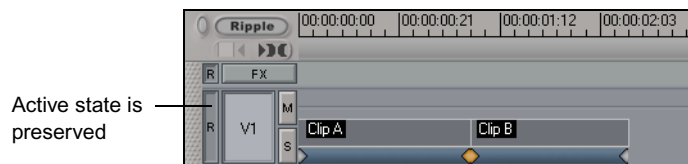
The Ripple mode is activated. By default, the Ripple buttons on all the tracks are also activated and highlighted in blue. This makes all clips in a sequence ripple across the timeline as you perform your edits.



2. Deactivate the **Ripple** button on tracks that you do not want to ripple as you insert new clips on the timeline.
3. To deactivate the Ripple mode, click the main **Ripple** button.

The Ripple mode is deactivated for all tracks on the timeline.

Notice that the setting of the Ripple buttons on the tracks is preserved even after the Ripple mode is deactivated. Although the buttons are not highlighted in blue, they still appear activated.



This indicates that you're *inserting* clips from the Source viewer to the timeline. The Insert button on the Source and Record viewer temporarily activates the Ripple mode, allowing you to ripple clips on tracks where this button is activated. For more information, see [“Manipulating Clips” on page 162](#).

Setting a Ripple End

You can select a timecode beyond which you no longer want to work in Ripple mode. Setting the ripple end at this timecode leaves Ripple mode on for the preceding time span, and turns it off for the succeeding time span.

When you place clips on the timeline before the ripple end, any successive clips will be pushed up to, but not beyond the ripple end timecode. Clips placed after the ripple simply occupy the space where they are placed, without changing the position or activeness of the other clips.

To set the ripple end:

1. Move the position indicator to the timecode where you want to deactivate Ripple mode.
2. From the toolbar, click **Editing > Set Ripple End**.

A light blue bar is displayed on the timeline, indicating the end of the ripple zone.

To reactivate Ripple mode for the complete timeline:

- Move the position indicator to the ripple end timecode and click **Editing > Set Ripple End** again.

Inserting Clips in Ripple Mode

You can insert clips at a specified point on the timeline by activating the Ripple mode. When the clip is inserted, all other clips from that point are pushed forward.

To insert a clip on the timeline:

1. From the timeline controls, click the **Main Ripple** button.
2. Click the **Ripple** button on the tracks that you want to ripple forward.
3. Drag a clip from a bin or Source viewer to the timeline.

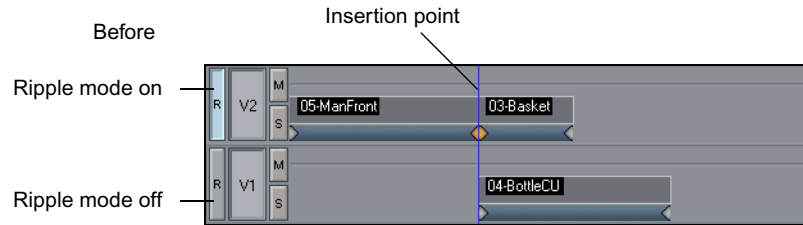
All other clips from that timecode forward are rippled on the tracks where the Ripple mode was activated. If you inserted the clip in the middle of another clip, that clip is split into two and the new clip is inserted between them.

Main Ripple button

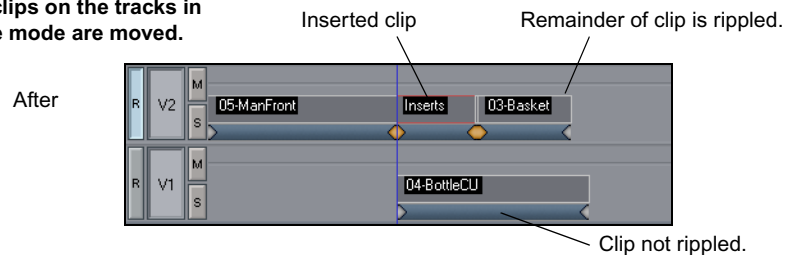


*Press the **V** (insert) or **B** (overwrite) keys while dragging clips to the timeline will override the current ripple setting.*

Inserting clip in Ripple mode.



Only clips on the tracks in Ripple mode are moved.



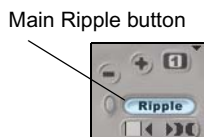
Editing Clips in Ripple Mode

When moving, trimming, or deleting clips while in Ripple mode, it's important to preserve the integrity of edit points on other clips. Any edits that you perform to one clip affects all successive clips on the timeline.

Instead of rippling all clips on the timeline, you can select the tracks on which you want clips to ripple. This is useful, for instance, when you do not want the trimming of video clips to affect the audio clips.

To edit a clip in Ripple mode:

1. From the timeline controls, click the main **Ripple** button.
2. Click the **Ripple** button on the tracks that you want to ripple.
3. Adjust the clip's edit points as necessary.



All clips are moved left or right to accommodate the changes on the selected clip.

If you delete a clip, all succeeding clips are moved together to close the gap where the clip was active.

Position of clips before deletion.**Position of clips after deletion (in Ripple mode).**

Synchronizing Clips

Synchronizing (syncing) clips refers to aligning points on different clips, so that they occur simultaneously. When you synchronize clips in Avid DS Nitris, you can sync-lock them together, so that they do not fall out of alignment. You can break the sync-lock on clips at any time to edit them independently of each other.

A locked group of synchronized clips is called a *sync group*. Each sync group has a master clip and one or more slave clips. The master clip acts as the focal point for the sync group, and the position of slave clips is always relative to the master clip's position.

One of the most common synchronization tasks that you can perform is syncing audio clips with video clips, so that the sound in the audio clip matches the action in the video clip.

Aligning Clips for Synchronization

Using locators can help you synchronize video and audio clips. You can place reference locators on the timeline ribbon and then drag the clip locator to align it with the reference locators or with other clip locators.

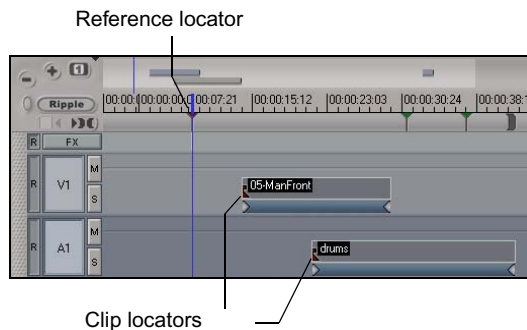
To align a clip at a specific timecode:

1. Move the position indicator to the timecode at which you want to synchronize the clips.
2. Right-click the timeline ribbon and select **Add Locator at Playback Position > color**.

This places a local locator on the timeline ribbon to define the point at which to align your clips.

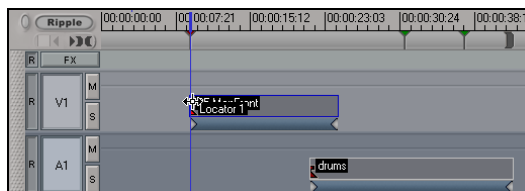
3. Right-click the clip and select **Add Locator > location**.

A clip locator with a triangular head is displayed on the clip.



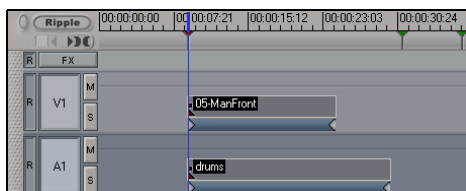
4. Place a locator on each of the other clips that are to be aligned.
5. Drag the head of the clip locator left or right to align it with the reference locator.

The clip turns blue and moves with the locator as you drag it. When you get close to the reference locator, the magnetism between the locators helps align the clip.



Audio and video clips aligned at position of reference locator.

6. Align the other clips in the same way.



Creating a Sync Group

Once you're satisfied with the way the clips are aligned, you can lock them together in a sync group. When you move one clip, the rest of the group moves with it. This is especially useful when trimming audio and video clips on multiple tracks, because the sound and accompanying images are trimmed in sync.

You can have any number of video or audio clips synchronized together, but you must select at least two clips to apply a sync-lock. The master clip is the center of the sync group. If the position of any clip is offset, the offset will always be displayed as the number of frames from the master clip.

When you create a sync group, the order in which you selected the clips is maintained. If you delete the master clip in the group, the second clip that you originally selected becomes the new master clip.

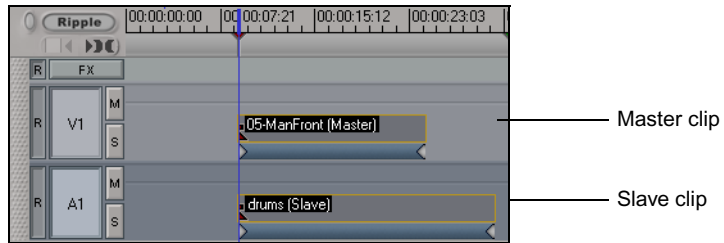


When a clip containing both audio and video is placed on the timeline, its audio and video components fall on separate tracks as individual clips. These clips remain sync-locked to each other.

To lock clips in sync:

1. Align your clips on the timeline.
2. Do one of the following:
 - ▶ Press Ctrl and click at least two clips to lock together.
 - ▶ Place the position indicator on the clips you want to lock together.
3. From the toolbar, click **Editing > Sync Lock**.

The name of the first clip that you selected ends with “Master” while the names of the other clips end with “Slave”.



*If the selected clips are already synchronized, when you click **Editing > Sync Lock** the synchronization is broken. The Sync Lock command can lock clips and unlock clips, depending on the synchronization status of the clips.*

Adding to an Existing Sync Group

As you place clips on the timeline, you can add them to existing sync groups. If, for example, you have a sync group containing a video track and an audio track, you can align a second audio track with the sync group, and add it to the group when you're satisfied with its position.

To add clips to a sync group:



1. On the timeline navigation bar, click the **Selection Mode** button.
2. Select a clip from the sync group to which you want to add the clip.
3. Press Ctrl and select the clip that you want to add to the sync group.
4. From the toolbar, click **Editing > Sync Lock**.

The clip is added to the sync group.

Combining Two Sync Groups

You can combine two or more sync groups to form a single group, containing all of the clips in the original groups. The clips in the second group that you select are appended, as slave clips, to the first group that you select.

To combine existing sync groups:



1. On the timeline navigation bar, click the **Selection Mode** button.
2. Select a clip from the sync group that you want to combine with another group.

3. Press Ctrl and select a clip from the group that you want to add.
4. From the toolbar, click **Editing > Sync Lock**.

The groups are merged into a single sync group. The clips in the added group are all slaves and the master of the first group remains the master.

Unlocking Synchronized Clips

You can remove individual clips from a sync group without removing them from the timeline. When a clip is no longer synchronized, you can edit it independently of the other clips in the group. If you remove the master clip from a sync group, the next clip that you originally selected becomes the new master clip.



Applying the Timewarp, Interlace/Deinterlace, and 3:2 Expand/3:2 Contract effects automatically breaks the lock on synchronized clips.

To break a sync-lock:

1. Do one of the following:
 - ▶ Place the position indicator on the synchronized clips.
 - ▶ On the timeline navigation bar, click the **Selection Mode** button, and select one or more synchronized clips.
2. From the toolbar, click **Editing > Sync Lock**.



Only the selected clips are removed from the rest of the sync group, and can now be edited independently.

Manipulating Synchronized Clips

You can select and move synchronized clips the same way that you would with non-synchronized clips. There are, however, a few differences.

When you select synchronized clips, they are surrounded by a red border. Other clips in the group are surrounded in yellow to indicate that they're part of the same group, but were not directly selected. If you multi-select clips in a group or select an entire group, the selected clips will share the focus, and be surrounded in brown.

When you move synchronized clips, the entire group moves together. You can, however, move single clips in a sync group independently of the other clips in the group. For more information, see [“Manipulating Clips” on page 162](#).

Selecting All Clips in a Sync Group

You can select all of the clips in a sync group at the same time. This is useful if, for example, you want to delete an entire sync group.

To select all clips in a sync group:



1. On the timeline navigation bar, click the **Selection Mode** button.
2. Click one clip from the group that you want to select.
3. From the toolbar, click **Editing > Select Sync Peers**.

All clips in the sync group are selected. Selected clips have red handles and an orange outline.

Moving Synchronized Clips Independently

When Ripple mode is off, you can move one clip in the sync group independently of the other clips in the group. Moving synchronized clips independently creates an offset between the master clip and slave clips. When an offset occurs, the name of each offset slave clip turns red, and includes the number of frames by which it is offset from the master clip.



If you move a group's master clip independently, all of the slave clips in the group will show an offset.

To move a synchronized clip independently:



1. Make sure that the **Main Ripple** button is deselected.
2. On the timeline navigation bar, click the **Selection Mode** button.
3. On the timeline, select the clip that you want to move.
4. Press the W key, drag the clip along the timeline.

The position of the other clips in the sync group will not change. Any resulting offsets will be displayed next to the names of the slave clips.

Cutting Synchronized Clips

You can cut one or more clips in a sync group in two. When you cut a single clip, the part that you cut off remains synchronized as a new clip. If you cut multiple clips in a group, the two new clips or group of clips become a new sync group with the same master/slave relationships as the original group. For more information, see [“Cutting Clips” on page 168](#).

Editing Synchronized Clips

The same rules that apply to editing clips on the timeline apply to all synchronized clips. That is, you can still move, slide, or trim them.

When you edit synchronized clips, red handles appear on the first selected edit point. You can use the trim handles to adjust the clip as necessary. If you want to trim multiple clips in the group simultaneously, you can select the edit points of all sync group members at the same timecode.

To select all synced edit points at a specific timecode:



1. On the timeline navigation bar, click the **Selection Mode** button.
2. Select an edit point of a clip in the sync group.
3. From the toolbar, click **Editing > Select Sync Peers**.

All of the sync group members' edit points, at the same timecode, are selected. The clips can now be edited simultaneously.



When working with synced audio and video clips, it may be necessary to trim an edit point on one clip independently of the others. For example, if you want a synchronized audio clip to continue for a few seconds past the end of its video clip peers, you can perform a split edit. For more information, see [“Selecting Trim Sides” on page 215](#).

Resyncing Clips

Offsets that were created by moving a synchronized clip independently of its peers can be corrected, partially or even completely, by resyncing the clip. Resyncing slips the offset clip until the offset is back to zero, or until the offset clip runs out of unused material. For more information, see [“Understanding Slipping or Sliding Clips” on page 232](#).

To resync an offset clip:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. On the timeline, select the offset clip.
3. From the toolbar, click **Editing > Resync**.

The clip is slipped until the offset is corrected, or no unused material is left.

Deleting Synchronized Clips

When you delete a sync-locked clip, only the highlighted clip is deleted. The other clips that were synchronized with it remain synchronized. If you delete an entire group, none of the clips remain on the timeline.

If you delete a group's master clip, the second clip that you selected when you created the group becomes the new master clip. All subsequently selected clips remain as slave clips.

If the group from which you deleted the clip contained only two clips, the other clip in the group will remain on the timeline as a single clip (neither master nor slave).

To delete a synchronized clip:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. On the timeline, select a clip to delete.

A red border surrounds the selected clip.

3. Press Delete to delete the clip.

The selected clip is removed. If the group contained more than two clips, the next selected clip in the group becomes the new master clip.

To delete a sync group:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Select one clip from the group that you want to delete.
3. From the toolbar, click **Editing > Select Sync Peers**.
4. Press Delete to delete the clip.

The selected group is removed.

Referencing Sequences

Referencing other sequences lets you add placeholders to other sequences on the timeline in the current sequence. These placeholders are called *reference clips*.

A reference clip points to another sequence within the current project. Because reference clips only point to a sequence, they consume less memory and load faster than container clips. This improves performance on complex timelines. Using a reference clip also lets you work on that portion of your sequence separately. Once it's updated, the changes are automatically reflected in sequences that contain this reference clip.



Sequences that reference other sequences might not reflect changes if the referenced sequence contains a reference clip to another sequence. For example, if sequence C references sequence B, and sequence B references sequence A; then any changes to sequence A will not appear in sequence C until you open and save sequence B. The reason for opening and saving sequence B is to update its information about sequence A, because sequence C only sees sequence A through sequence B.

Creating Reference Clips

You can create a reference to any sequence that exists within the current project. A reference clip cannot be placed on a track if it completely covers another clip. In this case, you must place the reference clip on a different track.

To create a reference to an existing sequence:

1. Select a sequence from the Avid Explorer.
2. Press the Alt key and drag the sequence to the timeline.

The sequence is displayed as a clip on the timeline.

Converting a Container Clip to a Reference Clip

You can lighten the load on your timeline and improve performance by converting complex container clips to reference clips. This saves the contents of the container clip to disk as a sequence. In the container clip's place on the timeline a reference clip points to the saved sequence.

To convert a container clip to a reference clip:

1. Right-click the container clip and select **Convert to Reference Clip**.

You are prompted to save your current sequence.

2. Click **OK** to save the current sequence and continue.

The current sequence is saved, and the container clip is saved as a sequence with the same name as the container clip.

To open a reference clip:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. Select the reference clip.
3. From the toolbar, click **Editing > Expand Ref Clip**.

To close a reference clip:

- ▶ From the toolbar, click **Editing > Collapse Ref Clip**.

The reference clip is closed and the top timeline is displayed.

Processing Reference Clips

If a reference clip contains any unprocessed material, then the marker ribbon and/or clip is highlighted in red and a message “Referenced sequence needs processing” is displayed in the Record viewer during playback.



Processing a reference clip from a master sequence using the Process Reference command does not let you select processing options. The referenced sequence is processed according to the processing options of that sequence, except that it will change the mode to Minimal.

To process a single reference clip:

1. Place the position indicator on a reference clip you want to process.
2. From the toolbar, click **Processing > Process Reference Clip**.
You are prompted to save the current sequence.
3. Click **OK** to save the current sequence or click **Cancel** to bypass the save.

Avid DS Nitris closes the current sequence, opens the referenced sequence, processes it, saves it, and then reloads the original sequence.



To process the entire timeline, including any reference clips:

1. From the toolbar, click **Processing > Process Timeline and References**.
You are prompted to save the current sequence.
2. Click **OK** to save the current sequence or click **Cancel** to bypass the save.
Avid DS Nitris processes the entire timeline, and also opens and processes any reference clips on the top timeline.



Chapter 5

Trimming Clips

This chapter describes how to trim edit points after you create a rough cut sequence.

- [Workflow: Trimming Clips](#)
- [Understanding Trimming](#)
- [Methods of Trimming](#)
- [Understanding Trim Mode](#)
- [Selecting and Breaking Edit Points](#)
- [Performing a Basic Trim](#)
- [Creating Overlap Edits](#)
- [Trimming Container Clips](#)
- [Trimming Transition Effects](#)
- [Understanding Slipping or Sliding Clips](#)
- [Maintaining Sync While Trimming](#)

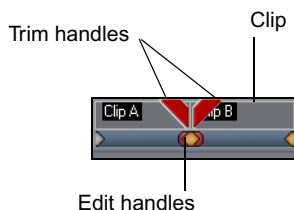
Workflow: Trimming Clips

Trimming is the process of fine-tuning the transitions between clips to create smooth transitions for the final sequence.

The following illustration shows how you can trim edit points.

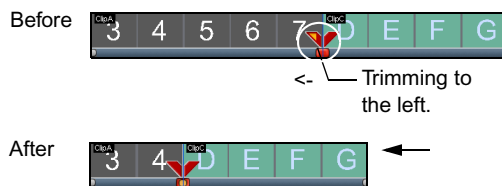
Chapter 5 Trimming Clips

- 1 Select either edit handles, trim handles, or clips.

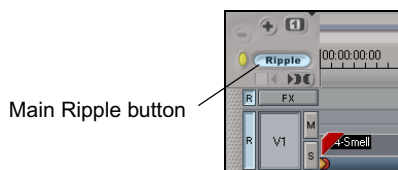


- 2 Perform a dual-roll trim or a single-roll trim.

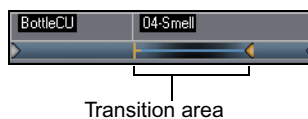
Drag the selected trim object right or left to trim the edit point.



- 3 Trim with Ripple mode to change recording timecode.
- Set Ripple mode to change the recording timecode when trimming with trim handles.



- 4 Trim transition effects.
- Use the tools in Trim mode or drag the transition's edit points to trim transition effects.



- 5 Trim clips using Trim mode.
- Enter Trim mode to display the incoming and outgoing frame for fine-tuning the trim.



- 6 Slip or slide a clip using Slip/Slide mode.

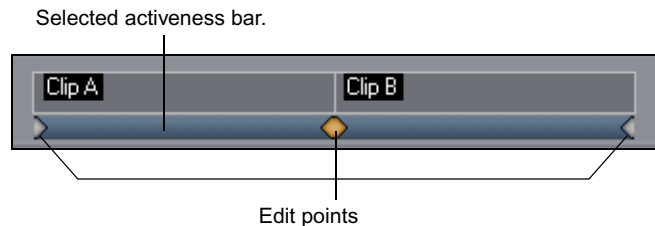
Enter Slip/Slide mode to display the head, tail, incoming, and outgoing frames when slipping or sliding a clip.



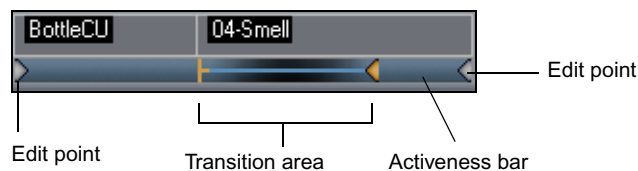
Understanding Trimming

Basic editing in the timeline initially produces a rough cut, which can be loosely defined as a series of straight-cut edits with many rough edges and few effects. After creating a rough cut, you can fine-tune the transitions between each clip or between several clips. You can also trim edits as you build a sequence rather than create a rough cut first.

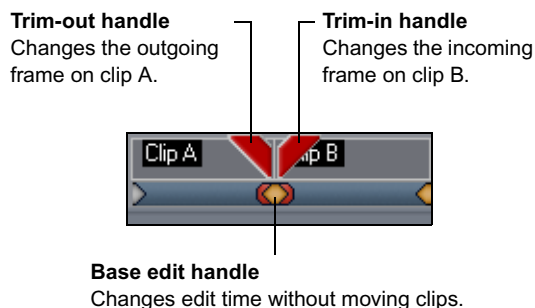
Trimming lets you fine-tune the incoming or outgoing frames at the edit points of a clip. Each clip has elements that you can select and edit: the trim handles and edit points. Edit points are located at the ends of the activeness bar of a clip, or where it transitions to another clip.



The activeness bar also displays any transition effects that were applied to the clip, such as a dissolve, wipe, or crossfade. Transition areas have their own edit points that indicate the beginning and end of the transition. For more information, see [“Applying Transitions” on page 298](#).



When you select an edit point, it displays trim handles and edit handles at that edit point.



The edit point identifies the time at which the indicated frame will start or end recording. You can trim clips by adjusting the edit or trim handles at an edit point.

Trimming the edit handle changes the incoming or outgoing frame and the recording timecode. Adjusting the trim handle changes the incoming or outgoing frame, but keeps the recording timecode (unless in Ripple mode). For more information, see [“Rippling Clips” on page 191](#).

When trimming clips, it’s helpful to know how much material you have available. You can use the Display Unused Material mode to see how many extra frames you have available at the head or tail of a clip. For more information, see [“Revealing Unused Material on Clips” on page 171](#).

Methods of Trimming

There are two methods in which you can trim clips. Both methods have their advantages:

- **Interactively on the timeline**
When you trim clips on the timeline, you immediately see how it affects the other clips in the sequence. Also, when you select and drag an edit or trim handle, the frames are updated in the Record viewer, so that you can search for frames as you trim the clip.
- **Using the Trim mode**
This mode provides a set of controls for fine-tuning edits, as well as viewing the incoming and outgoing frames at the same time. It also provides more controls for performing trimming tasks.

For more information, see [“Understanding Trim Mode” on page 211](#).



When trimming a clip, you may want to preserve the integrity of edit points on other clips. To do this, you must deactivate the Ripple mode on the timeline. Trimming a clip provides different results depending on whether you’re working in Ripple mode or not. For more information, see [“Rippling Clips” on page 191](#).

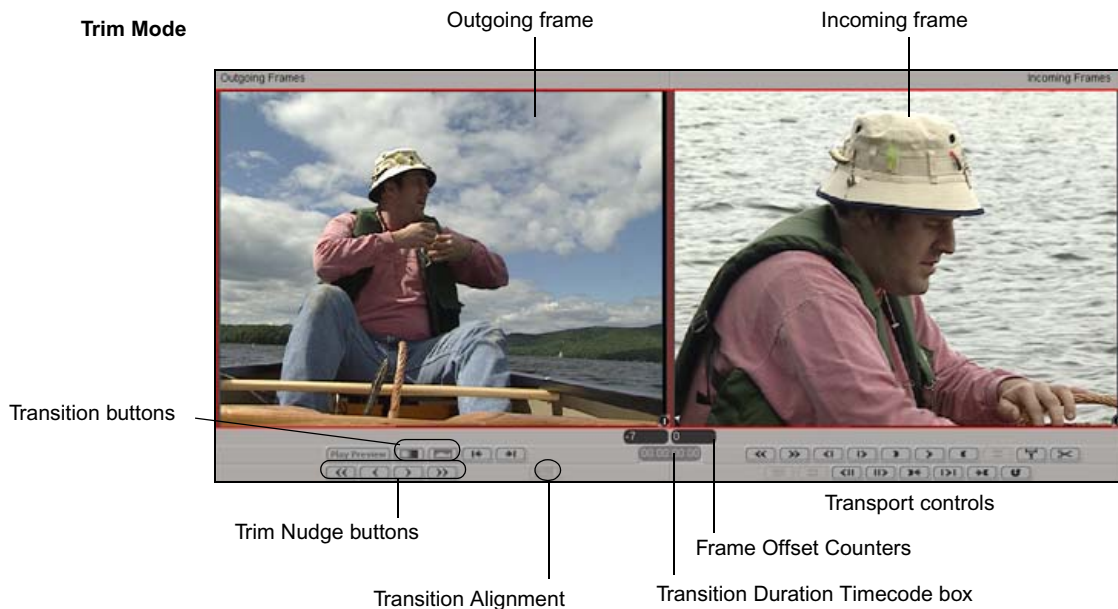
Understanding Trim Mode

The Trim mode provides a close-up view of a clip, so that you can trim the clip on a frame-by-frame basis. The results are the same as if you were dragging the clip’s trim handles or edit points on the timeline, except that you are given more tools to work with in the Trim mode.

The Trim mode lets you precisely trim the incoming and outgoing frames at the selected edit point of clips on the timeline. You can adjust frames at an edit point by entering new in and out times or by using the trim buttons to move the frames incrementally.

The information in the Trim mode is based on what you select on the timeline. You must first select an edit point or transition between two clips to see the incoming or outgoing frames in the Trim mode. Use the Previous Edit and Next Edit buttons in the Trim mode to go to an edit point.

Select the incoming or outgoing frame, and use the trim buttons to change the position of the edit point in the corresponding clip. If you select both panes, by clicking between the incoming and outgoing views or by holding the Shift key and selecting them one at a time, clicking the trim buttons will move the edit point without changing the position of either clip.



Click the Help button for detailed information on the Trim Mode controls.

Entering and Exiting Trim Mode

You can enter Trim mode either manually or automatically when you select an edit point on the timeline.

To manually access the Trim mode:



1. From the taskbar, click the **Editing** button.



2. From the timeline navigation bar, click the **Selection Mode** button to switch to Selection mode.

3. Select an edit point in the timeline.



4. From the timeline navigation bar, click the **Trim Mode** button.

The Source/Record viewers are replaced with the Trim mode and trim controls. If you did not select an edit point before entering Trim mode, the transition nearest the position indicator is selected for trimming.

To automatically access the Trim mode when you select an edit point:

1. Right-click the **Trim Mode** button and select **Switch for Edit**.
2. Right-click the **Trim Mode** button and select **Autoswitch**.

When you select an edit point in the timeline, you access Trim mode. Deselect Switch for Edit to return to manually accessing the Trim mode.

To exit Trim mode, do one of the following:

- ▶ From the timeline navigation bar, click the **Trim Mode** button.



- ▶ From the timeline navigation bar, click the **Source/Record view** button.
- ▶ Click a location in the timeline. The position indicator moves to the location and returns to navigation in Source/Record view if the Autoswitch command is selected.

Trimming Clips in Trim Mode

You can select the clip to be trimmed by clicking the Incoming or Outgoing frame in the Trim mode. A red border around the view indicates that it is active. If you want to trim the edit point between two adjoining clips, select both the Incoming and Outgoing frames by clicking between the incoming and outgoing views or by pressing the Shift key and clicking each frame.

There are several ways of trimming clips:

- Drag the trim-in or trim-out handles left or right to change the incoming or outgoing frames of a clip. This does not change the recording timecode.
- Drag the edit handle left or right to change the start or end time at which a clip is recorded. This also changes the incoming or outgoing frame. When trimming with the edit handles, it does not matter if Ripple mode is on or off.
- Use the Nudge Right 1 Frame (>), Nudge Right 10 Frame (>>), Nudge Left 1 Frame (<), and Nudge Left 10 Frame (<<) buttons to move the clip/edit point forward or backward and trim frames at the selected edit point. As you trim the edit point, the frames of the clip are hidden or revealed to reflect the new incoming or outgoing frame.

These buttons appear dimmed when there are no more frames available at the head or tail of the clip.

- Enter values in the Frame Offset Counter text box to move the edit point forward or backward. A positive number moves the edit point forward, and a negative number moves it backward.
- Use the J-K-L keys to trim the selected edit point.
As you trim clips in the Trim mode, the timeline updates to reflect the new edit points.

Reviewing a Trim Edit or Transition in Trim Mode

After you trim an edit point in Trim mode, you can review the trim edit to verify the trim. You can also play a transition in a loop to view the transition.

There are two procedures for reviewing a trim edit or playing a transition while in Trim mode.

To review the most recent trim edit or play the selected transition using the **Play Preview** button:

- ▶ Click the **Play Preview** button.

The Avid DS Nitris system enters a playback loop. This loop begins at a preroll point before the transition and ends at a postroll point, pausing briefly before beginning playback again.

To review the most recent trim edit or to play the selected transition:

1. Click the **Loop** button.

The Loop mode is activated and loop markers appear on the timeline ribbon.

2. Click the **Play** button.

Avid DS Nitris enters a playback loop. This loop begins at a pre-roll point before the transition and ends at a post-roll point, pausing briefly before beginning playback again.



To make adjustments to the playback loop for preroll or postroll, see “Editing Property Page” in the Help.

3. Stop the playback loop by clicking the **Play** button again.
4. Click the **Loop** button again to deactivate the Loop mode and remove the loop markers.

Selecting and Breaking Edit Points

Before you can trim a clip, you need to select an edit point. When you select an edit point on a clip, its trim handles and edit handles are displayed. Depending on the type of trim you want to perform, you can select and deselect the various trim handles and edit handles.

When an edit point is selected, all other edit points at that timecode are also selected. You can break linked edit points to trim the clips independently of each other.



Before you can select edit point and trim handles on the timeline, you must click the Selection Mode button on the timeline navigation bar to enter the Selection mode.

Selecting Trim Sides

You can select and deselect the various trim handles and edit handles of a clip's edit point. When you select an edit point you are selecting the clip's in or out-point.

With video clips, an edit point is shared when one clip intersects with another. If you adjust this edit point, you perform a dual-roller trim in which both clips are trimmed simultaneously.

You can perform a single-roller trim by selecting either an in-point or out-point. You can also select edit points on multiple audio and video clips at the same timecode. This is useful when editing synchronized audio and video clips. When an edit point is selected, you can turn it on or off. This is especially useful if you want to break an edit point, so that you can trim clips independently of each other (or perform a split edit).

To select an edit point, do one of the following:

- ▶ On the activeness bar, click an edit point.
- ▶ In Trim mode, click the **Go to Previous Edit** or **Go to Next Edit** button.

By default, Avid DS Nitris selects the nearest transition in either direction of selected tracks for trimming.

To select edit points on multiple audio and video clips:

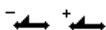
- ▶ Press Shift and drag left to right on the timeline to surround the transitions you want to trim.

This method is useful when you need to select multiple transitions staggered across parallel tracks (overlap cuts) for simultaneous trimming.

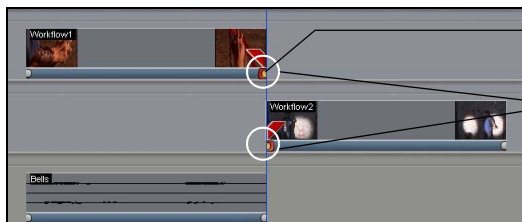


- ▶ Press Shift and click an edit point.

All other edit points at the same timecode are selected regardless of the clip type.

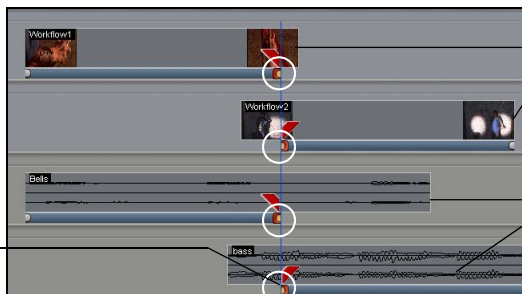


- ▶ Press Ctrl and click an edit point to select or deselect the edit point or trim handles for single-roll trimming.



Select an edit point.

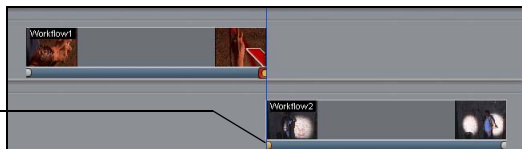
Both edit points on connected clips become selected.



Shift-click to select all edit points at that timecode.

Video clips

Audio clips



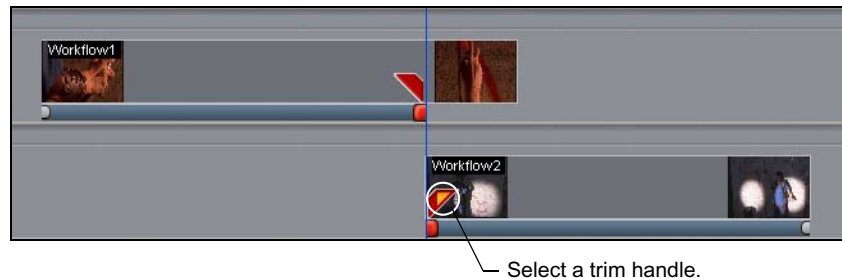
Ctrl-click to deselect an edit point.

To deselect all edit points:

- ▶ Click another location on the timeline.

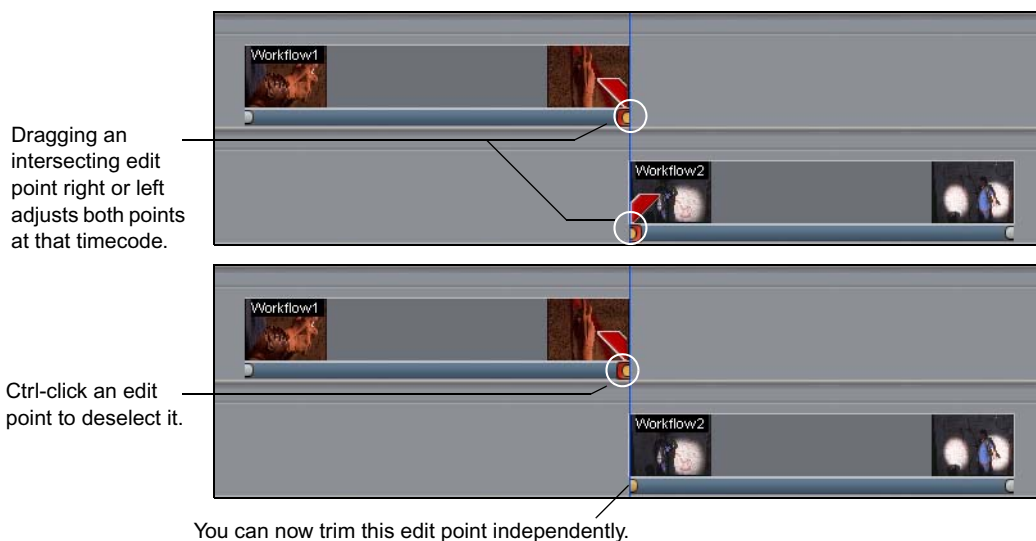
To select the sides of a transition to trim, do one of the following:

- ▶ In Trim mode, click the Outgoing (A-side) or Incoming (B-side) frame.
A red border surrounds the incoming and outgoing frames to indicate which clip will be trimmed.
- ▶ In Trim mode, click between the outgoing (A-side) or incoming (B-side) frame to select both sides of a transition.
A red border surrounds both the incoming and outgoing frames.
- ▶ Click the trim handles to select or deselect side A, side B, or both.
The selected trim handle turns yellow and a red border surrounds the incoming and outgoing frames to indicate which clip will be trimmed.



Breaking and Relinking Edit Points

When an edit point is selected, all other edit points at that timecode are also selected. You can break edit points to independently trim clips. Since Avid DS Nitris preserves all edit points between clips in a sequence, you cannot break an edit point by dragging edit points apart. To break edit points, you must use the Break Links command on the NLE Tools toolbar. Linked edit points are highlighted in yellow.



To break an edit point:

- Select the edit points of contiguous clips, and do one of the following:
 - Press Ctrl and deselect the edit point that you do not want to adjust. The deselected edit point is no longer highlighted.
 - From the toolbar, click **Editing > Break Links**.
- You can now trim the clips independently of each other.

To relink edit points at the same timecode:

1. Select an unlinked edit point.
2. (Optional) Press Ctrl and click another edit point (of the same clip type) at the same timecode.

Both edit points are highlighted.
3. From the toolbar, click **Editing > Link Edits**.

Linked edit points are highlighted with yellow.

Performing a Basic Trim

With transitions and trim sides selected, you can perform a basic trim by doing any of the following:

- In the Trim mode, use the **Trim** buttons to trim forwards or backwards by one or ten-frame increments—see [“Understanding Trim Mode” on page 211](#).
- Use the J-K-L keys to trim forwards or backwards in the sequence—see [“Trimming On-the-Fly” on page 228](#).
- Use the keyboard or numeric keypad to:
 - Move the transition a specific number of frames, type a plus sign (+) or minus sign (–) after you type the number of frames (from 1 to 99) that you want to move forward or backward. Then, press Enter.
 - If the number of frames is larger than 99, type a period (.) before you type the number of frames. For example, to enter 100 frames, type .100 and press Enter. The transition moves 3 seconds and 10 frames.
 - Move the transition to an exact point in the timecode, type a timecode number larger than 99, including frames. For example, type 102 to enter 1 second and 2 frames (1:02).



When typing a timecode value, you can skip fields by typing a dot (.). For example, type 12..22 for timecode 12:00:00:22.

- In Trim mode, to move the transition a specific number of frames, type the number of frames in the **Frame Offset Counter** box.
- Select an edit point, a trim-in handle, or a trim-out handle, and adjust the values in the timecode boxes on the status bar. This edits frames at the selected point more accurately.



- Drag the trim-in or trim-out handles left or right to change the incoming or outgoing frames of a clip. This does not change the recording timecode (unless in Ripple mode)—see [“Trimming with the Trim Handles” on page 222](#).
- Drag the edit handle left or right to change the start or end time at which a clip is recorded. This also changes the incoming or outgoing frame. When trimming with the edit handles, it does not matter if Ripple mode is on or off—see [“Trimming the Edit Point” on page 220](#).



If you want to trim synchronized audio and video clips, you must simultaneously select multiple edit points. For more information, see [“Selecting Trim Sides” on page 215](#).

As you trim, all selected transitions in the timeline move in unison. The Frame Offset counters display the frame count backward or forward for one or both trim sides, and the Trim viewer displays the new incoming or outgoing frames.

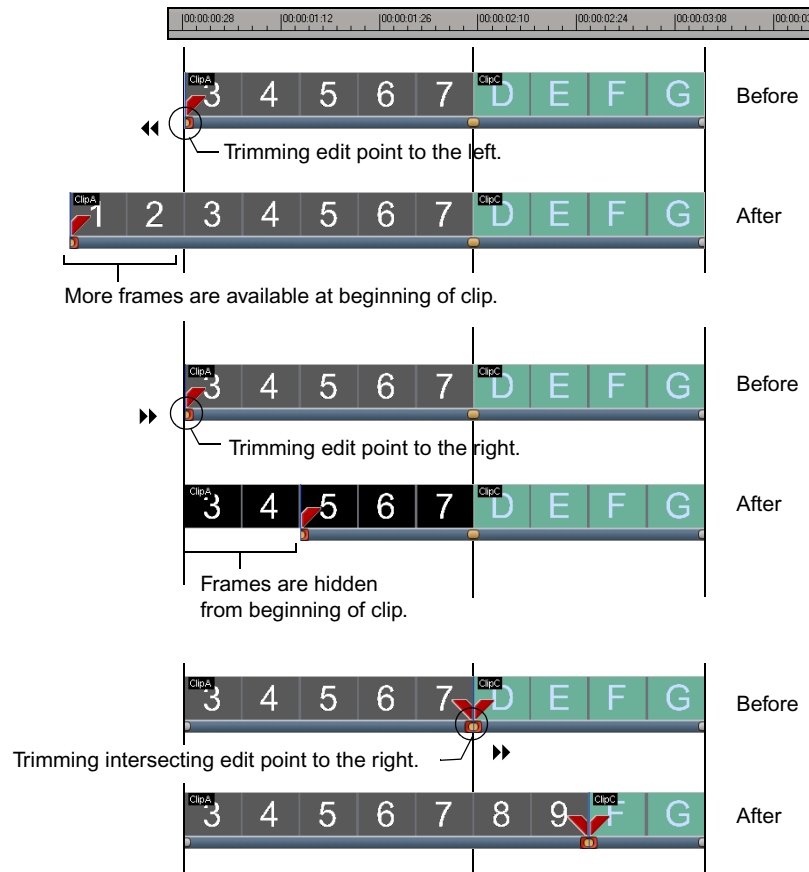
Trimming the Edit Point

When you move the edit handle at an edit point, you are changing the start or end recording time for the clip. This also changes the incoming or outgoing frame.



When trimming with the edit handles, it does not matter if Ripple mode is on or off.

The following illustration shows the different ways of trimming an edit point:



Edit points can only be dragged as far as there is available material on the clip.

To trim an edit point on a clip:

1. Select an edit point on a clip.

The clip's edit handles are displayed.

2. Drag the edit point left or right.

Depending on the direction in which you drag the clip, more frames are made available or hidden.

To trim edit points between clips:

1. Select an edit point between two clips.

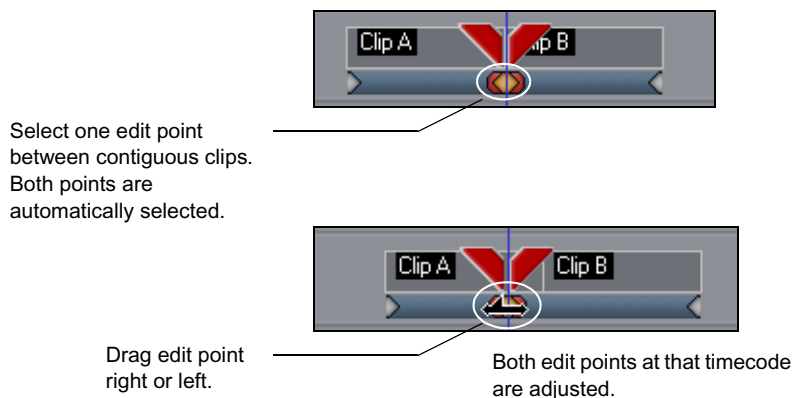
The edit handles on both clips are displayed.

2. Drag the edit point left or right.

As you move the edit point, it reveals more frames on one clip and hides frames on the other.



You can also adjust an edit point more precisely by selecting it and entering a value in the S (start) or E (end) timecode boxes on the status bar.

Adjusting the in-point and out-point on clips**Trimming with the Trim Handles**

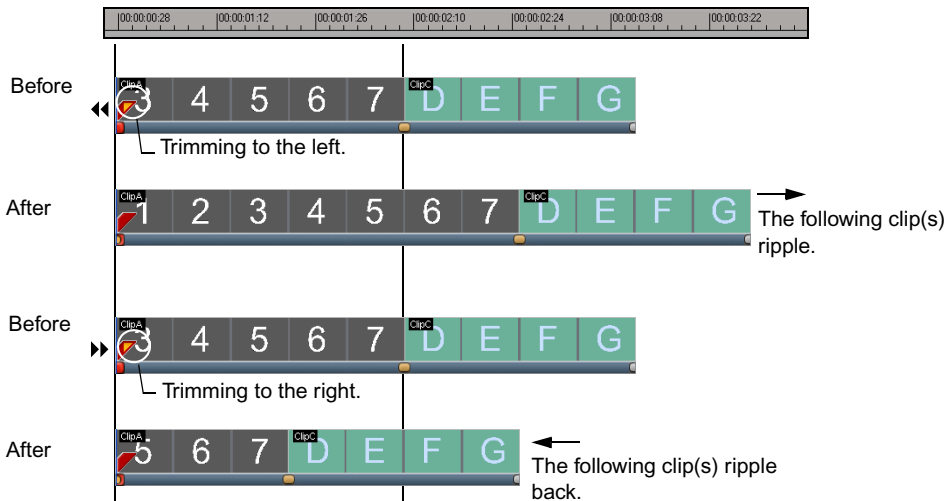
The trim handles on a clip are used to change the incoming or outgoing frames of a clip. This does not change the recording timecode. When you move the trim-in handle of a clip, you change the incoming frame on a clip. Similarly, if you move the trim-out handle of a clip, you are changing its outgoing frame.



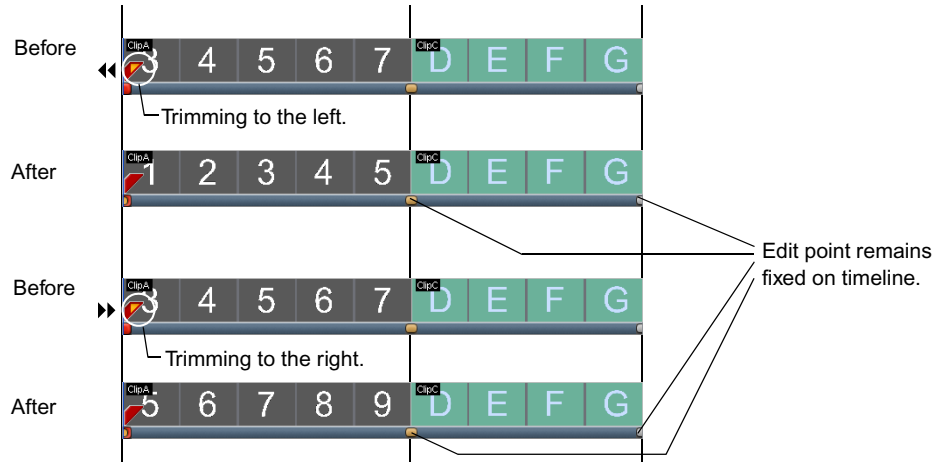
When *Ripple* mode is activated, trimming clips gives you different results than when it is deactivated. The following illustrations show how clips are affected when you trim them with and without the Ripple mode. The first scenario illustrates what happens when you trim an in-point.

Trimming an in-point

Ripple mode on



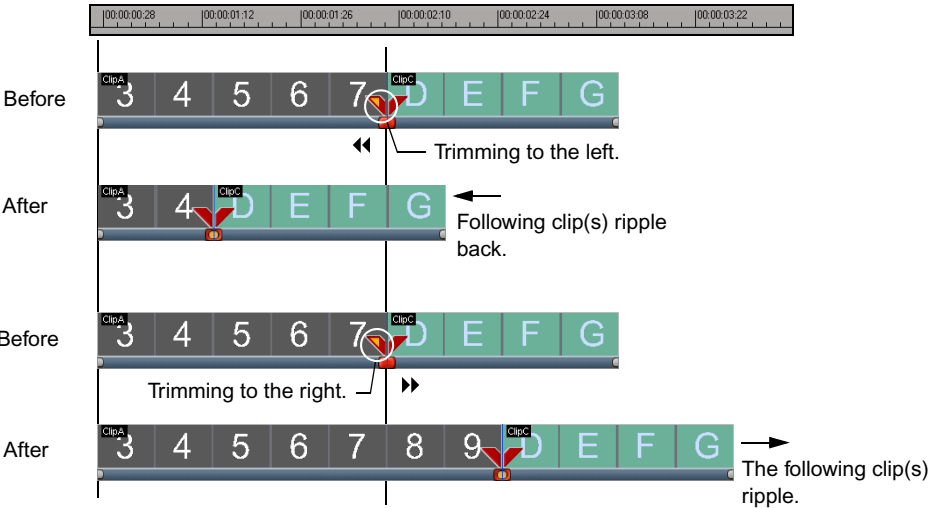
Ripple mode off



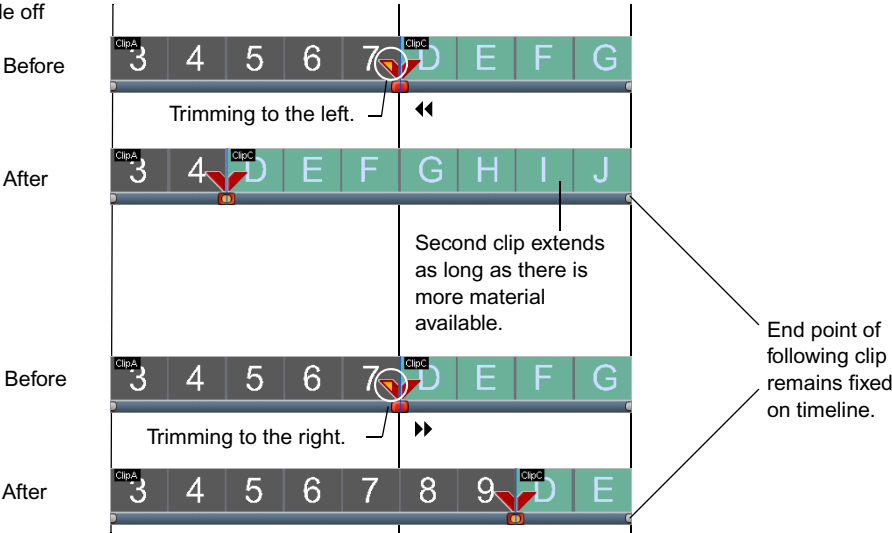


Trimming an out-point

Ripple mode on



Ripple mode off



To adjust the trim handles:

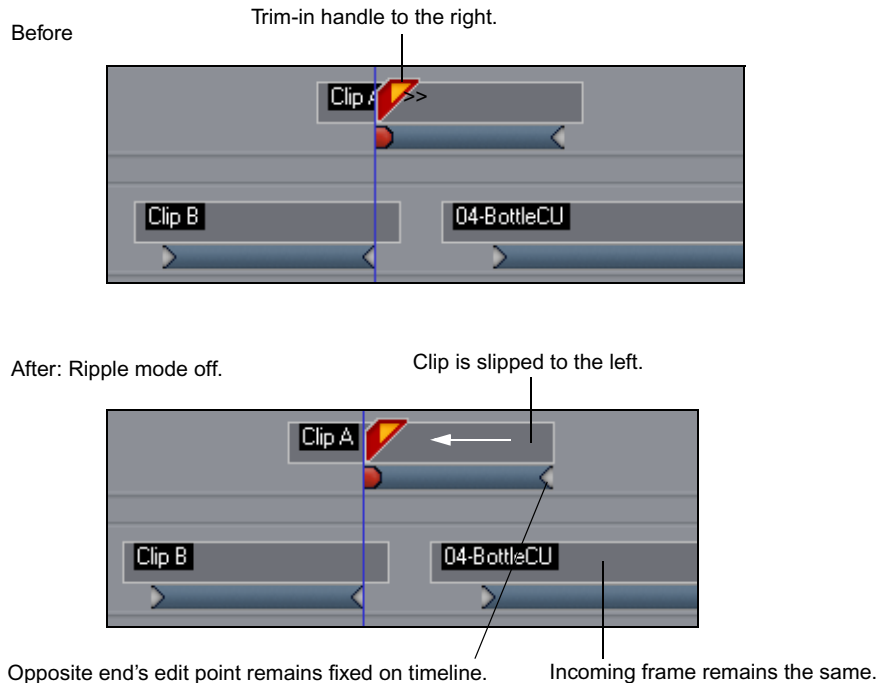
1. (Optional) Click the **Ripple** button in the timeline controls. If necessary, click the **Track Ripple** button for the individual tracks on which you want the clips to ripple.



You can only ripple individual audio and video tracks.

2. Select the edit point on the clip that you want to trim.
The clip's trim handles are displayed just above the edit point.
3. Drag the trim handle to the right or left. The trim handle can only be moved as far as there is extra material available on the clip.

The following example shows the results of trimming a clip when you're in Ripple mode and when you're not. The clips are placed on multiple tracks, so that you can see the unused material on the clips.

Trim-in handle when not in Ripple mode.

Trim-in handle in Ripple mode

Before

Trim-in handle to the right.



After: Ripple mode on.

Clip is slipped to the left.

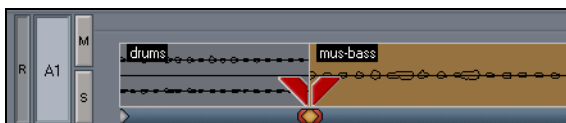


Trim-in handle to the right.

Successive clips are moved the same amount of trimmed frames.

Trimming Audio Clips

Using the trim handles to trim audio clips lets you hear the clips as you scrub over them. For example, in the following illustration, if you move the trim-in handle of the Drums clip, you'll hear that clip being played. If however, you move the trim-out handle of the Bass clip, that's the clip you'll hear.



Backtiming

Backtiming is a way of trimming a clip's out-point without changing its activeness or position. Instead of overwriting or being overwritten by the following clip, the selected clip is slipped along its unused material.



When trimming backtime edits, it does not matter if Ripple mode is on or off. Backtime edits are performed as if Ripple mode is off.

To perform a backtime edit on a clip:

1. Make sure that the main **Ripple** button is deselected.
2. Select the out-point that you want to edit.
3. Press E and drag the out-point trim handle right or left.

The clip is slipped along its unused material while maintaining its activeness and position. The previous and next clips in the sequence are not affected.

Main Ripple button



Snapping Edit Points

If you need to quickly fix a bad edit, instead of selecting the previous or next edit point and dragging it to the position indicator, you can locate the correct frame and then snap the edit point to that frame. Effects applied to the clip are also trimmed.

To snap an edit point to the position indicator:

1. Move the position indicator to the desired position.

The P timecode box indicates the timecode of the position indicator.

2. From the toolbar, click **Editing** and select one of the following:

- **Snap In** to move the in-point to the new timecode.
- **Snap Out** to move the out-point.

The selected frame becomes the new in or out-point.



You can also use the Snap In and Snap Out commands to trim synced clips (for example clips with audio and video content) as long as the clips are the same length. You should have enough unused material available to perform this operation. For more information see “Revealing Unused Material on Clips” on page 171.

Trimming On-the-Fly

In Trim mode, you can use the J-K-L keys on the keyboard to play outgoing or incoming material and mark trim points. For convenience, this method isolates the trim controls to just three keys.

To trim on-the-fly:

1. Click either the outgoing (A-side) or incoming (B-side) frame to play in real time during the trim.
2. Select one or more transitions for single-roller or dual-roller trimming.
3. Use the J-K-L keys to step (jog), play, or shuttle through the footage at varying speeds:
 - Hold down the K key while pressing the J or L key to step slowly backwards or forwards through the footage. When you find the frame where you want to relocate the transition, release the K key to complete the trim.
 - Press the J or L key once to play at normal speed, or press more than once to shuttle at higher speeds. When you see the frame where you want to relocate the transition, press the K key to complete the trim—see [“Varying the Playback Speed” on page 154](#).



If you press the spacebar while trimming with the J-K-L keys, the position indicator moves to the current location. No trim is performed.

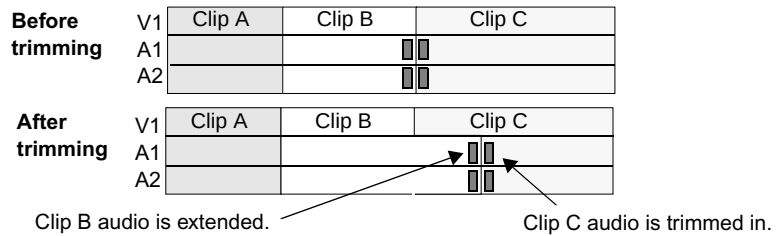
The Trim viewers and the timeline are updated to reflect the trim.



When trimming with the J-K-L keys, you cannot completely trim away a clip. The Avid DS Nitris system always leaves one frame. To remove the remaining frame, see [“Performing a Basic Trim” on page 219](#).

Creating Overlap Edits

You can use an overlap edit to smooth a transition by giving the illusion that the audio or video is shared between two separate but adjacent clips. Perform a dual-roller trim to create overlap edits.

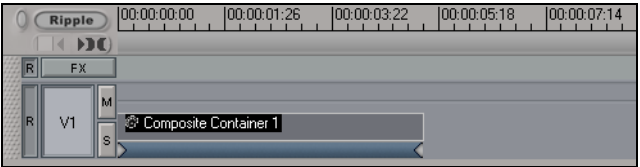
Audio overlap example**To create an overlap edit:**

1. Perform a straight-cut edit between two clips, including audio and video tracks:
 - If the timing of the video edit is crucial, mark edit points according to the video.
 - If the timing of the audio transition is crucial, mark edit points according to the audio.
2. Perform a dual-roller trim (edit point trim) on either the video track or the audio track, but not on both:
 - If the video transition occurs at the correct place, but you want the audio from one clip to linger into the other (or the reverse), trim the audio tracks accordingly.
 - If the audio transition occurs at the correct place, but you want the video to transition either before or after the audio cut, trim the video track accordingly.

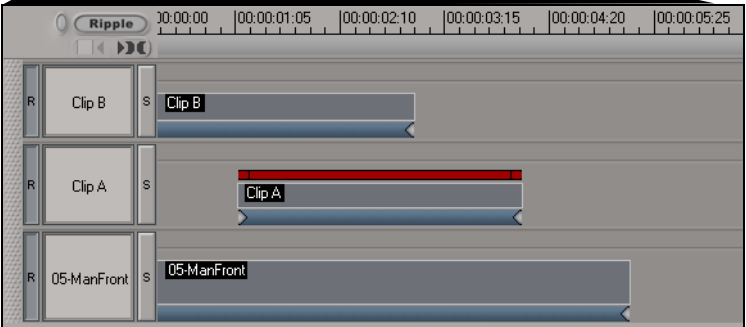
Trimming Container Clips

You can trim a container clip just as you would trim any other clip on the timeline. You can drag the in-point out to the start of the material (that is, the in-point of the first clip in the container clip). The out-point of a container clip can be dragged to infinity. When you trim a container clip, it does not affect the length of the clips contained within it. If the clip in the container clip is longer than the container clip itself, the extra material is not visible in the final sequence.

Top timeline



Container clip timeline



Container clip ends at 00:00:04:22, so this portion is not visible in final sequence

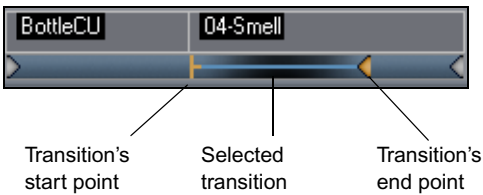
Trimming Transition Effects

Transitions are displayed as part of the activeness bar. When you select a transition, it is highlighted in red. You can adjust the properties of the transition by right-clicking on this area and opening its property editor.

The edit point between two clips indicates a transition from one clip to another. You can trim this edit point to change the timecodes at which the transition takes place.



You can also edit transitions by entering values in the timecode boxes on the status bar.



To change the duration of a transition effect:

- 1. Select the edit point of the transition effect.
- 2. Enter the new length for the transition in one of the following places:
 - The Transition Duration timecode box in Trim mode.
 - The D (duration) timecode box on the status bar.

To change the position of the transition effect:

- 1. In Trim mode, select the transition effect.
- 2. Right-click the **Transition Alignment** button and select one of the following:

Command	Button	Description
Transition Start		Starts the transition at the edit point.
Transition Center		Centers the transition on the edit point.
Transition End		Ends the transition at the edit point.



In the Source and Record view, you can also change the position of a transition effect by manually moving the edit point.

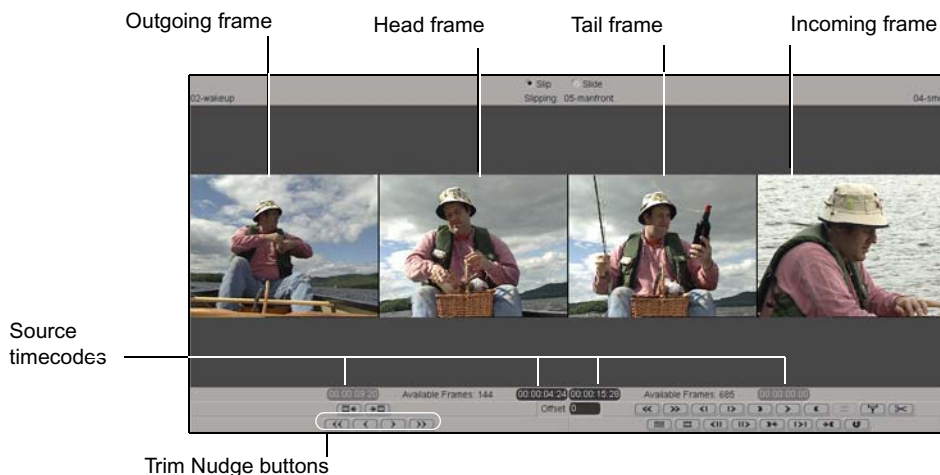
To trim the transition area, see [“Selecting and Breaking Edit Points” on page 215.](#)

Understanding Slipping or Sliding Clips

In addition to fine-tuning your edits by trimming clips, you can also slip the contents of a clip, or slide the clip to a different location in the sequence. Slipping and sliding clips do not affect the overall duration of the sequence or the sync relationships between multiple tracks.

The Slip/Slide mode lets you precisely manipulate a clip's incoming and outgoing frames on a frame-by-frame basis. This mode also shows the incoming and/or outgoing frames of the previous and next clip (if any). You can slip or slide a clip by entering new in and out timecodes, or by using the trim nudge buttons to move the frames incrementally. After slipping or sliding a clip in the Slip/Slide mode, you can play the results in the viewer.

Slip/Slide Mode



Click the Help button for detailed information on the Slip/Slide controls.

The Slip/Slide mode shows the frames in the selected clip and any clips to which it is connected. The Head frame and Tail frame show the start and end frames of the selected clip. If there are any clips before or after the selected clip, they're displayed in the Incoming frame or Outgoing frame.

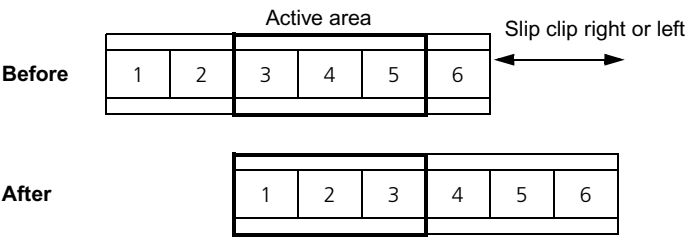


In the special case where the Slip/Slide mode is used for manipulating audio clips within an audio container, the Trim Nudge buttons (<, <<, >, and >>) will affect the clip in units of time defined by the ruler's display (milliseconds, samples, drop frame, or non-drop frame).

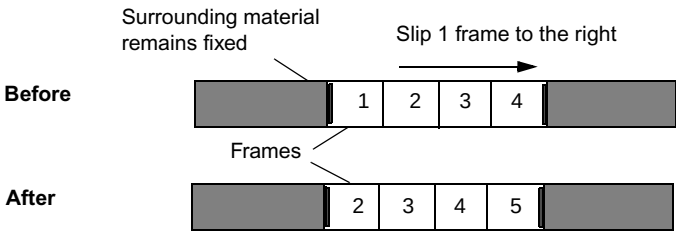
Slipping Clips

Slipping refers to moving the contents of a clip while its edit points remain fixed. Imagine looking through a train window as the landscape slides by. The size of the window always remains the same, but the view keeps changing.

Slipping a clip does not change the position or duration of the active area of a clip. You slip a clip when you are sure about the duration of a clip, but need to change the incoming frame. When you slip a clip, the edit points do not move, so any transitions that have been applied are maintained. However, the transition must be reprocessed.



The frames that precede and follow the clip you are slipping are not effected.



The active area in the illustration shows the active section of a clip. If you slip the clip, new frames appear in the active area. Any clips that precede or follow the slipped clip are not affected.



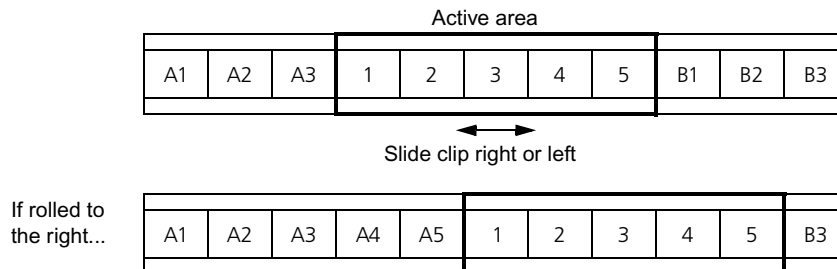
There are two ways of slipping clips in the Slip/Slide mode:

- These buttons appear dimmed when there are no more frames available for slipping.

- 

Sliding Clips

For example, you would slide a clip when your shot has the correct action sequence but needs to be synced with its corresponding audio track. To do this, slide the clip along the timeline until it aligns with its audio clip.



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- Use the Nudge Right 1 Frame (>), Nudge Right 10 Frame (>>), Nudge Left 1 Frame (<), and Nudge Left 10 Frame (<<) buttons to move the selected clip with its activeness forward or backward, and trim frames off the previous and next clips.

These buttons appear dimmed when there are no more frames available for sliding.

- Enter values in the Offset text box to move the edit point forward or backward. A positive number moves the edit point forward, and a negative number moves it backward.

Entering Slip/Slide Mode

The Slip/Slide mode is based on clip selection. You must first select a clip on the timeline to see the incoming and outgoing frames in the Slip/Slide mode.

To manually access the Slip/Slide mode:



1. From the taskbar, click the **Editing** button.



2. From the timeline navigation bar, click the **Selection Mode** button to select it.

3. Select a clip from the timeline.



4. From the timeline navigation bar, click the **Trim Mode** button.

The four-frame Slip/Slide mode replaces the Source/Record viewers.

To automatically access the Slip/Slide mode when you select a clip:



1. From the taskbar, click the **Editing** button.
2. Right-click the **Trim Mode** button and select **Switch for Clip**.
3. Right-click the **Trim Mode** button again and select **Autoswitch**.

When you select a clip in the timeline, the Slip/Slide mode is displayed. Deselect Switch for Clip to access the Slip/Slide mode manually.

To exit Slip/Slide mode:



- ▶ From the timeline navigation bar, click the **Source/Record view** button.

Performing a Slip or Slide Trim

In Slip/Slide mode, you can slip the contents of a clip or slide the clip to a different location in the sequence.

To slip or slide a clip:

1. On the timeline, select the clip that you want to slip or slide.



You can slip audio and video clips together by sync-locking them. For more information, see “Maintaining Sync While Trimming” on page 237.

2. Access Slip/Slide mode—see “Entering Slip/Slide Mode” on page 235.

The four-frame Slip/Slide mode replaces the Source/Record view.

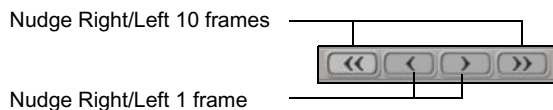
3. Select one of the following options from the Slip/Slide mode:

- **Slip** to slip the selected clip
- **Slide** to slide the selected clip



You cannot perform both slipping and sliding functions simultaneously.

4. Click the **Trim Nudge** buttons to slip or slide the clip.



You can also type the number of frames that you want to slip or slide in the Offset text boxes. A positive number moves the clip forward and a negative number moves it backward.

5. Monitor the progress of the trim by using the Slip/Slide modes, the Frame Offset counters, and the timeline.

When you reach the end of available material while slipping a shot, the trim stops. Similarly, when you reach the next transition while sliding a shot along a track, the trim stops. A red bracket at the transition indicates the limit. After completing the initial slide, you can perform another slide in the same direction. It's useful to see how much extra material you have

by displaying the frames past the activeness bar. To do this, you must be in Display Unused Material mode—see [“Revealing Unused Material on Clips” on page 171](#).

6. When you’re finished, exit the Slip mode or Slide mode by doing one of the following:



- ▶ Deselect the clip and click the **Trim Mode** button.



- ▶ Click the **Source/Record View** button.

Reviewing a Slip or Slide Trim

After you trim an edit point in Slip/Slide mode, you can review the trim edit to verify the trim.

To review the most recent trim edit:

- ▶ Click the **Play Preview** button.

The Avid DS Nitris system enters a playback loop. This loop begins at a pre-roll point before the transition and ends at a post-roll point, pausing briefly before beginning playback again.

Maintaining Sync While Trimming

Syncing clips is especially useful when trimming audio and video clips on multiple tracks, because the sound and accompanying images are trimmed in sync. Because single-roller (A-side or B-side) trims shorten or lengthen the duration of the track being trimmed, any relationships that exist with other tracks downstream of the trim will be thrown out of sync.

Single-roller trims allow you to trim one side of an edit point, whereas, a dual-roller trim will trim both sides of the edit point.

There are three methods that ensure you do not break sync unintentionally between two or more video and audio tracks when performing single-roller trims:

- Creating a gap on the track while trimming.
- Sync-locking clips to maintain their relative positions—see [“Synchronizing Clips” on page 196](#).

- Rippling tracks to maintain a synchronized relationship—see [“Rippling Clips” on page 191](#).



Because dual-roller trims do not cause sync breaks, you can only add gaps while performing single-roller trims.

Creating a Gap When Trimming

You can create a gap on either the A-side or the B-side of a transition while maintaining the overall duration of the track and sync relationships. When trimming a clip, a gap fills the duration of trimmed frames.

After you create a gap on a track, you can replace the gap with footage. For more information, see [“Placing Clips on the Timeline” on page 119](#).

To add a gap while trimming:

1. Select the transition.
2. Hold the Alt key and drag the A-side or B-side trim handle.

A gap fills the duration of the trim without changing the duration of sequence.



Chapter 6

Applying Image Transition Effects

This chapter describes the image transitions effects and how to apply them.

- [Understanding Image Transition Effects](#)
- [Applying a Dissolve Effect to a Transition](#)
- [Applying a DVE Effect to a Transition](#)
- [Understanding the Morph Effect](#)
- [Applying a Picture-in-Picture Effect](#)
- [Applying Wipe Effects](#)

Understanding Image Transition Effects

The image transition effects let you create transitions between clips on the same track, on different audio and video tracks, but not different background tracks. You can apply image transition effects on the timeline or to an Effects Tree. For more information, see [“Applying Effects on the Timeline” on page 297](#). You can also create transitions between two nodes in an Effects Tree. For more information, see [“Applying an Effects Tree as a Transition”](#) in the Help.



Transitions on the timeline can be created only when there is extra material available on one of the clips.

Applying a Dissolve Effect to a Transition

The Dissolve effect lets you apply a transition between video clips in which the image from one clip gradually becomes less distinct as the image from the other clip replaces it. The Dissolve effect ensures that the alpha channel is multiplied into color channels before applying the dissolve.



You can use the Blend transition effect if you do not want the alpha channel to affect the color channels, or if you require channel masking services when dissolving.

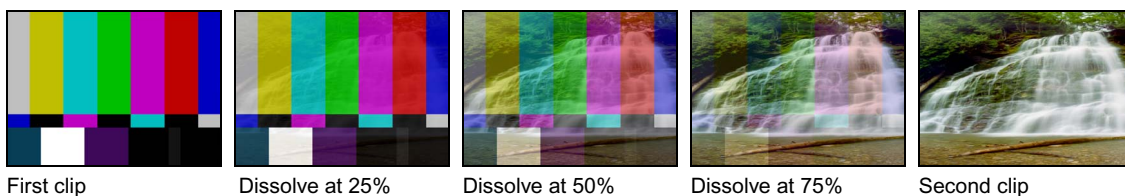
You can apply a dissolve at the start, center, or end of the transition. You can also adjust the amount of the dissolve if you want the frames of one clip to be more apparent than the other. You can apply a dissolve as an effect for single-sided transitions at the beginning or end of a clip.

The Dissolve effect can only be applied on clips on the timeline or as a node in an Effects Tree.

Since the Dissolve effect is a real-time effect, you can view the results upon playback without having to first process the effect.



In some cases, real-time effects may require processing to ensure that no frames are skipped. For more information, see “Playing Real-Time Effects” on page 291.



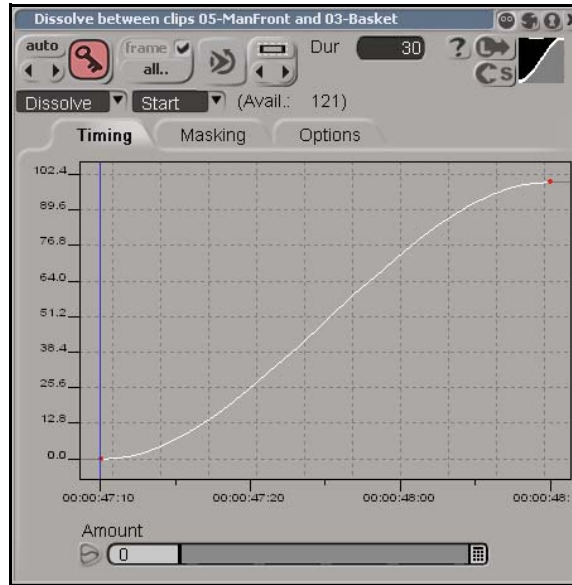
To apply a dissolve on the timeline:

1. On the timeline, overlap the clips that you want to work with.
They can be placed on the same or different tracks. Make sure the clips that receive the dissolve have extra material.
2. Select the intersecting edit point between the two clips on which you want to apply the dissolve.

The selected edit point turns red.

- From the toolbar, click **Transition Effects > Dissolve/Crossfade**.

On the timeline, the transition area is displayed as a gradient on the activeness bar.



- On the Dissolve property editor, adjust the amount of the dissolve, and specify the start point and duration of the transition.



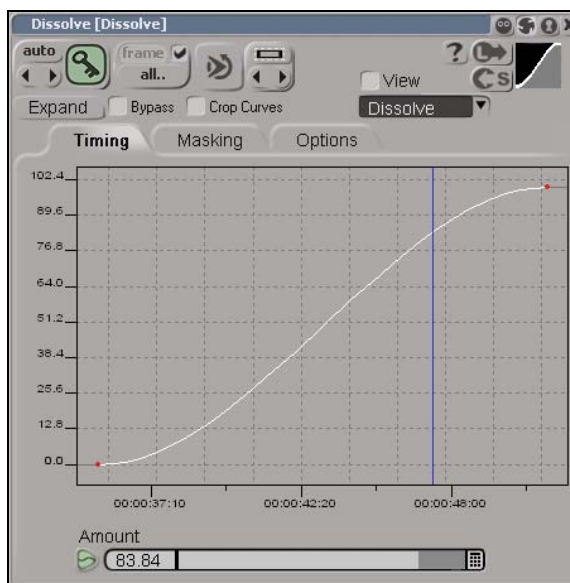
The start point and duration options are only available when you apply a dissolve on the timeline.



For more information, click the **Help** button.

To apply a dissolve in an Effects Tree:

- Right-click an empty area of an Effects Tree and select **Add Effect**.
The Load Preset dialog box is displayed.
- From the \Image Transitions folder, select **Dissolve** and click **OK**.
A Dissolve node is added to the Effects Tree.
- In the Effects Tree, double-click the **Dissolve node**.
The Dissolve property editor is displayed.



4. On the Timing property page, adjust the amount of the dissolve and the function curve to control the timing and percentage of the mix.

Applying a DVE Effect to a Transition

The DVE effect lets you transform the size, position, and shape of images in three-dimensional space. Using DVEs, you can create effects such as “push-wipes”, “fly-bys”, or picture-in-picture.

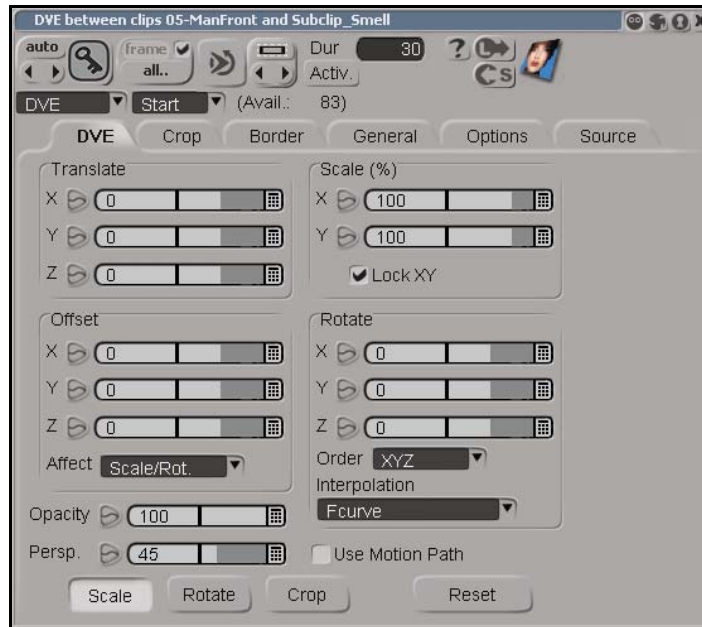
You can apply DVEs to clips, tracks, layers in the Layers view, or Effects Trees. On the timeline, you can use DVEs for transitions between two clips or for single-sided transitions at the beginning or end of a clip. For more information, see [“Applying Transitions” on page 298](#).

To apply a DVE to a transition on the timeline:

1. On the timeline, overlap the clips that you want to work with.
They can be placed on the same or different tracks. Make sure that the clips to receive the DVE have extra material.
2. Select the intersecting edit point between the two video clips on which you want to apply the DVE.

- From the toolbar, click **Transition Effects > DVE**.

The transition area is displayed as a gradient on the activeness bar.



- In the DVE property editor, modify the properties of the DVE to achieve the effect you want.



For more information, click the **Help** button.

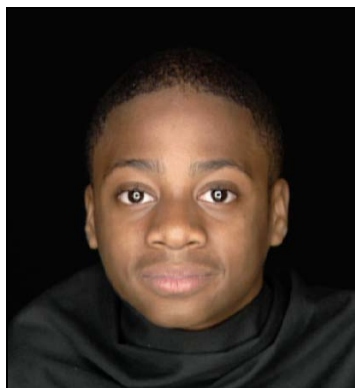
To learn about applying DVEs on layers in a composite, see [“Applying a DVE”](#) in the Help.

Understanding the Morph Effect

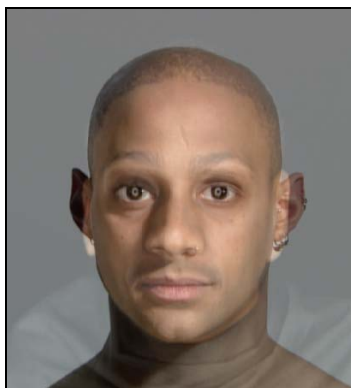
The Morph effect lets you transform one image or a sequence of images into another over a sequence of frames. You can morph between still or moving images.

You can apply the Morph effect as a transition on the timeline or in an Effects Tree.

When morphing a still image, you can, for example, show a change between two images, such as the progressive aging of a girl into a woman or the transformation of a woman into a man.



Outgoing image with morph applied to face.



Morph with 50% shape interpolation, 50% transparency.

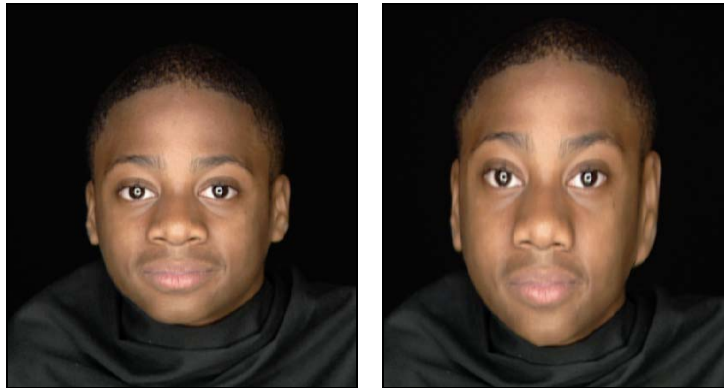


Incoming image with morph applied to face.

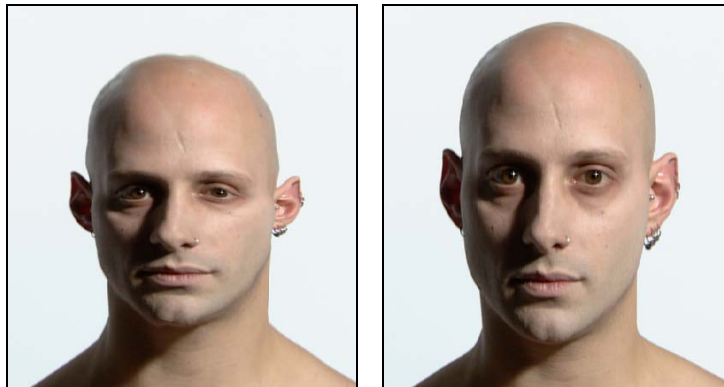
When morphing a moving image, you can show a change between two sequences of images, such as a walking boy turning into a walking man.

The Morph effect is comprised of a warp effect on an incoming image, a warp effect on an outgoing image, and a dissolve between them. For more information, see [“Warp Effect”](#) of the Help.

The outgoing image is warped from its original shape to the shape of the incoming image. The incoming image is warped in the opposite direction, going from the shape of the outgoing image to its original shape. Manipulating the transparency value lets you control the dissolve between the two images.



The Source shape morphs from the original image to a distorted image resembling the shape of the target.



The target shape morphs in the opposite direction, from distorted image, resembling the shape of the source to the original target image.

The basic workflow for creating a morph:

1. Select the images to morph together.
2. Create source and target shapes that describe the morph transformation.
3. Join the shapes and adjust the correspondence between them.
4. Track the shapes or adjust the shape positions over time with keyframes, if necessary.
5. Set the rendering options.
6. Process the morph.

Applying a Morph Transition Effect

You apply the Morph transition effect in the same way as a simple dissolve or wipe. In an Effects Tree, you apply it like any other effect between two inputs. For more information, see [“Working with the Effects Tree”](#) in the Help.

To create a morph transition between clips:

1. On the timeline, overlap the clips on which you want to apply the Morph effect. They can be placed on the same or different tracks. Make sure the clips that receive the effect have extra material.

2. Select the edit point between the two video clips.

The selected edit point turns red.

3. From the toolbar, click **Transition Effects > Dissolve/Crossfade or Wipe**.

The Dissolve or Wipe property editor is displayed, and the transition area is displayed as a gradient on the activeness bar.



4. In the Wipe or Dissolve property editor, click the **Load Preset** button.

The Load Preset dialog box is displayed.

5. From the \Image Transitions folder, select the Morph effect.

The Morph property page is displayed.



For more information, click the **Help** button.

Creating Shapes

Shapes are Bézier curves that outline the parts of your image that you want to morph. The Morph effect uses these shapes as a guide to transition from one to the other. Shapes can be open-ended or closed. They can stand alone or be joined to another shape.

The Morph Effect has four shape creation tools, available from the Shapes property page:



Freehand



Ellipse



Polyline



Rectangle

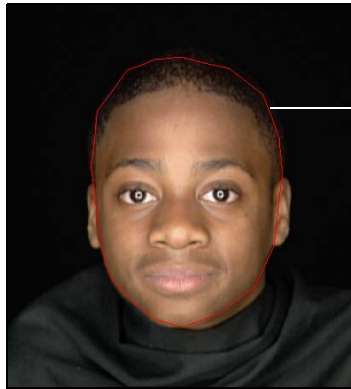
To create a source and destination shape:

1. Double-click the transition area between the two clips to open the Morph property editor.
2. On the Shapes property page, select the **Source** option from the Output box.

The outgoing image is displayed in the viewer.

3. From the Shape Creation box, select a drawing tool to create the source shape.
4. Create a rough shape around the object that you want to warp.

The source shape is displayed in red.



Source shape drawn with the Polyline tool on the outgoing image.



You can zoom and pan in the viewer to frame the portion of the image you want to trace.

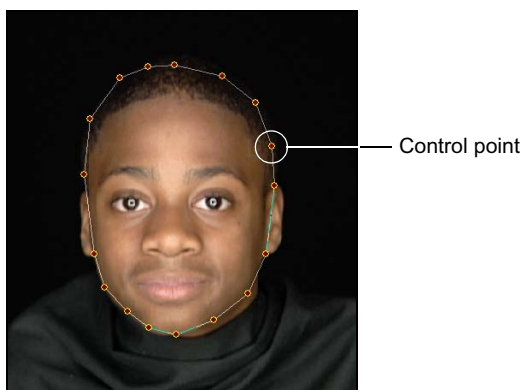
5. From the Editing Tools box, click the **Edit Shape** tool.

Control points along the source shape are displayed.



If you copy open shapes from the Morph effect into a keyer or Matte effect, the shapes will automatically be closed.

6. Drag the control points so that your shape outlines the part of the image you want to morph.



To add an additional control point, hold down the A key and click the line on which you want the control point to appear.



If the source image is moving between frames, you should rotoscope or animate the source shape over the length of the transition. For more information, see “Creating Animation” on page 347.

7. From the Output box, select the **Destination** option.

The incoming image is displayed in the viewer.

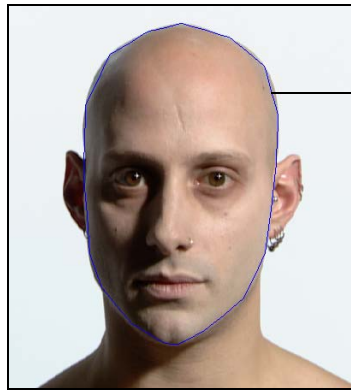
8. From the Shape Creation box, select a shape tool to create the target shape.



When you draw the shapes on the destination image, be sure to draw them in the same direction and order in which you created them on the source image. For example, if you started drawing the shape on the source image from the top and to the right, and also draw the shape on the destination image from the top and to the right. This will avoid unwanted deformations in the morphed image. However, if you want to create a deformation, you can create the shape on the destination image differently.

9. Create a shape on the destination image representing the target shape or the final image into which the source image will morph.

The target shape is displayed in blue.



Target shape drawn with the Polyline tool on the incoming image.



*To close a shape created with the polyline tool, press **Ctrl** and click.*

10. Use the following tools from the Transformations box to manipulate your shape:



Select



Rotate



Scale



Skew

11. From the Editing Tools box, click the **Edit Shape** tool.

Control points along the target shape are displayed.

12. Drag the control points to modify the shape.



If the target image is moving between frames, you can track the target shape over the length of the transition. For more information, see [“Tracking Morphed Shapes”](#) on page 255.

13. On the Shapes property page, select the **Apply** option.

The Morph effect is applied to the clips.



For more information, click the **Help** button.

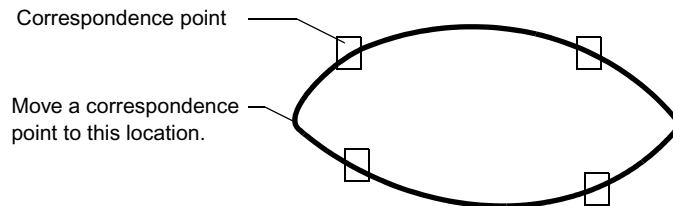
Joining Shapes

After you have created your shapes, you can join them together to create a relationship between the beginning shape of the source image and the ending shape of the target image. The Morph effect automatically interpolates between the two shapes over the length of the transition.



You can only join open-ended shapes with other open-ended shapes and closed-ended shapes with other closed-ended shapes.

When the two shapes are joined, you can match corresponding features on the two shapes. Each shape has four correspondence points that describe the location of key positions on a shape. You can place these points at key locations on a shape, such as where the Bézier curve changes direction.



Correspondence points have some restrictions:

- There must be at least four correspondence points per shape.
- Shapes intended to be joined must have the same number of correspondence points.
- Correspondence points on the ends of open-ended shapes cannot be moved or deleted.
- Correspondence points cannot cross over each other. There is a limit as to how close they are allowed.

To join the source and target shapes:

1. From the Output box, select the **Mix** option.

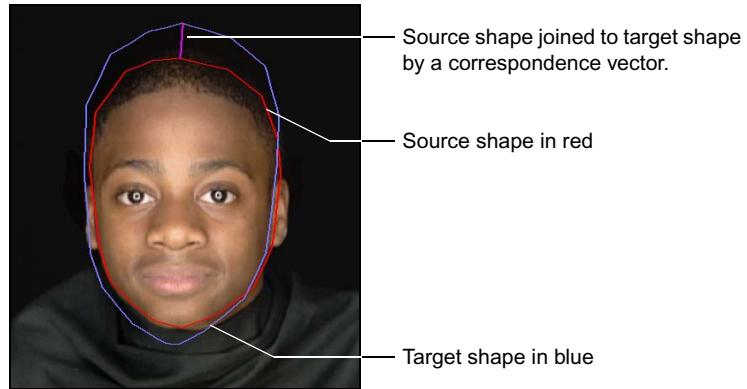
Both images and shapes appear in the viewer.



2. From the Transformations box, click the **Select** button and select the source shape (red line).

- From the Editing Tools box, click **Join**, and drag the source shape towards the target shape.

A blue line is displayed as you drag the pointer from the source shape to the target shape. When the pointer touches the target shape, the two shapes momentarily turn yellow and are joined together by a correspondence vector.



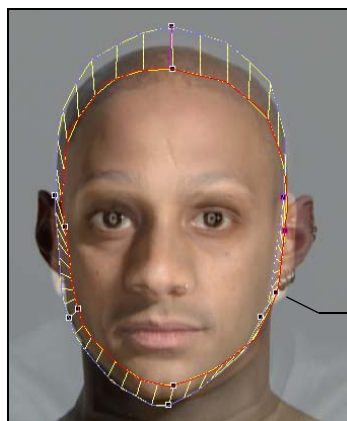
*To break the join between two shapes, click **Join** in the Editing Tools box and click one of the shapes. A dialog box is displayed asking you if you want to break the join, click **OK**.*

- From the Editing Tools box, select the **Correspondence** option.

The source and target shapes are highlighted in yellow. Each shape contains four correspondence points. The correspondence points on each shape are connected with correspondence vectors.

- Move the correspondence points on the source shape to key locations on the curve, such as where the curve changes directions.
- Match the correspondence points of the target shape with those of the source shape.

When you're morphing between similar objects, such as between two faces, you should move the correspondence points to try and match up key features on the source image with those on the target.



Move the correspondence points so that key features on the source image match those of the target image. In this case, the features of the face (eyes, nose, and mouth).

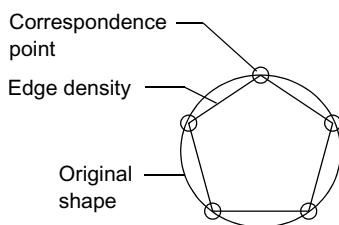


*To add additional correspondence points, press **A** and click the shape on which you want the point to appear. To delete correspondence points, select a point, and press **Delete**.*

To increase the precision of the shape during processing:

- Increase the Density value.

The number of correspondent vectors (yellow lines) between correspondence points increases as the Density value increases.



Shape with edge density of 5.

During processing, Avid DS Nitris does not use the actual shapes you created, but uses the edge densities of the shapes to create an approximation of the shapes. That is, a shape's edge density defines how closely the form used in the morphing process matches the shape that is drawn.

Shapes are subdivided between correspondence points based on the shape's edge density. The higher the edge density, the more edges, and the more closely the shape is depicted by its edges. Thus, the more precise the transition between shapes.

When you change the edge density, be careful not to use too high a density setting. There is no exact formula for selecting the best density for any given shape. Choose one that approximates the shape enough, but not too much. Setting a shape's density unnecessarily high slows down processing time.



For more information, click the **Help** button.

Creating Barrier Shapes

You may find that the area outside your source or target shapes also gets distorted when your image is morphed. To get rid of this unwanted distortion, you can create a barrier shape for either the source or target shapes, which prevents the distortion from spreading to the rest of the image.

To create a barrier shape:

1. Create a third shape encompassing both the source and target shapes.

The barrier shape is displayed in red or blue depending on which option you choose.

2. From the Editing Tools box, click the **Copy and Join** button.

A copy of the shape is created directly on top of its original. By doing so, you are creating a static warp where the source and target shapes are the same. This static warp acts as a barrier, which prevents the original warp from spreading to other areas of the image.

Warping the Morph

After you create the morph between the two images, you can also apply a warp to the output of the morph. For example, you have two faces that morph from one to the other, and you want to change the length of the nose of both images. To do so, you can warp the noses from within the Morph effect.

To warp the output of the morph:

1. On the Shapes property page, select the **Mix** option.

Both the incoming and outgoing images are displayed in the viewer.

2. Select the **Apply** option.
3. Draw the source and target shapes, and then join them.

The warp source and target shapes are displayed in green.

4. Draw a barrier shape for the areas you don't want to affect.

The shape is animated using the same interpolation as the Morph effect. If you want to use a different interpolation than the Morph effect, you can apply individual warp effects to each clip before applying the Morph effect.



For more information, click the **Help** button.

Animating Shapes

You can animate the interpolation between shapes or the shapes themselves when the objects are moving over time. For still images, the Morph effect automatically interpolates between the source and target shapes. You can add keyframes and modify the way the source morphs into the target. For moving images, you can animate the shapes frame-by-frame to match the movement in the clip. For more information, see *“Creating Animation” on page 347*.

To animate the interpolation between shapes:

1. Double-click the transition area between the clips to open the Morph property editor.
2. Scrub slowly through the transition on the timeline.

By default, the object moves from the source shape to the target shape in a linear manner, moving from 0% shape interpolation and 0% transparency at the beginning of the transition to 100% shape interpolation and 100% transparency at the end of the transition.

3. Place the position indicator anywhere within the transition area.
4. On the Shapes property page, modify the **Shape Interpolation Amount**.

The amount of morphing changes as you modify the Shape Interpolation Amount.



5. Click the **Animation Key** button.

A keyframe is added at that point in time, changing how the object moves from source to target shape.

6. Move the position indicator to another area of the clip, modify the Shape Interpolation Amount, and add another keyframe.

7. Animate the **Transparency** value in the same way as the Shape Interpolation Amount.
8. Select **View > Single-Instance Views > Animation Editor**.
The animation editor is displayed.
9. Tweak the shape and transparency animation by modifying, adding, and deleting keyframes to both the Blend Shapes and Opacity function curves.



You can also modify the slope of the function curves from Linear to either Spline or Constant interpolation.



For more information, click the **Help** button.

Tracking Morphed Shapes

If your image moves or scales, you'll need to set up trackers to track the source, destination, and barrier shapes. To correctly track the shapes, you need to increase the trackers' target area and search regions, and ensure that the **Always Update** option is selected.

To track the shapes:

1. On the Shapes property page, select either **Source** or **Destination** in the Output box, depending on the image you want to track.
2. From the Transformations box, click the **Select Shape** button.
3. In the viewer, drag around all the shapes to select them.



Since all the shapes, including the source, destination, and two barrier shapes move and scale, you need to track all the shapes.

4. On the Tracker property page, click **Show**.

All four trackers are displayed.

5. Use the period (.) or comma (,) keys on the keyboard to cycle through each tracker and set the following for each tracker:
 - ▶ Increase the size of the search and target areas to consider the change in the size of the area on which the shape is drawn.
 - ▶ Click the **Always Update** button.

Since the area of the image defined by the shapes scale and move, the tracker targets must be updated in each frame.



This option makes the trackers compare the pixel pattern of the current frame to that of the previous frame, rather than the first frame at the tracking start point (or the set target). Use this option when the target area changes in appearance as the clip is played. This can cause cumulative tracking errors. When you select this option, the Set Target option becomes deselected and vice versa.

- ▶ Set the **Confidence** level.

If you find that the tracker stops frequently, try lowering the confidence level.



If you are tracking field-based material, you can select the Track in Fields option. A keyframe will be set on each tracked field. The target used is the contents of the target region in field 1 of the target frame. If you track in fields, you do not need to first deinterlace, track, and then reinterlace the clip.



6. Click the **Track Forward** (or **Track Backward**) button.
7. On the Shapes property page, deselect the **Show Shapes** option to see the final result without the drawn shapes and tracker boxes.
8. In the Output box, select **Mix** to see the resulting morph.



For more information, click the **Help** button

Setting the Rendering Options

The final look of your morph depends largely on the render settings you choose. You can go from a quick low resolution test to a high resolution image for final output by simply changing a few of the settings in the Render property page.

The render settings let you choose how the edges of your shapes are defined, how precise the transition is between shapes, how pixels are interpolated, and how soft or jagged the edges are.

To set the rendering options:

1. In the Morph property editor, select the **Render** tab.
2. For the **Edge Mode** setting, select one of the following options:
 - **Fixed** to pin the border of the image in place. Be careful when using this option because it can cause distortion and shearing if your warped object moves or grows in size.
 - **Sliding** to move the image's borders with the rest of the warped object. This option produces less distortion.

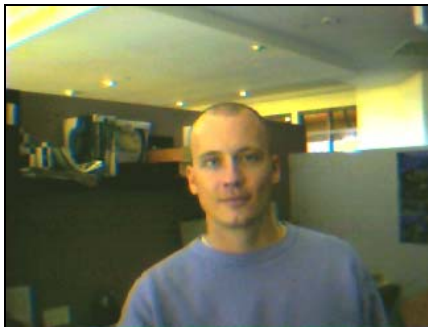


Image before being warped or stretched.



Image stretched upwards and processed with Edge mode set to Fixed. Notice how the borders of the image do not move, resulting in a distorted image.

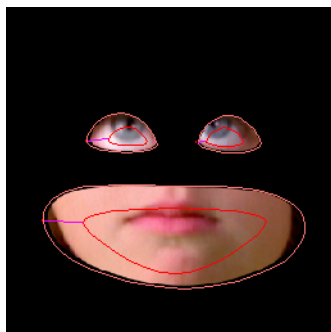


Image stretched upwards and processed with Edge Mode set to Sliding. Notice how the borders of the image do not stay in place, but compensate for the stretched image, resulting in a less distorted image.

- **Cookie Cutter** to keep everything that falls within your closed shapes and remove everything else. This option is also useful for creating mattes. You cannot use this option with open-ended shapes.



To close a shape, press Ctrl and click the viewer.



With Edge Mode set to Cookie Cutter, the area outlined by the closed shapes is cut out. The rest of the image is ignored and set to black.



A matte is automatically created based on the areas that were cut out.

- For the Warp Precision setting, which affects transition quality, select one of the following:
 - **Linear** to do a quick test. This option processes the morph at the lowest quality, but is very fast and uses the least amount of memory.
 - **Low or Medium** if you need slightly higher quality than the Linear option. The quality of the images improve with only slightly slower processing times.
 - **High** if you need a high-quality image that is processed in a reasonable amount of time. This option produces professional quality images.
 - **Very High or Super High** if you require an extremely smooth transition between shapes. Both of these options provide extremely high-quality images, but take considerable amounts of time to process.

4. For the Interpolation setting, which effects pixel quality, select one of the following:
 - **None** if you want quick results. This option results in marginal pixel image quality, but the processing time is very quick.
 - **Bilinear** if you need reasonable image quality within a reasonable processing time. This is the default setting.
 - **Bicubic** if you go from a small source shape to a larger target shape. This option results in high pixel-quality, which is required when the morph enlarges parts of the image.
 - **Scaling** if your target shape is scaled down by more than 50%. This option results in the least amount of degradation, but also takes the longest time to process.
5. Select the **Antialiasing** option if you want the edges of the shapes or regions to be smooth. If you deselect this option, the edges are jagged.
6. Select the **Soften Edges** option if you want the pixels around the edges of the shapes to blend gradually with the pixels of the surrounding image.
7. Process the effect and then play it back on the timeline to view the results.



For more information, click the **Help** button.

Applying a Picture-in-Picture Effect

The Picture-in-Picture effect lets you transform the size and position of an image in three-dimensional space. You can apply the Picture-in-Picture effect to clips on the timeline or video tracks, or to an Effects Tree.

On the timeline, you can use the Picture-in-Picture effect for transitions between two clips or for single-sided transitions at the beginning or end of a clip. For more information, see [“Creating One-Sided Transitions” on page 300](#).

Since the Picture-in-Picture effect is a real-time effect, you can view the results upon playback without having to first process the effect. For more information, see [“Playing Real-Time Effects” on page 291](#).



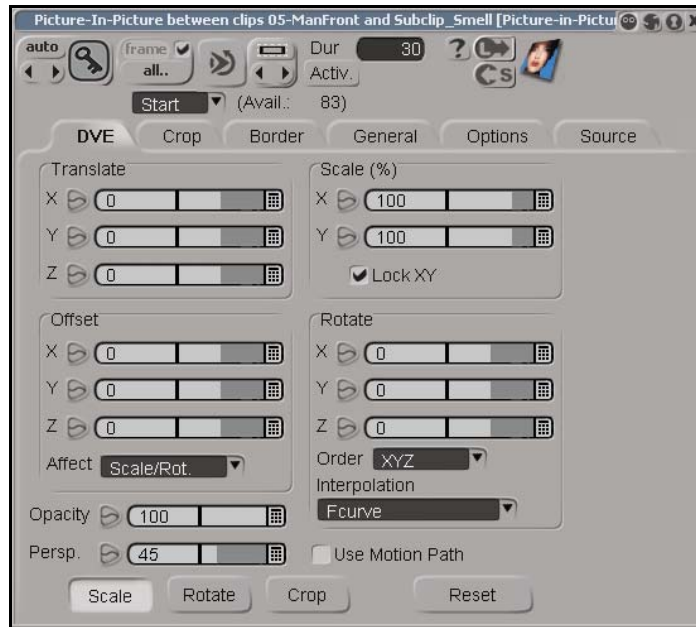
To apply a Picture-in-Picture effect as a transition:

1. On the timeline, overlap the clips that you want to work with.
They can be placed on the same or different tracks. Make sure that the clips to receive the effect have extra material.
2. Select the intersecting edit point between the two video clips on which you want to apply the Picture-in-Picture effect.
3. From the toolbar, click **Transition Effects > Dissolve/Crossfade**.

The Dissolve property editor is displayed, and the transition area is displayed as a gradient on the activeness bar.



4. In the Dissolve property editor, click the **Load Preset** button.
The Load Preset dialog box is displayed.
5. From the \Image Transitions folder, select the **Picture-in-Picture** effect and click **OK**.
The transition area is displayed as a gradient on the activeness bar.



6. In the Picture-in-Picture effect property editor, modify the properties to achieve the effect you want.



When you apply the Picture-in-Picture effect as a transition or to an Effects Tree, the Source property page is also displayed, from which you can adjust the direction in which the Picture-in-Picture effect is applied and the source image's opacity level.

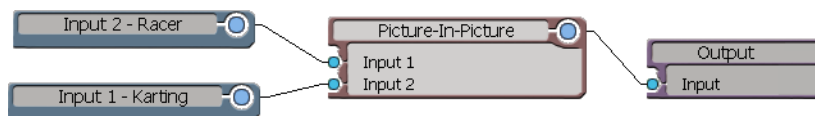


For more information, click the **Help** button.

To apply the Picture-in-Picture effect in an Effects Tree:

1. Drag a clip to the timeline and create a composite container clip from it—see [“Creating a Composite Container Clip” on page 308](#).
2. From the Avid Explorer, drag a second clip into the Effects Tree.
The clip is added to the timeline, but not to a layer.

3. Add the Picture-in-Picture effect to the tree, and connect the inputs as shown here:



The Input node that is connected to the Input 1 port of the Picture-in-Picture effect, in this case the Racer clip, is used as the picture for the effect.

To apply the Picture-in-Picture effect on the timeline:

1. Drag the clip to be used as the background clip to the timeline.
2. Add a video track to the timeline, above the track with the background clip.
3. Drag the clip on which you want to apply the effect to the new video track.
4. Apply the Picture-in-Picture effect to the clip on the new video track.
5. In the DVE (Picture-in-Picture) effect property editor, modify the properties of to achieve the effect you want.



For more information, click the **Help** button.

Applying Wipe Effects

The Wipe effect lets you create a transition between two overlapping clips, such that the second clip is revealed according to a specified pattern. You can also apply a border between the two clips by specifying the position, color, and edge softness.

You can apply wipes to clips, tracks, or trees. On the timeline, you can also use wipes for transitions between two clips, or for single-sided transitions at the beginning or end of a clip. For more information, see [“Creating One-Sided Transitions” on page 300](#).



You can apply a wipe to an Effects Tree in the same way that you apply a dissolve. For more information, see [“Applying a Dissolve Effect to a Transition” on page 240](#).

Since the Wipe effects are real-time effects, you can view the results upon playback without having to first process the effect. In some cases, real-time effects may require processing to ensure that no frames are skipped. For more information, see [“Playing Real-Time Effects” on page 291](#).

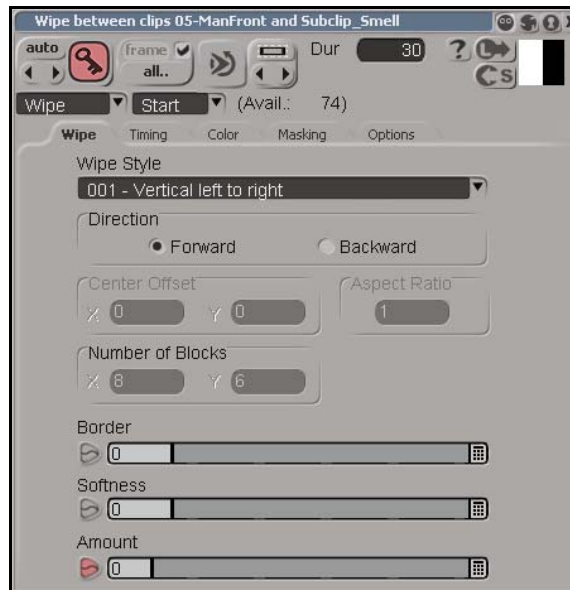
To apply a wipe between two clips:

1. On the timeline, overlap the clips that you want to work with. They can be placed on the same or different tracks. Make sure that the clips to receive the wipe have extra material.
2. Select the intersecting edit point between the two video clips on which you want to apply the wipe.

The selected edit point turns red.

3. From the toolbar, click **Transition Effects > Wipe**.

The transition area is displayed as a gradient on the activeness bar.



4. In the Wipe property editor, adjust the amount of the wipe, and specify the start point and duration of the transition.



The start point and duration options are only available when you apply a dissolve or wipe on the timeline.



For more information, click the **Help** button.



Chapter 7

Processing Effects

This chapter describes how your effects are processed in Avid DS Nitris, and how to work with projects and media:

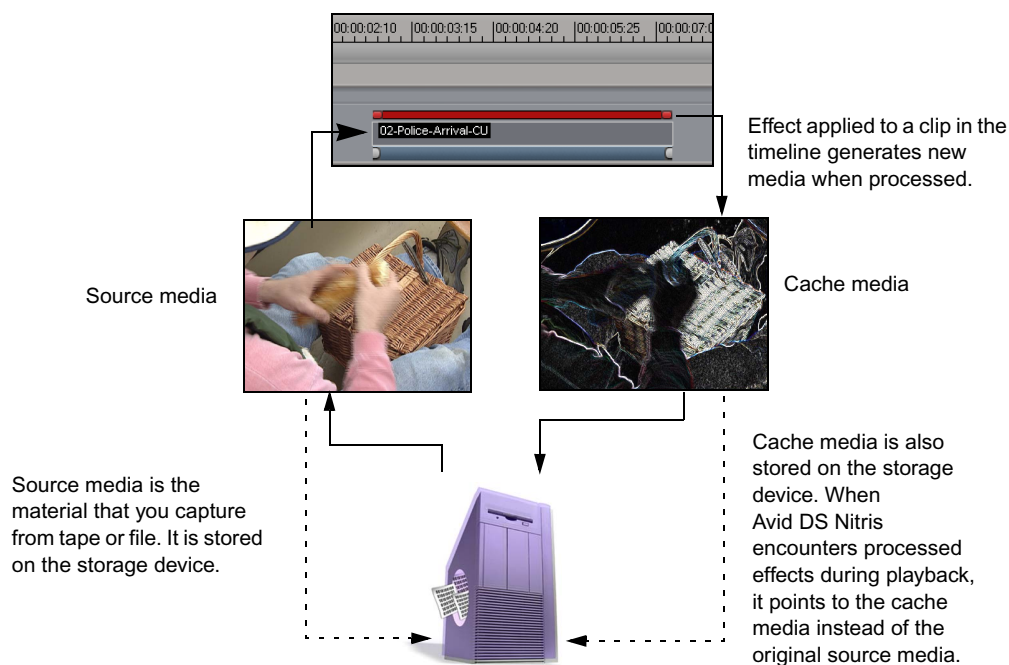
- [Understanding Processing](#)
- [Workflow: Processing](#)
- [Processing Areas of the Timeline](#)
- [Processing a Single Effect](#)
- [Setting the Processing Options](#)
- [Understanding Processing Modes](#)
- [Working with Real-Time Effects](#)
- [Remote Processing](#)

Understanding Processing

Avid DS Nitris is built upon a powerful combination of the Nitris Digital Nonlinear Accelerator™ (DNA), which delivers hardware-guaranteed real-time performance, plus a software-based processing architecture, which computes effects using the processor of your workstation.

Processing is the creation of a final image or sequence of images after a special effect has been applied. Depending on the power of your workstation, many effects can be computed in real time, allowing you to view the results during playback. More complex effects, however, may need to be processed before the results can be viewed.

During processing, Avid DS Nitris steps through each clip frame by frame, calculating the various paint strokes, compositing layers, transitions, and other effects that you created, and writes the results to *cache* files so that your source media remains unaltered.



When you play your sequence over the processed frames, Avid DS Nitris points to this cache instead of the clips' source media. This support for non-destructive editing lets you continuously make changes and reprocess your clips without affecting your source media.



You can commit processed results to a master clip and use the cache media as source material in future sequences using the Timeline to Clip button. For more information, see “Extracting Parts of a Sequence” on page 187.

When is Processing Needed?

Processing is usually needed for video images and graphics. Some video effects do not need processing as Avid DS Nitris can compute the effects during playback. These are known as *real-time effects*.

When you apply an effect to a clip, the timeline ribbon above it changes color to indicate the processing requirements. There are three possible color states on the timeline ribbon—green, yellow or red. Once the effect is processed (and a cache is created), the color of the timeline ribbon above it is clear.

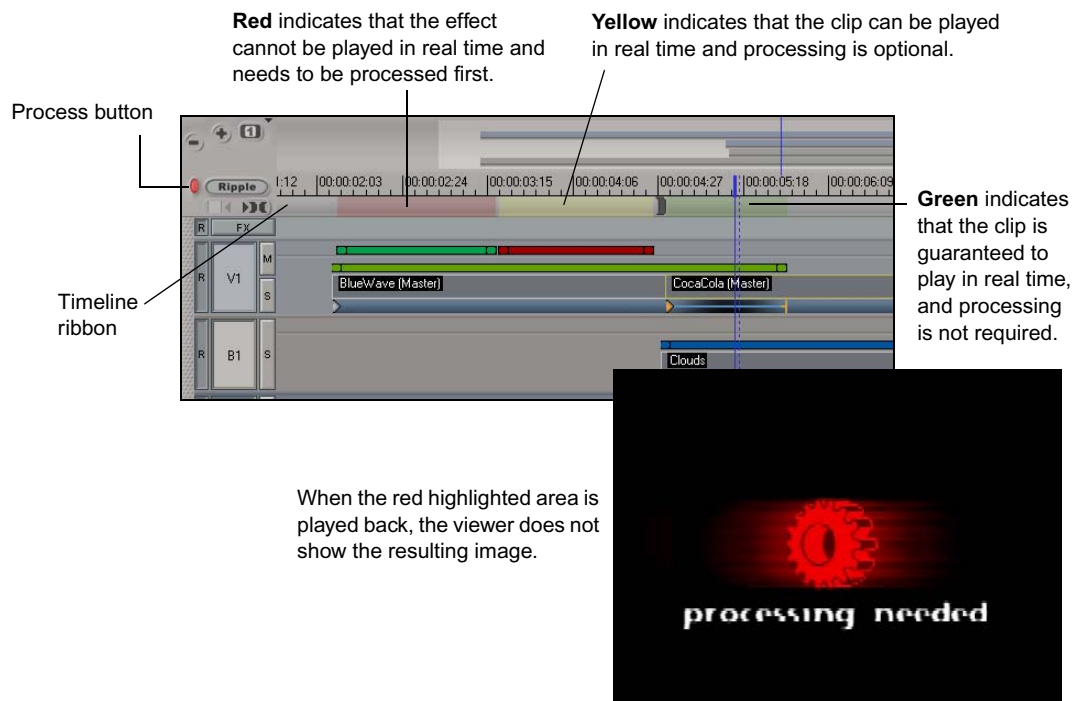
If you have the Avid DS Nitris DNA workstation, you can have real-time playback and output of real-time effects. If so, these effects will have a green color on the timeline ribbon in the area where they are applied.

If you are not using the Nitris DNA hardware, then Avid DS Nitris will process all effects using the software. If your workstation has sufficient power, many effects can be computed in real time by the software, allowing you to view the results during playback without you having to process them. These real-time effects will be indicated by a yellow color on the timeline ribbon.

A real-time effect with advanced settings, or a stack of multiple real-time effects may become too complex for your workstation to process. As a result, the calculated frame might be delivered to the video output late, so Avid DS Nitris skips to the next frame to keep in synchronization with corresponding audio clips. A red dot is displayed on the Play button when a frame can't be delivered in time. This means that the real-time effect will require processing to a cache file before the final output.

Any effects that cannot be processed in real-time by the hardware or the software will have a red color on the timeline ribbon. When you play back the areas where these effects are applied, you will see a “Processing Needed” message displayed in the viewer.

The illustration below shows the different conditions of effects on the timeline (refer to this topic in the Help to see this in full color):



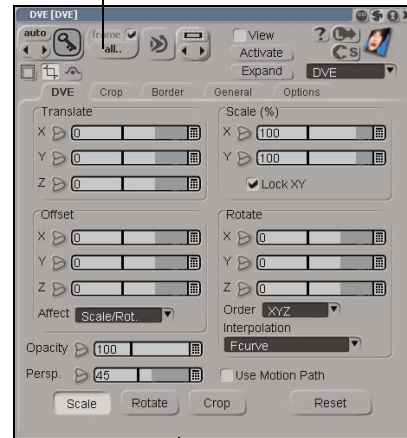
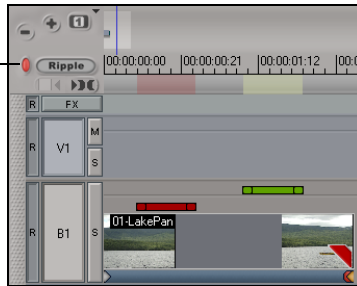
The Process button also turns red or yellow to indicate that processing may be needed. During processing, Avid DS Nitris steps through each clip frame by frame, calculating the various paint strokes, compositing layers, transitions, or other effects that you created. The results of the computation are written to a cache file with the new processed media. This guarantees perfect playback and output of your sequence.

Processing can be demanding on your system resources in terms of both time and storage space. For more information on processing your effects more efficiently, see [“Understanding Processing Modes” on page 284](#).

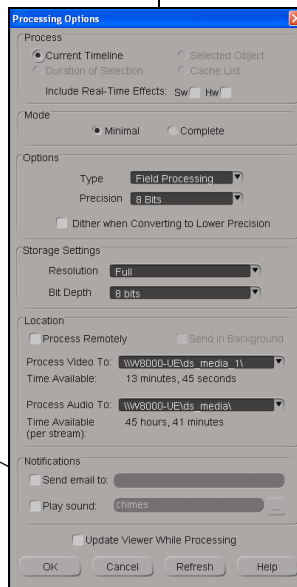
Workflow: Processing

- 1** On the timeline, select a region or object to process (clip, track, layer, effect, or transition bar). or Select an applied effect and open its property editor.

- 2** Click the Process button. or Click the all... button.



- 3** Set the processing options.



- 4** Process media for real-time playback.

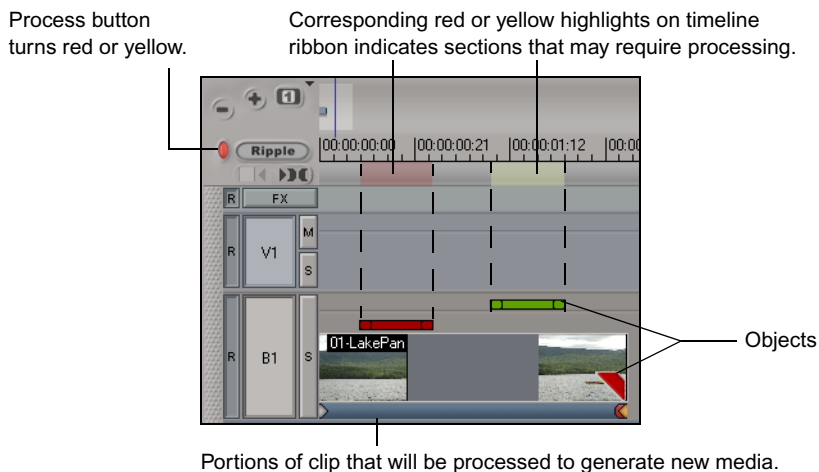
Processing Areas of the Timeline

Processing on the timeline is based on selection. You can process a selected object or region, or all the clips on the current timeline. To work even more efficiently, you can process your more complex effects at different stages in your sequence. For example, if you have effects nested within a container clip, you can open the container and process the individual effect instead of processing the entire container clip.



The Process button turns red, yellow, or green even if the effect is nested within a container clip.

When a section of the timeline requires processing, the timeline ribbon above the effect turns red, yellow, or green. Red means that the section *must* be processed, while yellow means that processing can be handled by Avid DS Nitris during playback, but you should still process it before final output. Green indicates that the clip is guaranteed to play in real time and processing is not required. You can, however, still process these effects.





To select areas for processing:

Selection	Action
Entire sequence	On the timeline, click the Process button.
Object	Select a clip, effect bar, or transition bar and click the Process button, or - Double-click the effect or transition bar on the timeline to open the property editor. - Click the All... button.
Timespan	Highlight a region of the timeline, and click the Process button.
Cache bar	Select the cache bar and click the Process button, or Right-click the cache bar and select Process .

- When you click the **Process** button, the Processing Options dialog box is displayed—for further instructions, see [“Setting the Processing Options” on page 275](#).
- After setting the appropriate options in the Processing Options dialog box, click **OK** to begin processing.
After processing is complete, the timeline ribbon is updated to reflect the new state of the timeline.

Processing a Single Effect

If you are experimenting with an effect, you can process directly from the property editor as you make changes to the parameters. Even within a property editor, there are many options available when processing an effect. You can process the results on a single frame, a subregion of a frame, or all the frames in the clip on which you applied the effect.

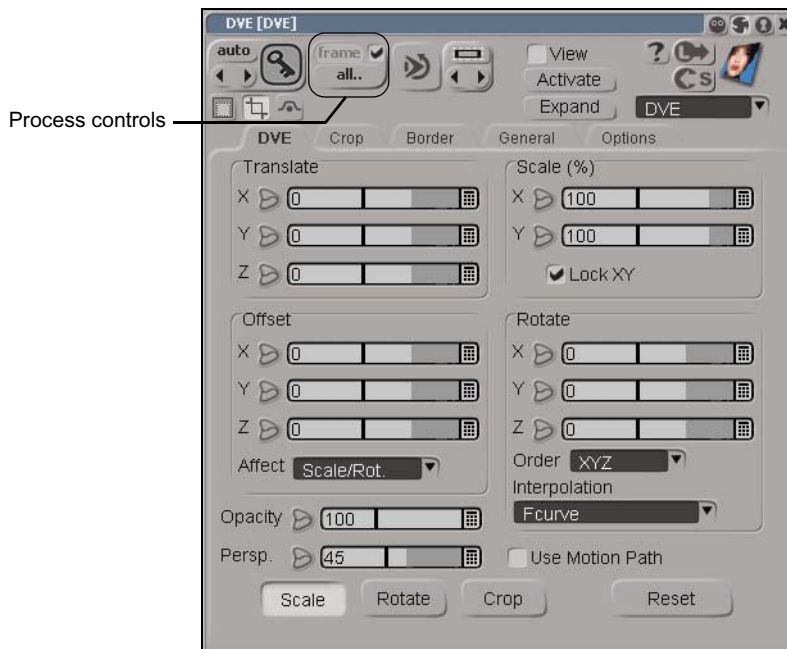
To process from a property editor:

1. Double-click on the effect or transition bar on the timeline.



For time-based and source-generated effects, right-click the clip and select Properties, and then select the effect from the menu.

The property editor of the effect opens.



2. Select one of the following:

Use this	To
	Process the current frame.
☒	Enable the auto-process mode. Each time you adjust a property value, the frame is automatically processed and updated in the viewer.  <i>Results may take time to display while Avid DS Nitris processes the effects.</i>
	Process all frames on which this effect was applied. This option displays the Processing Options dialog box.
	Process the region selected in the viewer.

- When you click the Process button, the Processing Options dialog box opens—see [“Setting the Processing Options” on page 275](#) for further instructions.
- After you set the processing options, click **OK** to begin processing.
After processing is complete, you can play and view the results.

You can quickly view the results from an effect’s property editor.



When previewing effects from within a property editor, the preview only is displayed in the viewer and not on the output monitor.

To preview the results of an effect:

- ▶ In the property editor, click the **Preview** button.
On the timeline, loop markers are placed at the beginning and end of the effect. They include the number of pre-roll and post-roll frames that were set in the User Preferences dialog box. The selected area is played continuously between the marked region until you click the **Stop** button.

Processing a Region of a Frame

If you want to apply an effect on part of an image, you can process only the region of the frame on which the effect was applied. You can also use subregion processing to test an effect on part of the image before processing the effect on all the frames.

To process the effect on a region of the current frame:

1. In the property editor, select **Subregion**.
2. In the viewer, drag diagonally across the image to form a selection box.
3. At the top of the property editor, click the **frame** button.

The effect is computed for that frame within the selected box.



If you are just using the Subregion option for testing, make sure you deselect it after you've seen the results. Otherwise, when you process all the frames, only the selected region will be processed.

Previewing Effects without Processing

When you place the position indicator at a specific frame, Avid DS Nitris automatically processes all effects applied at this frame. This may not happen instantly as the number and complexity of the effects may require additional computation time. When the computation is complete, however, you can see the results on one frame before processing all the rest. These results are stored temporarily on disk and are known as *interactive caches* or *memory caches*.

These results are only kept temporarily to improve your interaction time when viewing the results of effects on a frame-by-frame basis. This way, there is no need for Avid DS Nitris to recompute an effect when a frame is revisited.

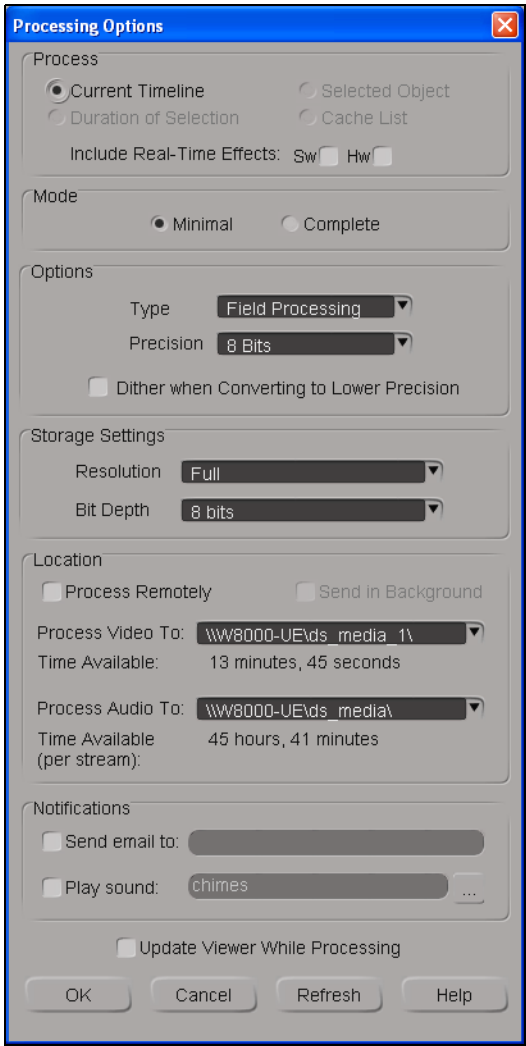
To view an effect on a series of frames:

- Hold down the Ctrl key and click **Play** on the transport controls.

Avid DS Nitris steps through each frame, creating interactive caches for each one.

Setting the Processing Options

Depending on the complexity of your effects, it may take time and system resources to process images. You can reduce processing time significantly by choosing the options that best suit the task you’re currently performing.



For descriptions of all the options in this dialog box, click the **Help** button.

To set the processing options:

1. In the Processing Options dialog box, select one of the following options:

Option	To
Current Timeline	Process a selected region on the timeline.
Duration of Selection	Process a selected region on the timeline.
Selected Object	Process just the objects that you have selected.
Cache List	Process the effects, composites, and/or transitions that have been added to the cache list.

2. Select **Include Real-time Effects** to process real-time effects that are too complex for your hardware to process, and play back in real time without skipping frames. Processing creates a cache on disk for the processed real-time effects, so that you can view them upon playback—for more information, see [“Working with Real-Time Effects” on page 289](#).



All real-time effects are processed by Avid DS RP regardless of the Include Real-time Effects setting.

3. To make processing more efficient, select **Minimal** or **Complete**, depending on your particular scenario—for more information, see [“Understanding Processing Modes” on page 284](#).
4. To optimize the processing quality of your video media, set the Options for **Field** or **Frame Processing**, and **Precision**—see [“Understanding the Processing Settings” on page 84](#).



These settings can also be set specifically on an applied effect. Settings on the Option property page of the effect will take precedence—see [“Setting the Processing Bit Depth” on page 85](#).

5. For the Storage Settings, set the **Resolution** and **Bit-Depth** at which you want to process your media.

To decrease processing time or save on storage space, you may want to lower the resolution at which the caches are created. The lower the resolution, the faster the processing times and the less storage space used—see [“Processing Media at Different Qualities” on page 278](#).

6. In the Location box, select **Process Remotely** if you have one or more Avid DS RP workstations in your workgroup where you can send your processing job.
7. Set the storage devices—**Process Video To** and **Process Audio To**, where your processed media will be stored. (These storage devices were configured when Avid DS Nitris was installed.)

The Time Available indicates the time remaining on the storage devices for processing and saving video and/or audio caches based on the processing options you selected.

8. To receive an e-mail notification when processing is complete, select **Send email to** and type your e-mail address in the text box.



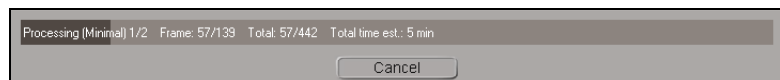
Before you can use the e-mail Notification option, you must specify your SMTP server in the Data Management property page of the User Preferences dialog box. To receive email from a local process, you need to setup the email server on your workstation.



To receive e-mail from an RP workstation, you need to setup the e-mail server on the workstation where the DMS Broker is installed. Refer to the Avid DS Installation and Administration Guide for details on configuring the DMS Broker to send email notifications.

9. To hear a sound when video processing is complete, select **Play sound** and select an 8-bit or 16-bit .wav file.
10. Select **Update Viewer While Processing** to display the frames in the viewer and monitor as they're processed. This option has no effect on the processing time.
11. If you have sufficient space on the storage device, click **OK** to begin processing.

A progress bar is displayed at the bottom of the desktop to show the status of the process. The progress bar shows the number of passes, frames, and the estimated time that Avid DS Nitris will take to process your selection. These passes are based on the number of container clips and the levels of processing required within the selected region.





Here’s the information that is displayed on the progress bar during processing:

Information field	Description
Processing (Minimal)	The type of processing mode that was selected. You have the option of Minimal or Complete—see “ Understanding Processing Modes ” on page 284.
1/2	A running count of the number of passes required to process the selected area
Frame: 57/139	A running count of the number of frames to be processed for the current pass
Total: 57/442	A running count of the total number of frames to be processed
Total time est: 5 min.	The total time (min:secs) required for processing the selection

After processing is complete, you can play and view the results of the processed area.

If the processing job was sent to a remote station for processing, the cache bars turn blue to indicate that they have been sent to a remote machine for processing. When the area is processed, the caches are automatically imported into the current project. The cache bar turns green and the red highlights on the timeline ribbon disappear.

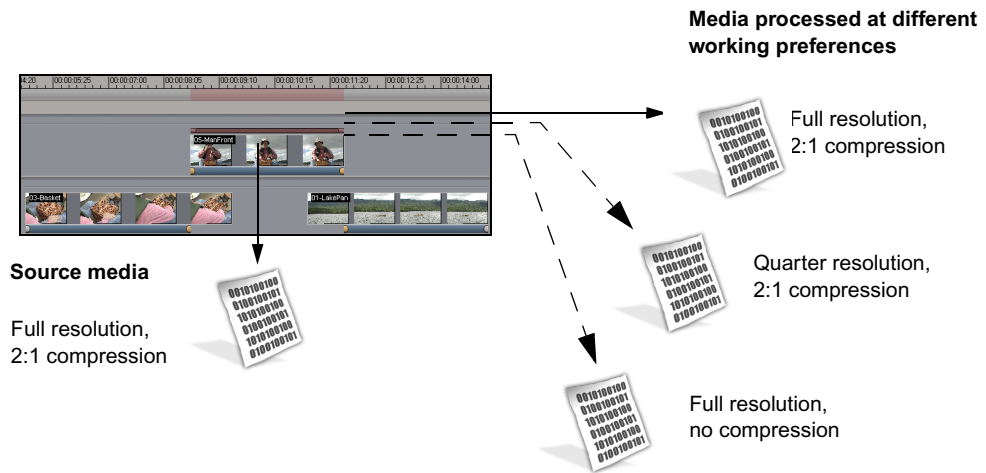


If a third-party plug-in effect has not been installed on the RP workstation, then the effect will not be processed.

Processing Media at Different Qualities

Since Avid DS Nitris is resolution-independent, you can process your clips at low resolution or in compressed form during the rough cuts of your work, and then reprocess at full resolution in uncompressed form before outputting to tape. Working with high-quality media increases processing time, so initially, you should process your clips at lower resolution to obtain quicker results. When you’re ready to output the final production, you can switch back to the higher quality media.

When you set your working sequences preferences to a lower resolution, the clip in the Avid Explorer (or on the timeline) references the high-quality media on disk, but produces a cache file at lower quality on your workstation. You can change your working preferences at any time to reprocess the clip at a better quality. The clip maintains pointers to all these media files, so you can view the processed media at different qualities. Media and cache files can sometimes be very large, so once you've completed your edits, you can purge the clip to clear out this redundant media. For more information, see [“Purging Media” on page 448](#).



Each time you change your working qualities (such as switching to a different resolution), Avid DS Nitris automatically looks for media of that quality on your disk for you to work with. When you process your effects, a new cache file is created if no cache file exists at that quality.



When you use a lower resolution for processing, your sequence preferences are automatically set to that resolution, so that you can view the results. To change the resolution of the sequence back to full, open the Sequence Preferences dialog box and set the resolution to Full.



Creating Caches at Any Level

You may want to create your own caches at certain points in your clip effect stack or effects hierarchy. It is best to add a cache after an effect that has a long processing time. Once the cache is created, you do not need to reprocess the entire stack each time a new effect is added on top of it.

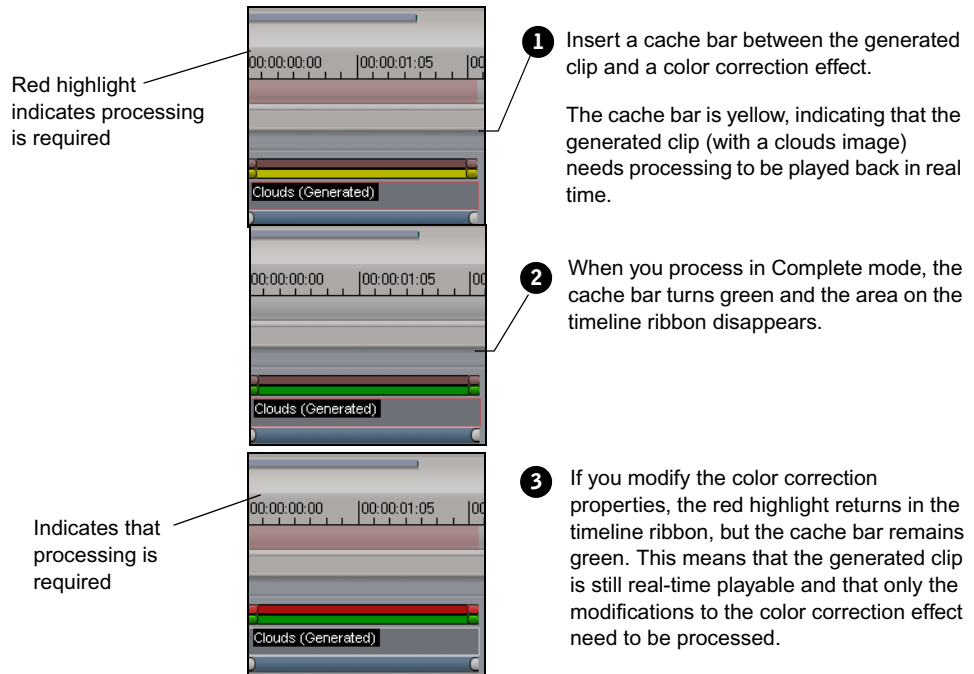
You can add a cache bar directly on the timeline or you can add a cache node in an Effects Tree. The cache bars and cache nodes indicate where caches will be created.

The cache nodes and bars are displayed in different colors to indicate the status of the cache:

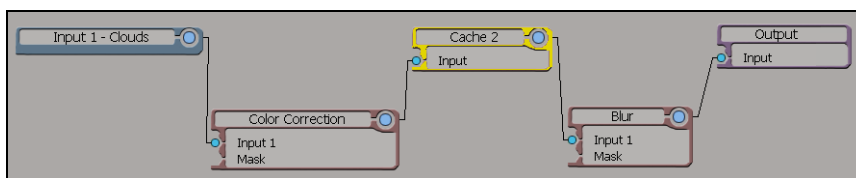
Color	Description
Yellow	The effect needs to be processed. Either no cache currently exists, or the effect properties were changed thus requiring the effect to be reprocessed.
Green	A cache exists and the effects can be played.
Blue	The effect is currently being processed on an RP workstation.

Some scenarios where adding your own caches might be useful are:

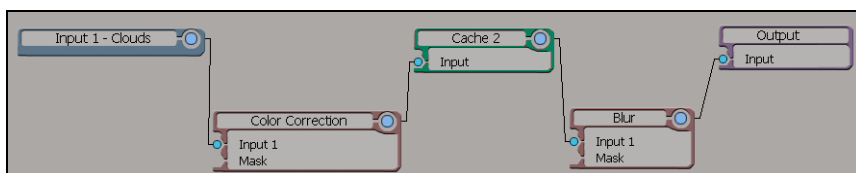
- To process the results part way up a clip effect stack.



- Caching the results at any point in an Effects Tree. You can connect the cache node to the output of any effect node in the tree, or insert it between two nodes. After processing in Complete mode, you can view the cache and play back its output in real time.



The cache node is added to the Effects Tree and then inserted at the point where you want to create a cache. The cache node is yellow, which indicates that processing is required.



Once you've processed the effect(s) up to the cache node, it turns green. This indicates that a cache has been created and any effects applied to your clip before that cache can be viewed in real time.

Using the Cache Bar in the Timeline

If you have a stack of effects in the timeline, you can create caches at any point by adding a cache bar. Cache bars, like effect bars, can be applied to a clip, track, or timeline. You can also resize them and move them along the timeline.

Cache bars have different colors depending on whether caches exist for its entire time span. They are yellow, if any part of the time span below the cache bar is unprocessed and they are green if a cache, or playable media, exists for the entire time span.



Cache nodes can also be blue. They turn blue when they are sent to a remote machine for processing. For more information, see “Remote Processing” on page 293.

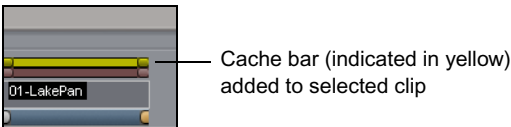
Even though Avid DS Nitris may be able to play back an effect or several effects in real time, caches bars will still be yellow if the effects have not been processed. The cache bar remains yellow because complex real-time effects are not always 100% real-time playable. Once you process your real-time effects, the cache bar will turn green, ensuring playback without any frames being skipped.

You can process the effects, composites, or transitions below the cache bar, which creates a separate cache file. You can also purge the contents of the cache bar or any redundant cache files below the cache bar. For more information, see [“Purging Media” on page 448](#).

To apply a cache bar:

1. Do one of the following:
 - ▶ Select a clip.
 - ▶ Select a region on a track.
 - ▶ Select a region on the timeline effect track.
2. Right-click the clip or area selected and select **Add Cache**.

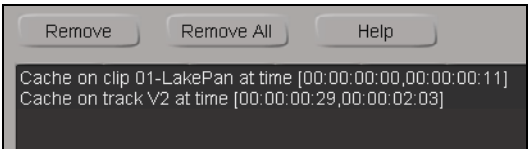
A cache bar is created over the clip or region you selected. The cache bar is green if the time span covered by the cache bar is playable in real time, or it’s yellow if processing is required.



You can add a cache bar to a clip, track, or to the timeline effect track. If you want to add a cache bar to several clips, you can’t multi-select the clips and then add a cache bar. You must do each one separately. For more information, see [“Creating Caches at Any Level” on page 280](#).

3. Right-click each cache bar and select **Add to Cache List**.

Each cache bar is added to the Cache List.



4. Click the **Process** icon.

The Processing Options dialog box opens.

5. In the Processing Options dialog box, select the **Cache List** option to process all entries in the cache list.
6. Set the necessary options and click **OK** to begin processing.

To process a cache bar:

1. Do one of the following:
 - ▶ Select the cache bar and click the **Process** icon in the timeline controls.
 - ▶ Right-click the cache bar and select **Process**.

The Processing Options dialog box opens.



*You can add a cache bar and process it in one step by right-clicking the selected clip or track and choosing **Add Cache and Process** from the menu.*

2. In the Process box, select **Include Real-time Effects**.

If you have real-time effects in the area covered by your cache bars, you should select this option to ensure real time playback for the entire time span covered by the cache bar. If you don't, the cache bar will remain yellow.

3. Select the appropriate settings for the other options and click **OK**.

Avid DS Nitris processes the effects below the cache bar, which turns green to indicate that playable media exists for the entire time span covered by the cache bar.



*You can also create a clip in the Avid Explorer from the cache you created. Simply right-click the cache bar and choose **Cache to Clip** from the menu.*

Understanding Processing Modes

There are two modes of processing in Avid DS Nitris—Minimal and Complete. In both modes, Avid DS Nitris processes effects down to the deepest level necessary for playback of the current timeline. It also only reprocesses the effects properties that have changed since the last time the clips were processed.

Minimal Processing

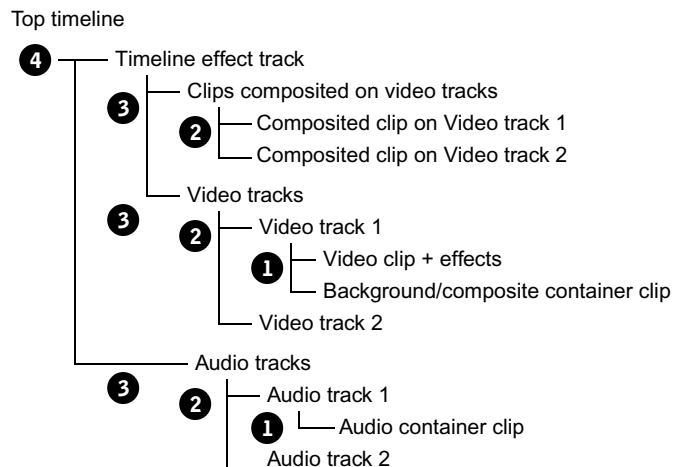
The Minimal processing mode is the most efficient when you're in the initial stages of editing. Minimal processing is faster since it processes just the effects, transitions, or layers that are necessary to ensure playback at the current level. It also creates only one cache which is saved at the level where the last effect was processed. The only drawback to this option is that if you make changes at a higher level, you must reprocess all the lower levels to regenerate the cache.

Complete Processing

The Complete processing mode processes all effects, transitions, or layers that are necessary for playback at the current level. It generates caches at each level of the timeline. Although this mode uses more disk space, subsequent processing is more efficient since it only regenerates caches for the changed effects or layers.

When processing in Complete mode, caches are created in this order: clip, track, clips composited on video track, timeline effect track. In cases where you have nested container clips, the containers are processed starting from the deepest nested container clip and working upwards.

This is the order in which caches are created on the timeline:

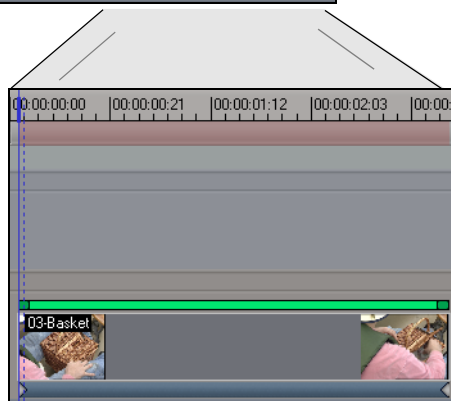
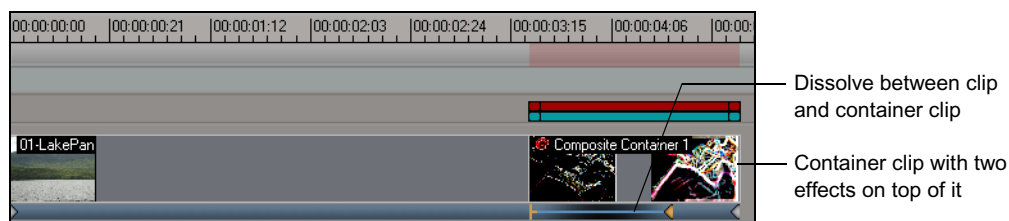


Example: Minimal versus Complete Processing

The following example is a scenario in which a section of the timeline needs processing. The dissolve to be processed includes part of a container clip that has two effects. Within the container is a clip that also has an effect on it.

Processing a region of a container clip

Top timeline



Clip inside container clip with one clip effect

In Case A, we'll perform Minimal processing, and in Case B, we'll use Complete processing.

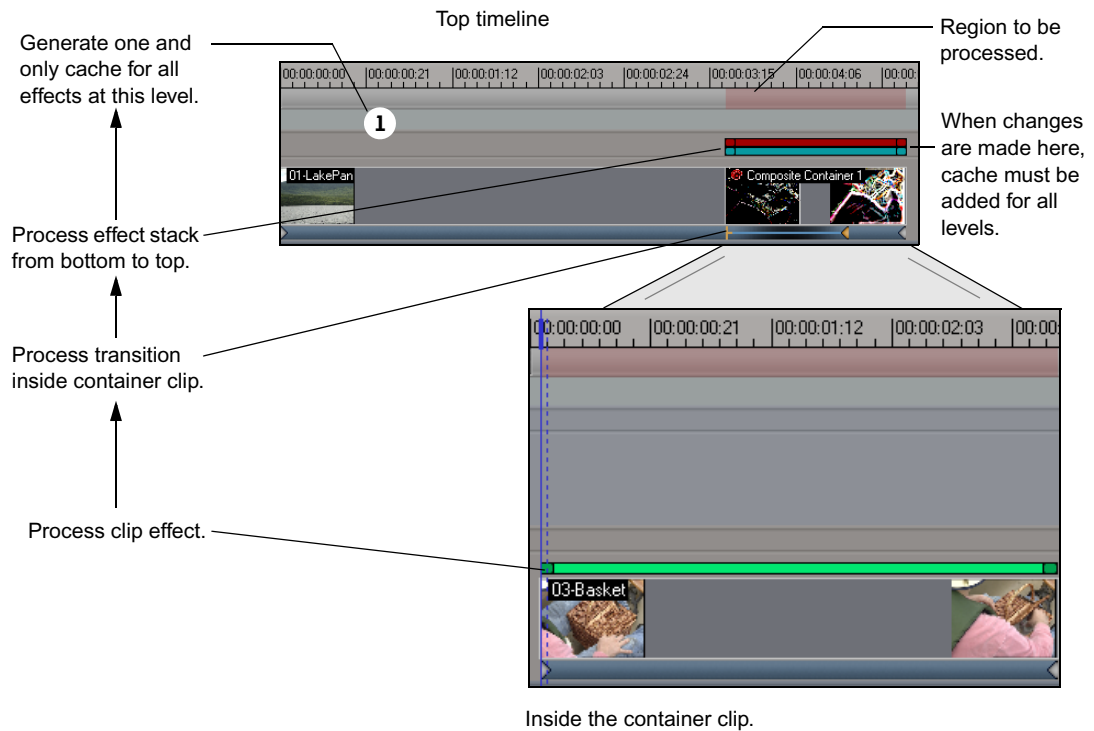


During processing, Avid DS Nitris works frame by frame. It starts with the source image on the first frame, and dynamically computes the effects on that frame at each level of the timeline. This continues for each frame in the sequence where an effect is applied.

Case A: Minimal Processing

Since the region to be processed includes part of a container clip, Avid DS Nitris first processes the effect inside the container clip. Next, the dissolve between the two clips, and then the two track effects. The results of processing all the effects is saved in one cache at the top timeline level.

Therefore, when you open the container clip and play its contents, you will not be able to view the results of the effect because the cache was saved at the top timeline.

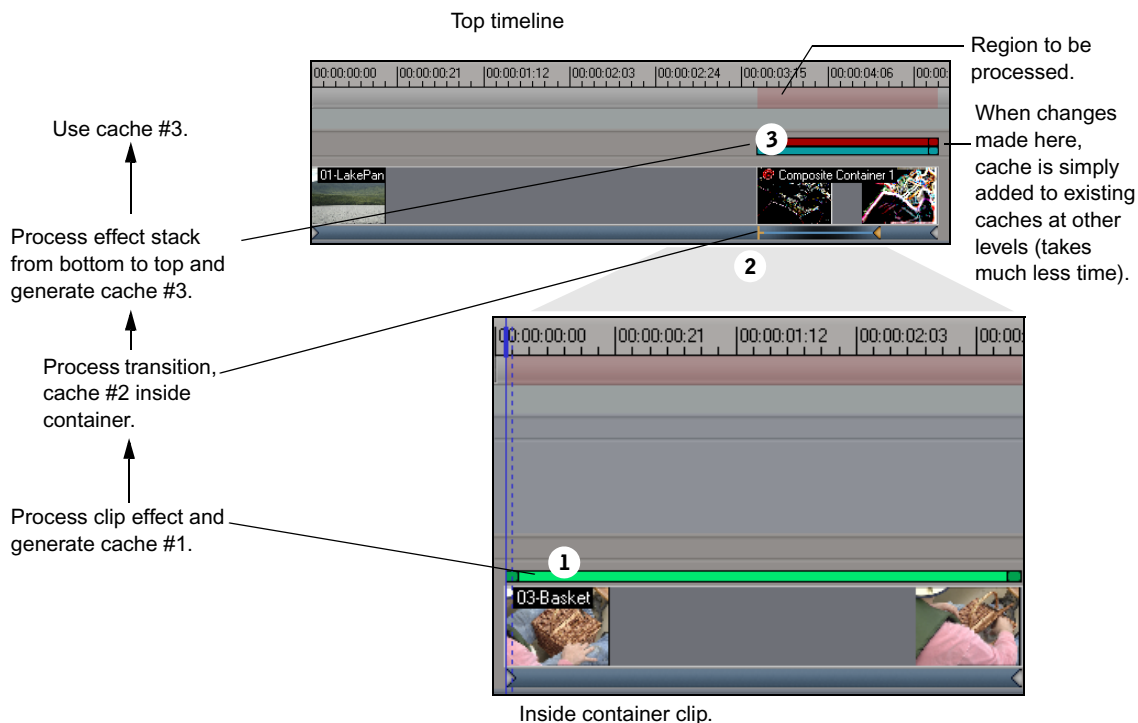


Case B: Complete Processing

With the Complete processing mode, Avid DS Nitris creates caches at each cache level of the timeline where an effect is processed. Avid DS Nitris first processes the clip effect in the container clip. It generates a cache for this clip effect. Since there are no additional track or timeline effects applied, the track and container caches are left empty, but a cache is created for the dissolve.

The clip effects above the container clip are then processed from the bottom of the stack to the top and stored as a clip cache.

If you later make changes to the effects on the top timeline, Avid DS Nitris only needs to reprocess the cache at that level. The effect inside the container clip below it does not require processing as its cache is still valid.



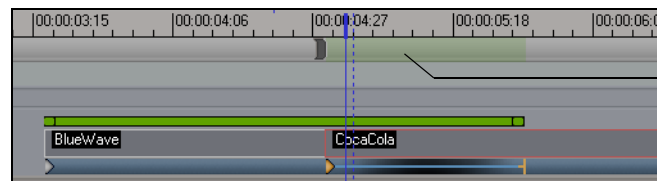
By processing caches at different levels, you can easily purge and reprocess effects without having to reprocess effects created at other levels. However, you may wonder why certain effects need to be reprocessed despite the fact that you processed in Complete mode.

Working with Real-Time Effects

A real-time effect is an effect that you can apply to your sequence and play without having to process it first. Depending on the power of your workstation, many effects can be computed in real time. This means that when you apply a real-time effect to a clip, track, layer, or Effects Tree, you can play the results immediately without having to process the effect.

Real-time effects fall into two categories—*hardware* real-time effects and *software* real-time effects. When you apply a real-time effect to a clip, track, or layer, areas of the timeline ribbon turn green or yellow to indicate that the results of the effect(s) you applied can be played without processing.

If you have the Avid DS Nitris DNA workstation, you get guaranteed real-time playback and output of some effects. These effects have a green color on the timeline ribbon in the area where they are applied.

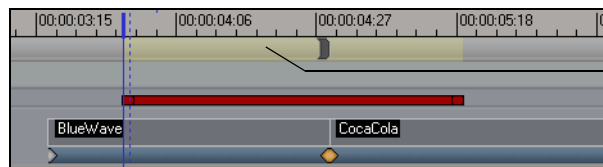


Green areas on timeline ribbon indicate effects that are guaranteed to be played and output in real time.



If you are working in a Custom sequence, real-time effects need to be processed regardless of whether they are software or hardware-based.

If you are not using the Nitris DNA hardware, then Avid DS Nitris will attempt to process effects using the software. If your workstation has sufficient processing power, many effects can be computed in real time by the software, allowing you to view the results during playback. These effects will be indicated by a yellow color on the timeline ribbon.



Yellow areas on timeline ribbon indicate effects that can be played in real time.

Several effects, including dissolves, wipes, color correction, DVE, blue-green (chroma) keyer, titles, and audio effects (except Timewarp) can often be played in real time. Stacking multiple real-time effects or boosting some effect parameters, however, may require more bandwidth than your workstation can handle and thus require that you process the effects before final mastering.



In some cases, the calculated frame might be delivered to the video output late. As a result, Avid DS Nitris skips to the next frame to keep in synchronization with corresponding audio clips. A red dot is displayed on the Play button when a frame can't be delivered in time.



If you place the pointer over the Play button when the red dot is displayed, a tooltip indicates how many frames (audio and/or video) were skipped.

The Play button is reset whenever you restart playing.

For a complete list of real-time effects and the conditions under which these effects might cease to be real-time playable, see “Effects that are Playable in Real Time” in the Help.

Examples

- A single color correction will play in real time, but five color corrections require more bandwidth for processing and might skip frames during playback.
- A keyer is a real-time effect, but if you choose to “grow” or “shrink” the matte, you will not be able to play the effect in real time.

These effects can always be processed to cache if required. For more information, see [“Creating Caches at Any Level” on page 280](#).

Playing Real-Time Effects

Avid DS Nitris will always try to play back effects in real time. When it reaches a point where a frame cannot be computed before display time, the system will repeat the previous frame to maintain progression along the timeline.

Skipped frames will occur when a real-time effect sequence is very close to surpassing the processing resources of your workstation. A red dot will appear on the Play button as soon as a frame can’t be delivered in time. This means that the real-time effect should be processed to a cache file before the final output.

If you place the pointer over the Play button when the red dot is displayed, it will indicate how many frames (audio and/or video) were skipped. The normal state of the Play button is reset whenever you restart playing.



Tip: Always use the Play button or press the Enter key for playback, and not the Up Arrow on the keyboard which is a 100% varispeed that can cause frames to skip (and hence, any corresponding audio to fall out of sync.)

If you’re satisfied with the sequence preview in the output monitor and Avid DS Nitris can successfully play effects on the timeline without skipping frames, then you can output your sequence to tape without processing.



For progressive sequences, such as 1080p, and 720p, during play back, the real-time effects are processed on-the-fly in frames. For interlaced sequences, such as NTSC, PAL, and 1080i, real-time effects are processed on-the-fly in fields. When the position indicator is parked on a frame, the real-time effects are processed in frames.

Before mastering, or at any point in your production, you can process real-time effects to a cache, so Avid DS Nitris can refer to this cache file when playing back the effects. By creating a cache, normal playback can take place and guarantee smooth output of your sequence. In general, it is good practice to process real-time effects before mastering.

To force processing of your real-time effects, select **Include Real-time Effects** in the Processing Options dialog box. Each of the processed effects will then have a cache created on disk and Avid DS Nitris will no longer have to process these on-the-fly during playback. For more information see [“Setting the Processing Options” on page 275](#).

Working with Real-Time Effects in HD

With the Avid Nitris DNA hardware capabilities, you can view real-time effects with HD media at full resolution. If you are using a non-Nitris DNA hardware platform, you can get the same real-time effects that are available with Nitris DNA if you work in quarter resolution mode. This way you can do all your work with quarter resolution HD media to view the real-time effects, and then recapture the media at full resolution to add the finishing touches to your project.

To view real-time effects in quarter working resolution mode:

1. Select **File > Sequence Preferences**.
The Sequence Preferences dialog box opens.
2. In the Working Video Settings box, set the resolution to **Quarter**.
3. Under Quarter resolution working mode, select **Enable real-time effects**.



This option is only available when working with an HD sequence on a non-Nitris DNA workstation.

4. Recapture your clips at quarter resolution.
5. Play back your sequence to view the effects.

With the real-time effects option enabled, you can only view clips that have been captured or processed in quarter resolution. You will not be able to play back full and half resolution media and caches. These clips will indicate that processing is needed (red highlight will display in the timeline ribbon). To view these clips, you will need to process them at quarter resolution.



Avid DS RP does not support the real-time effects option, therefore if you are sending your processing request to an RP workstation, it won't recognize that it has to process full and half resolution media.

Outputting Real-time Effects

During an output-to-tape operation, Avid DS Nitris requires extra resources which may result in insufficient bandwidth during playback. When this happens, the Skipped Frames indicator is displayed on the transport controls. Avid DS Nitris will attempt to output again, starting immediately before the skipped frames occurred.



If your system is equipped with an Open G/L card, Avid DS Nitris might stop updating the software viewer to transfer bandwidth resources to the output monitor and prevent frames from skipping.

If the output-to-tape operation fails after several attempts, you will be prompted to stop the operation. At that point, you must process that section of the sequence before restarting the output to tape. This operation is very fast due to the performance of the system.



Be careful with sequences that contain audio. Retrying an output-to-tape operation does not guarantee that the audio will be perfectly synchronized. You should process your sequence or output the audio to tape in a separate pass.

Remote Processing

Instead of waiting while your workstation processes effects, you can send a processing job to a remote workstation running Avid DS RP, so that you can continue working on your own workstation.

The RP software can be installed on any number of workstations on your network, and the process requests are automatically dispatched to the first RP workstation that is available. If the RP workstation is already working on another job, your job will be added to its processing queue. For more information on setting up your RP workstation, see the *Avid DS Nitris Installation and Administration Guide*.

Before you send a job for remote processing, make sure Avid DS RP is started on the remote processing workstations.

To send a job to an RP workstation:

- Follow the steps in “[Setting the Processing Options](#)” on page 275, and select the **Process Remotely** option.

The **Process Video to** box indicates the folder where the processed media will be placed. You must make sure that the RP workstation(s) have permissions to write media to this folder.

Once you send a processing job to a remote workstation, a blue cache bar is displayed above the clip where the effect was applied. The cache bar turns yellow while the effect is being processed, and eventually turns green when the processing is complete.



If you place your mouse cursor over the cache bar, it will display the processing status of the effect.

As your effects are processed, the caches are automatically imported back into your current project. The highlights on the timeline ribbon will disappear as the process requests are completed.



If you abort the processing request, the cache bar turns red.

If you change certain effects or composites in your sequence that were sent to a remote machine for processing, the caches for those effects or composites will be invalid when they are imported back into your project. The cache bar will turn red to indicate that processing is required.

Monitoring Remote Processing Jobs with the Avid DMS Broker

Avid Distributed Media Services (DMS) Broker lets you monitor and manage your remote processing jobs that have been dispatched to any RP workstation in your workgroup.

To monitor a remote processing job:

1. Open a view of the Avid DMS by clicking the DMS button in the status bar in one of the following ways:
 - Ctrl-click the DMS button to open a view in the Avid DS Explorer. This lets you dock the view directly in the Explorer where it can be easily accessed
 - Click the DMS button to open a view in the Microsoft Internet Explorer

- Ctrl+Shift-click the DMS button to open a view in the DS Web view
2. The DMS view opens and automatically logs you in as the user.

The Jobs page displays the status and other information about jobs that you have submitted to the DMS Broker. From here you can cancel, delete or retry jobs, depending on your level of privilege.

For more information on using the DMS Broker, refer to the *Avid ProEncode Setup and User's Guide*.



When DMS is installed in an Avid DS workgroup, an Avid DS client functions as a ProEncode client, and an RP workstation as a ProEncode Provider.





Chapter 8

Working with Effects and Transitions

This chapter describes how to apply effects and transitions, and how to nest clips on the timeline.

- [Displaying Guides](#)
- [Applying Effects on the Timeline](#)
- [Applying Transitions](#)
- [Nesting Clips](#)
- [Displaying Effects in a Viewer](#)
- [Processing Sequences](#)

Displaying Guides

As you work with effects and graphics in the viewer, you can display horizontal and vertical guidelines to help you align them precisely. For more information, see “[Displaying the Safe/Action Title Guides](#)” in the Help.



The guidelines are used for positioning purposes only. They are not visible in the final sequence.

Applying Effects on the Timeline

Any effects that you apply on the timeline are based on what you have currently selected. You can apply video and audio effects to the entire timeline, individual clips or tracks, or to a selected region of a clip or track.



*Before you can select anything on the timeline, you must be in Selection mode. On the timeline navigation bar, click the **Selection Mode** button.*

Effects applied to clips are called *clip effects* and effects applied to a track are called *track effects*. Clip effects are effects that are attached to a clip and move with the clip on the timeline. Clip effects affect only the clips on which you've applied them. Track effects can be placed on audio tracks, video tracks, background tracks, and the timeline effect track. Track effects modify only the clips on the track on which the effect is applied. An effect placed on the timeline effect track affects all the tracks in the timeline.

For more information, see [“Applying Effects”](#) in the Help and [“Understanding Image Transition Effects” on page 239](#). For advanced tasks on compositing and working with complex effects, see the *Avid DS Nitris Compositing and Graphics Guide*.

Applying Transitions

Transitions are changes, like dissolves, wipes, fades, DVEs, or cuts that you can apply to or between clips on the timeline. You can apply transitions to the beginning or end of a single clip, or between two clips.

For example, you can use a one-sided transition to fade into a clip at the beginning of your sequence. You can then apply wipes, cuts, and dissolves between other clips on the timeline to move smoothly from one clip to the next.

The type of transition you apply depends on the media you're working with. For instance, you can apply a dissolve, wipe, or DVE to video clips, while you can apply a crossfade, fade-in, or fade-out to audio clips. For more information, see [“Understanding Image Transition Effects” on page 239](#).

Cutting to a Clip

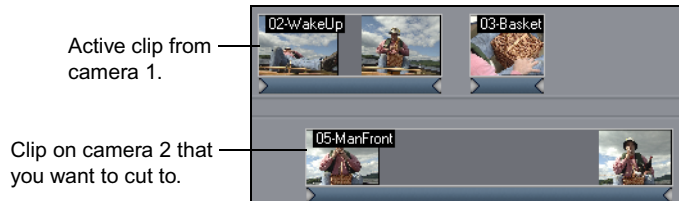
A cut is a jump or sharp transition between two clips. The cut transfers activeness from one clip to another. The Cut To transition is especially useful for multi-camera editing when you need to constantly switch between different camera shots to create the desired edit. In this case, you must place each camera take on a separate track. You can then “cut on the fly” by switching the activeness from one take to another.



The behavior of a Cut To is the same for both audio and video clips.

To cut to a clip:

1. Place the clips on different tracks and overlap the clips at the appropriate timecodes.



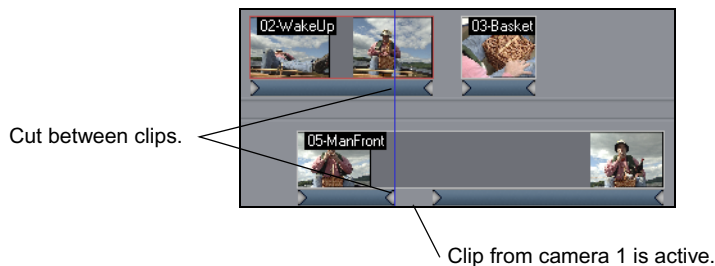
2. Place the position indicator at the point, on the next clip, at which you want to make a cut.



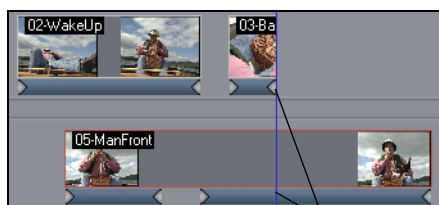
If the clip you are cutting to is inactive or on a lower track, you cannot see its frames in the viewer. To view that clip's frames, click the Solo button on the track on which the clip is located.

3. Select the clip that you want to cut to.
4. From the toolbar, click **Editing > Cut To**.

The activeness is switched from the first clip to the selected clip at the position indicator.



5. Continue to cut back and forth between the two cameras by placing the position indicator at the appropriate frame, selecting the clip you want to cut to, and then clicking **Editing > Cut To** from the toolbar.



Cut to clip from camera 2.

Creating One-Sided Transitions

You can apply one-sided transitions to clips on the timeline. One-sided transitions are usually applied to the beginning or end of a single clip to transition into it or out of it.

To apply a one-sided transition to a clip:



1. On the timeline navigation bar, click the **Selection Mode** button to select it.
2. On the timeline, select a clip's in-point or out-point.
3. From the toolbar, do one of the following:
 - If you selected a video clip's in-point or out-point, click **Video Effect > effect**.
 - If you selected an audio clip's in-point or out-point, click **Audio Effect > effect**.

The transition's property editor is displayed, and the transition is displayed as a gradient on the clip's activeness bar.



You can edit the duration of a one-sided transition the same way you would edit a transition between clips; simply drag the transition points.

Creating Transitions Between Clips

You can apply a transition between clips on the same track, or on different audio and background tracks. You can not apply transitions to different video tracks. Transitions can be created only when there is extra material available on one of the clips.

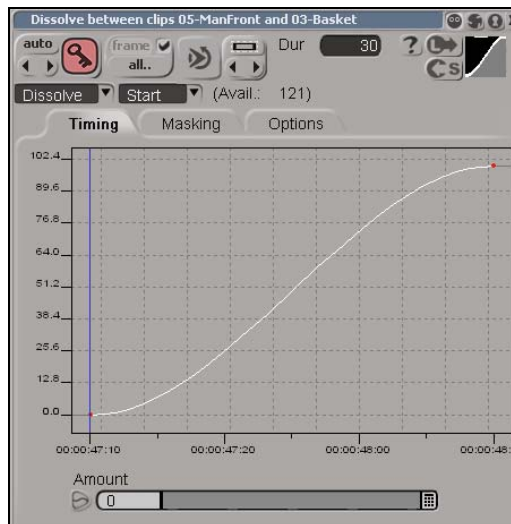
To apply a transition between clips:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. On the timeline, overlap the clips that you need to work with.

These clips can be on the same track, on different audio tracks, or on different background tracks.

3. Select the edit point between the two clips.
4. From the toolbar, click **Transition Effects** and select **Dissolve/Crossfade**, **Wipe**, or **DVE**.

The transition's property editor is displayed.



The edit point can be set to be the start, end, or center of the transition. You can also change the type of transition that you've applied. All these options are available in the property editor.

After a transition is applied between two clips, it is automatically shown as a gradient on the activeness bar.

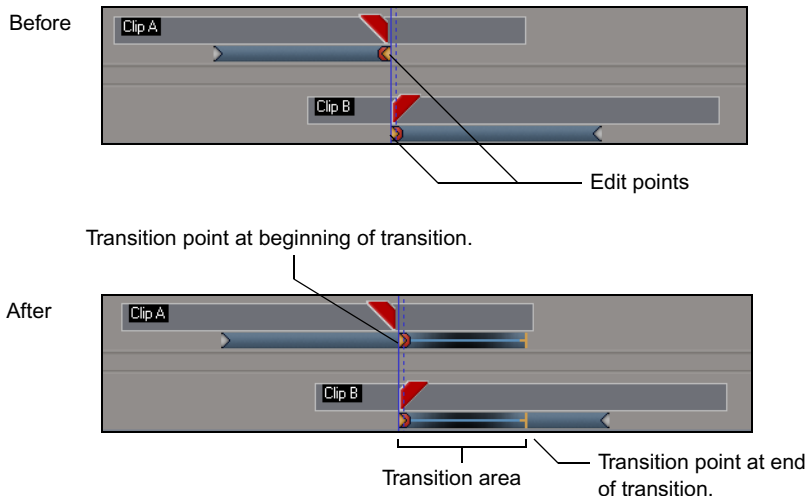


For more information, click the **Help** button.

Same-track transition



A transition between two clips on different background tracks.



Transitions have their own properties with edit points that indicate the beginning, center, and end of the transition. These edit points become highlighted when you select them.

Editing Transition Properties

Once you've applied a transition between two clips, you can change the properties of the transition.

To change the properties of a transition:

1. Do one of the following:
 - ▶ Right-click the transition edit point and select **Properties**.
 - ▶ Double-click the transition edit point.
2. Change the properties in the transition's property editor.



For more information, click the **Help** button.

Aligning Transitions

You can change the alignment of a transition to begin at the start, end, or center of the edit point.

To change the alignment of a transition:

1. In Trim mode, click the transition's edit point to select it.
2. Right-click the **Transition Alignment** button and select one of the following:



- **Transition Start** to align the transition to the right of the edit point.



Transition starts at edit point.



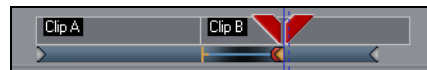
- **Transition Center** to align the transition to center around the edit point.



Transition is centered at edit point.



- **Transition End** to align the transition to the left of the edit point.



Transition ends at edit point.

The icon on the Transition Alignment button represents your alignment selection for the transition.

Removing Transitions

You can easily remove a transition and restore the original clips. When you remove a transition, it becomes a cut from one clip to the next as the edit point remains the same.

To remove a transition, do one of the following:

- Select the transition's edit point and press Delete.
- Right-click the transition's activeness bar and select **Delete** (transition type).

Using the Comparison Buffer

The comparison buffer lets you take a snapshot of a frame in your sequence and temporarily save it to memory. You can then compare the snapshot to its source frame or to another frame in the sequence.

The comparison buffer is useful when you want to:

- See how an effect changes a frame. Take a snapshot and compare it to the frame in the viewer as you apply an effect to it and adjust its properties.



- Fine-tune an effect. Apply an effect and take a snapshot. Then compare it to the frame in the viewer as you adjust the effect's properties.



- Compare one frame in your sequence to another. Take a snapshot of a frame, then move the position indicator to the next frame or different frame in the sequence.



To use the comparison buffer:

1. Right-click the viewer and select **Comparison Buffer > Use Compare Buffer**.
2. Right-click the viewer again and select **Comparison Buffer > Grab**.

A white box is displayed around the viewer to indicate the area that is currently saved in the buffer.

3. To manipulate the snapshot, do any of the following:
 - ▶ Drag the white lines around the snapshot to resize it.
 - ▶ Drag the snapshot to reposition it in the viewer. When you drag any portion of the snapshot outside of the viewer, it is cropped to the limits of the bounding box.

The size of the snapshot is maintained while the content changes.

- ▶ Press Shift and drag to move the snapshot.
 - ▶ Press Ctrl and drag to slide the snapshot inside the bounding box.
 - ▶ Press Alt and click the viewer to reset the pan.
 - ▶ Press Alt and double-click the viewer to reset the image crop and position.
4. Turn off the comparison buffer by right-clicking the viewer and selecting **Comparison Buffer > Use Compare Buffer**.

Nesting Clips

You can break down complicated tasks into more manageable sections by nesting multiple clips in a container clip. This way, an entire special effects scene, for example, can be presented as one container clip on the timeline.

Container clips behave just like any other clip on the timeline. The same rules of activeness, rippling, and other editing functions (trimming, slipping, sliding) apply.

There are three basic types of container clips that you can use:

- **Composite container clips** let you layer several video clips together on video tracks. The result is treated as a single clip.
- **Background container clips** let you edit several video clips together on background tracks and treat the result as a single clip on the top or parent timeline.
- **Audio container clips** let you group several audio clips, mix them together, and treat them as a single clip on the top or parent timeline.

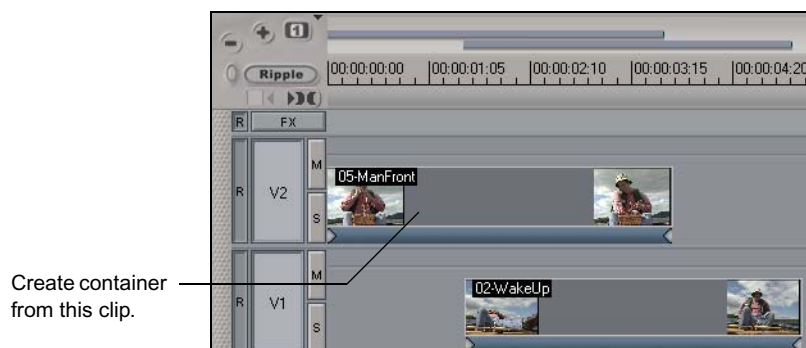
In addition, there are image processing utilities (such as Timewarp, Interlace/Deinterlace, and 3:2 Expand/3:2 Contract) that automatically create container clips to hold the original clip before the effect is applied.

When you close a container clip, it is displayed as a single clip on the timeline. You can reopen a container clip at any time to add, modify, or delete its components.

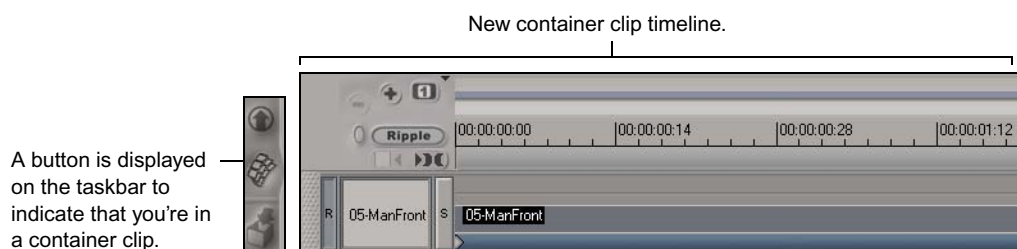
Creating Nested Clips

When you open a sequence, you are always viewing the top timeline. Container clips provide you with a new timeline on which you can place clips. This lets you focus your tasks specifically on clips within the container clip.

By default, the ruler inside the container clip starts at 00:00:00. This lets you build a subsequence that is independent of the final sequence on the top timeline.



A container clip timeline is nested in the top or parent timeline. When you open a container clip, it displays its contents on this new timeline. When you close the container clip, however, the clip is displayed relative in time to all other clips on the parent timeline.

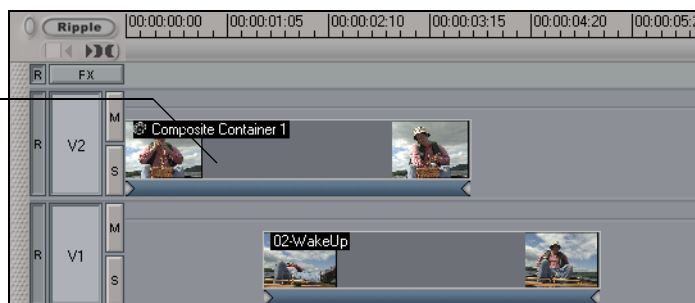


You can add more clips to the container clip and layer or arrange them sequentially for compositing, audio mixing, or editing subsections of a larger project. You can even nest other container clips in this container clip.

You can also set the ruler in the container clip to correspond to the one on the top timeline. This lets you view clips at the exact timecode that they will appear in the final sequence.

By default, a container clip is named “Composite Container x”, “Background Container x”, or “Audio Container x”, where x is the next sequential number for that type of container clip. You can easily rename a container clip with a more suitable name by using the clip’s property editor. For more information, see [“Renaming and Adding Comments to Clips” on page 167](#).

A closed container clip represented as a single clip on the top timeline.



Creating a Composite Container Clip

Composite container clips let you layer video clips and apply graphics, color correction, keyer, and DVE effects to each layer. Clips placed on video tracks are composited over each other, and when the container is closed, the result is displayed as a single clip on the top or parent timeline.



If you use background tracks within your composite container, they are combined into a single background container within the composite container. All video tracks are stacked on top of the background container within the composite container.

You can also create a composite container clip to draw graphics or add titles to your clips. A composite container clip can contain a number of video clips, and is used primarily for compositing clips and treating the result as a single clip. For more information, see [“Using the Effects Tree to Composite”](#) in the Help.

To create a composite container clip:



1. On the timeline navigation bar, click the **Selection Mode** button.
2. On the timeline, select the video clips that you want to use in the container clip. Do one of the following:



*To select more than one clip at a time, press **Ctrl** while clicking clips.*

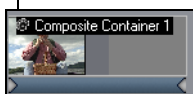


- ▶ From the toolbar, click **Containers > Composite Container Clip**.
- ▶ From the taskbar, click the **Create Container** button and select **Create Composite Container Clip**.

Composite
Container Clip
button



Container clip button



A container clip timeline is displayed. You can now place additional clips on the tracks, add effects, and perform other editing tasks on the clips.

Also, a new container clip timeline button is displayed in the taskbar to indicate that you're working in a composite container clip.

3. Do one of the following after you have finished editing the clips in this container clip:

- ▶ From the toolbar, click **Navigation > Go to Top Timeline**.
- ▶ From the taskbar, click the **Top Timeline** button.

The composite container clip is closed and the top timeline is displayed. All the clips are displayed as one clip on the timeline. You can reopen the container clip at any time by clicking the button in the title bar of the container clip.

Creating a Background Container Clip

Background container clips let you edit several video clips together on a background track, and treat the result as a single clip on the top or parent timeline. Any editing tasks that can be performed on the top timeline can also be done in a background container clip.

For example, to perform a double dissolve (commonly known as a *bi-pack*), you first dissolve two clips in a container clip. On the top timeline, you then dissolve the container clip with a third clip.

To create a background container clip:

1. On the timeline navigation bar, click the **Selection Mode** button.
2. On the timeline, select the video clips that you want to use in the container clip.

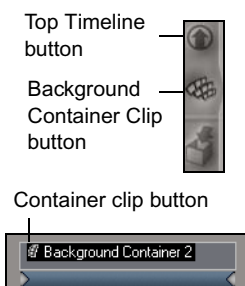


*To select more than one clip at a time, press **Ctrl** while clicking on clips. All these clips will be placed in the same container clip.*

3. Do one of the following:

- ▶ From the toolbar, click **Containers > Background Container**.
- ▶ From the taskbar, click the **Create Container** button and select **Create Background Container Clip**.





A container clip timeline is displayed. You can now place additional clips on the background tracks, add effects or transitions, or perform other editing tasks on the clips.

Also, a new container clip timeline button is displayed in the taskbar to indicate that you are working in a background container clip.

4. Do one of the following after you finish editing the clips in this container clip:
 - ▶ From the toolbar, click **Navigation > Go to Top Timeline**.
 - ▶ From the taskbar, click the **Top Timeline** button.

The background container clip is closed and the top timeline is displayed. All the clips are displayed as one clip on the timeline. You can reopen the container clip at any time by clicking the button in the title bar of the container clip.



An option lets the container button appear on the clip. For more information, see “Editing Property Page” “Editing Property Page” in the Help.

Creating an Audio Container Clip

Audio container clips let you group several audio clips, mix them together, and treat them as a single clip on the top or parent timeline. These audio container clips can be synchronized with corresponding video clips or mixed with other audio clips.

You can create submixes by nesting audio container clips in other audio container clips. For example, you can create a container clip just to create a submix of all the drum sound tracks, while another container clip can be used for the guitar submix. These two container clips can then be mixed together to generate the final recording.

For more information, see [“Mixing Audio” on page 387](#).

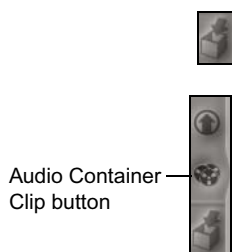
To create an audio container clip:



1. On the timeline navigation bar, click the **Selection Mode** button.
2. On the timeline, select the audio clips that you want to use in the container clip.



*To select more than one clip at a time, press **Ctrl** while clicking on clips.*



3. Do one of the following:

- ▶ From the toolbar, click **Containers > Audio Container**.
- ▶ From the taskbar, click the **Create Container** button and select **Create Audio Container Clip**.

A container clip timeline is displayed. You can now place additional clips on the tracks, add effects and transitions, and perform other editing tasks on the clips. In the audio container clip, you can set your ruler to display frames or milliseconds for greater accuracy when editing audio clips.

Also, a new container clip timeline button is displayed in the taskbar to indicate that you are working inside an audio container clip.

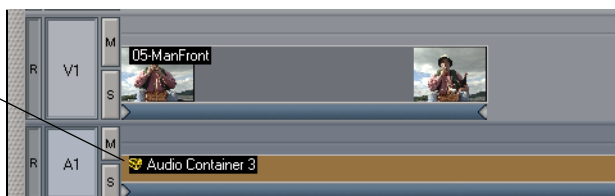
4. Do one of the following after you finish editing the clips in this container clip:

- ▶ From the toolbar, click **Navigation > Go to Top Timeline**.
- ▶ From the taskbar, click the **Top Timeline** button.



The audio container clip is closed and the top timeline is displayed. All the clips are displayed as one clip on the timeline. You can reopen the container clip at any time by clicking the button in the title bar of the container clip.

A closed audio container clip represented as a single clip on the timeline.



Navigating within Nested Clips

When you first open a sequence, the top timeline is displayed. The top timeline is the topmost level of the timeline. This is where you can see all the clips that comprise your sequence.

A container clip timeline is nested in the top or parent timeline. When you open a container clip, it displays the contents of the container clip on this new timeline.

The diagram shows a vertical bar with four icons. From top to bottom: a circular arrow (labeled 'Top Timeline'), a grid icon (labeled 'Parent Timeline'), another grid icon (labeled 'Current Timeline'), and a plus sign in a square (labeled 'Create new container clip'). A bracket groups the 'Parent Timeline' and 'Current Timeline' icons with the text 'Container clip timelines that are currently open.'

This button	Represents
	A composite container clip.
	A background container clip.
	An audio container clip.

The button at the top of the timeline buttons in the taskbar represents the top timeline. As you create nested container clips, more timeline buttons appear on the taskbar. The type of timeline buttons that appear correspond to the opened container clips.

Container clip button



Step In

**To open a container clip, do one of the following:**

- ▶ Click the button in the container clip.
- ▶ Double-click the container clip.
- ▶ Select the container clip and click the **Step In** button on the timeline navigation bar.

The container clip timeline is displayed. A new container clip button is displayed in the taskbar, representing the container clip in which you're currently working.

Closing Container Clips

After you've made changes to the container clip, you can close your current container clip and go to the top or parent timeline by clicking the respective navigation button on the taskbar.

When you click the Top Timeline button, it closes all of the container clips below it and displays the top timeline.

Similarly, when you click a parent container clip button, it closes any nested container clips within it and displays only the contents of the selected container clip.

Top Timeline button

Parent Timeline button

**To close a container clip and return to the top timeline, do one of the following:**

- ▶ From the toolbar, click **Navigation > Go to Top Timeline**.
- ▶ From the taskbar, click the **Top Timeline** button.

This closes all open container clips and returns to the top timeline.

To close a container clip and return to the parent timeline, do one of the following:

- ▶ From the toolbar, click **Navigation > Go to Parent Timeline**.
- ▶ In the taskbar, click any container clip button (Parent Timeline button) above the current container clip button.
- ▶ On the timeline navigation bar, click the **Step Out** button.

The current container clip is closed and the parent container clip's timeline is displayed.

Step Out



Deleting Nested Clips

You can delete any container clip on the timeline. Deleting a container clip removes the container clip and its contents from the timeline.

To delete a container clip and its contents, do one of the following:

- ▶ Select a container clip and press Delete.
- ▶ Right-click a container clip and select **Delete Clip**.

The container clip is removed from the timeline.



If the container clip is sync-locked with another audio or video component, the other component remains on the timeline. You have to delete it as an independent clip.

To delete a container clip but preserve its contents:

1. Open a container clip—see [“Opening Container Clips” on page 312](#).
2. Press Ctrl and select all the clips in the container clip.
3. Press Ctrl+C to copy the clips.
4. Close the container clip—see [“Closing Container Clips” on page 313](#).
5. Press Delete to delete the container clip.
6. Place the position indicator at the point on the timeline on which you want to place the clips you copied.
7. Press Ctrl+V to paste the clips back on the timeline.

Displaying Effects in a Viewer

You can display effects in a viewer, such as a floating viewer.

Opening a Floating Viewer

When working on several different effects simultaneously, you can open a floating viewer for each effect, as well as tree effects and container clips. This lets you view the output of individual effects, container clips, and whole timelines. You can also display the red, green, blue, and/or alpha component of an image, and use the transport controls to view the rest of your clip. For more information, see [“Viewing Image Components” on page 317](#).



Unlike the transport controls in the Source and Record viewers, you cannot customize them by adding and removing buttons.

You can also resize and move each floating viewer to a location where it won't obstruct other views, and then pin it in place. Once a floating viewer is pinned, you can freely switch between the different layouts and the floating viewer will remain in place. When you modify an effect, the result is displayed in its floating viewer.

A single floating viewer can display several outputs, see [“Changing the Image Displayed in a Viewer” on page 316](#).



Objects cannot be edited or manipulated in a floating viewer.

To open a floating viewer:

- ▶ Right-click one of the following and select **Open Viewer**:
 - Clip
 - Clip, track, or timeline effect bar
 - Timeline effect track
 - Container clip
 - Layer effect
 - Result area in Layers view
 - Effect Tree node
 - Overview area of the timeline

To pin a floating viewer:



- ▶ Click the **Pin** button in the upper-right corner of a floating viewer.



Tip: *You can set the window size and position of floating viewers in the User Preferences dialog box (General property page).*

Changing the Image Displayed in a Viewer

You can view various outputs in a single viewer. The Reconnect Viewer button lets you view the output of individual effects, container clips, or the whole timeline. This is useful when you want to display the full results of a composite in the Record viewer, and view one element at a time in a another viewer.

To display the output of selected objects in a viewer:

1. Do one of the following:
 - ▶ Open a floating viewer—see [“Opening a Floating Viewer” on page 314](#).
 - ▶ Select a viewer that has a Reconnect Viewer button—see “Customizing Toolbars” in the Help.
2. Click the **Reconnect Viewer** button for the selected viewer.
3. Right-click the Reconnect Viewer button and select **Current Selection**.
4. Click an object on the timeline that you want to display in the viewer.

The Reconnect Viewer button turns red, indicating that there is an alternate object you can view. Each object you select is displayed in the viewer when the position indicator moves to it.
5. (Option) If you want to continue displaying the output of the currently selected object, do the following:
 - ▶ Right-click the **Reconnect Viewer** button and select **Lock Selection**.



The Reconnect Viewer pop-up menu sets the viewer’s connection points. You can choose from three preset options or choose a selection mode. Selection mode displays the output of objects you select on the timeline or in an Effects Tree.

To set a viewer’s output connection point:

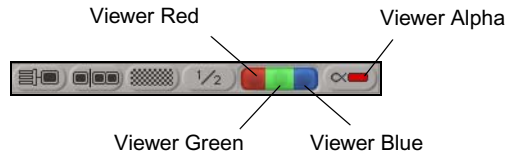
1. Click the **Reconnect Viewer** button for the selected viewer.
2. Right-click the **Reconnect Viewer** button and select the desired connection—see “Reconnect Viewer Menu” in the Help.

You can now click the Reconnect Viewer button to switch between displaying this object and the current object in the viewer.



Viewing Image Components

The viewer lets you display the red, green, blue, and/or alpha component of an image. During compositing, it's particularly useful to display the alpha component, so that you can monitor the matte of a clip or layer.



To display the red, green, or blue component, do one of the following:

- ▶ From the viewer tools, click the red, green, or blue button.
- ▶ Right-click the viewer, and select **Red, Green, or Blue Component**.

To display the alpha channel, do one of the following:



- ▶ From the viewer tools, right-click the **Viewer Alpha Channel** button, select a degree of opacity, and click the button to display the alpha channel.
- ▶ Right-click the viewer and select **Alpha Component** and a degree of opacity.

The alpha channel displays the resulting composite, either on the top timeline or in a composite container clip.

To display the matte, do one of the following:

- ▶ Right-click the viewer and select **Alpha Component > Matte**.
- ▶ From the viewer tools, right-click the **Viewer Alpha Channel** button and select **Viewer Alpha Full**.
- ▶ From a keyer property editor, select the **Output Matte** option to switch the keyer output between the RGB and alpha channels. When selected, the alpha channel (matte) is output as an RGB image. This is useful when a key is applied on a video track as you don't have to solo the track before displaying the alpha channel.



*Before processing the effect, deselect the **Output Matte** option if you don't want to output the alpha channel as an RGB image.*

The alpha channel displays the resulting composite, either on the top timeline or in a composite container clip. You can also view the mattes of individual layers.

Processing Sequences

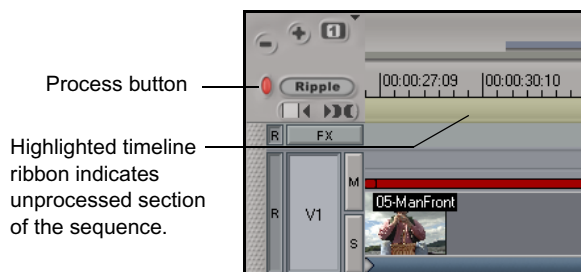
If you've applied transitions and effects to clips and then nested them in container clips, you must process them before playing them. Processing is not performed automatically, since it takes time and system resources to process your clips. You can process all or part of the timeline. You can also choose different levels at which to process your clips. For more information, see [“Processing Effects” on page 265](#).



All audio and some video effects and transitions do not need to be processed as they are computed during real-time playback.

To process a sequence:

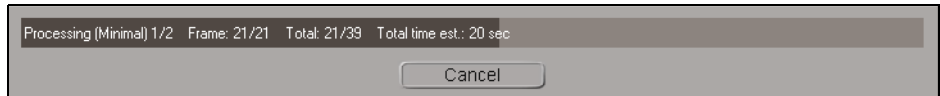
1. Do one of the following:
 - ▶ From the toolbar, click **Processing > Process**.
 - ▶ In the timeline controls, click the **Process** button.



2. In the Processing Options dialog box, select the appropriate options. Click **Help** for detailed information on the processing options or see [“Processing Effects” on page 265](#).

3. Click **OK** to begin processing.

A progress indicator is displayed on the bottom of the desktop to show the status of the process.



4. Click **Cancel** to stop the process at any time.





Chapter 9

Working with Time Effects

This chapter describes the time effects and how to apply them to clips:

- [Understanding the Time Effects](#)
- [Applying a 3:2 Contract Effect](#)
- [Applying a 3:2 Expand Effect](#)
- [Applying a Deinterlace Effect](#)
- [Applying an Interlace Effect](#)
- [Understanding the Timewarp Effects](#)

Understanding the Time Effects

The time effects let you process images by rearranging the fields and frames in a clip. Time effects include 3:2 Contract, 3:2 Expand, Deinterlace, Interlace, Timewarp, and Freeze. You can apply time effects only to clips.



These effects aren't like other clip effects, in the sense that they create container clips. You can only apply them from the toolbar.

When you apply a time effect, a container clip is created for holding the entire source clip, even if you only used part of it. First frame and end frame markers inside the container clip indicate the portion of the source clip that is actually used. Only that portion is visible on the top timeline.

Unlike other effects, a time effect is not represented by an effect bar that you can move, copy, delete, or trim. You can, however, save a time effect as a preset and apply it to different clips.

To apply a time effect:

1. From the timeline, select a clip.
2. From the toolbar, click **Time Effects** and select a time effect.

A container clip is created.



To modify a time effect:

- On the timeline, right-click a container clip, select **Properties**, and then select the parameters that you want to modify.

The effect's property editor is displayed for you to make any adjustments.



For more information, click the **Help** button.

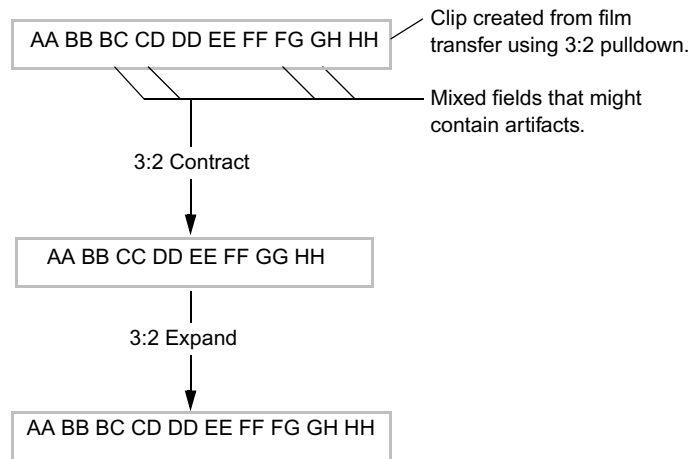
Applying a 3:2 Contract Effect

The 3:2 Contract effect lets you process video fields to recreate the original film sequence at 24 frames per second. This removes artifacts, so that you can work on clean frames.

You can apply the 3:2 Contract effect only to video clips.



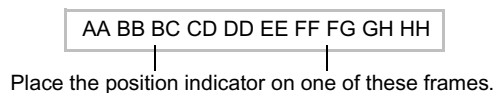
Because the 3:2 pulldown technique is not required with PAL video material, this effect is only used on sequences in NTSC format.



When using these effects inside composite container clips, you should apply the 3:2 Contract effect inside the composite container clip, complete the graphics or compositing tasks, and then go to the parent timeline to apply the 3:2 Expand effect.

To contract video fields:

1. From the timeline, select a clip.
2. Frames composed of mixed fields occur in pairs. Place the position indicator on the first frame in any pair of frames composed of mixed fields.



3. From the toolbar, click **Time Effects > 3:2 Contract**.

The clip is contracted to 24 frames per second. A container clip is created.

4. On the timeline, the length of the clip is updated.



For more information, click the **Help** button.

Applying a 3:2 Expand Effect

The 3:2 Expand effect lets you expand the video fields to recreate a 30-frames-per-second clip. Once you've added effects to your clips, you need to expand the video fields.

You can apply the 3:2 Expand effect only to video clips.



Because the 3:2 pulldown technique is not required with PAL video material, this effect is only used on sequences in NTSC format.

To expand video fields:

1. From the timeline, select a 3:2 Contract container clip.
2. From the toolbar, click **Time Effects > 3:2 Expand**.

A 3:2 Expand container clip is created and the clip recovers its original length.

3. On the timeline, the length of the clip is updated.



For more information, click the **Help** button.



During a 3:2 Expand, if a clip starts or ends with a frame composed of mixed fields, red frames are added at the beginning or end of the clip to ensure a fully recoverable operation. You can trim the clip to remove these frames. For more information, see “Understanding Trimming” on page 209.

Applying a Deinterlace Effect

The Deinterlace effect lets you separate each frame of a clip into two fields: one containing even lines and the other containing odd lines.

In the deinterlaced clip, each field appears as one frame and contains half the lines of video information of the original frame. For viewing purposes, the in-between lines are replaced either by duplicates or by interpolation. As a result, the clip becomes twice as long on the timeline.

You can apply the Deinterlace effect only to clips.

Deinterlacing clips is useful for several tasks, including:

- Working with clips originally shot with a video camera or field-based material.
- Creating a field-based animated matte (rotoscopy) or paint animation: The camera captures 60 fields per second; when objects are moving very fast, individual fields might contain slightly different images. If you want your matte to accurately track the outlines of the moving object, you must create a different matte for each field. When you deinterlace the clip, each field is displayed separately. You can then use the graphics tools to create a matte which accurately tracks the moving object.
- Retouching images: Artifacts on clips sometimes appear only on one field of a clip. The way to remove such artifacts is to deinterlace the clip, expose the corrupt field, retouch it, and then reinterlace the clip.
- Tracking: Since individual fields can contain different images, you should deinterlace clips before tracking to more accurately track objects.

After you've worked on the fields in a clip, you must recombine (interlace) them to display the resulting frames and recover the original playback speed. For more information, see [“Applying an Interlace Effect” on page 326](#).

To use the Deinterlace and Interlace effects in a composite container clip:

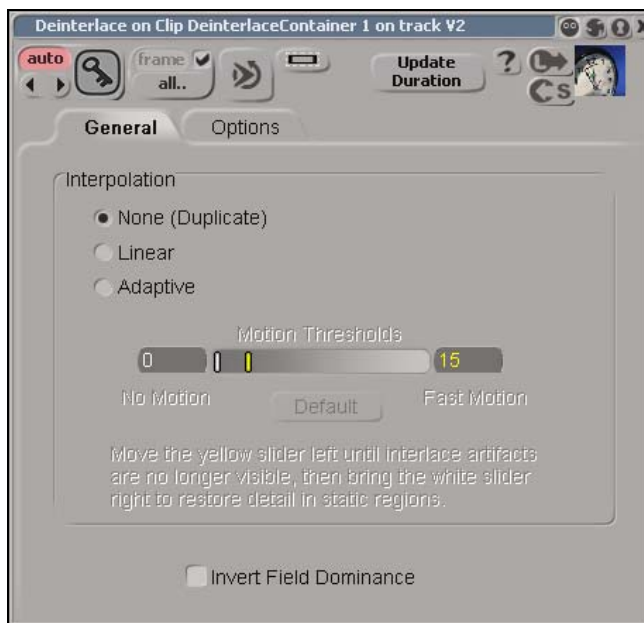
1. Apply the Deinterlace effect to a clip on the top timeline.
2. Apply the composite container clip to the deinterlace container clip.
3. Perform the graphics or compositing tasks inside the composite container clip.
4. Go to the top timeline to apply the Interlace effect.

To preserve your edits on the top timeline, make sure that the Ripple mode is activated.

To deinterlace a clip:

1. Apply the Deinterlace effect to a clip.

A container clip is created and the Deinterlace property editor is displayed.



2. From the Interpolation box, select one type of interpolation.
3. Select the **Invert Field Dominance** option to change the order in which odd and even fields occur in time.

The duration of the clip is doubled.



If you deinterlace a clip that is part of a composite, the clip's duration is doubled. To maintain synchronization, make sure that you deinterlace the other clips in the composite.



For more information, click the **Help** button.

Applying an Interlace Effect

The Interlace effect lets you shorten deinterlaced clips by half because every two consecutive frames are interleaved into a single frame. This interlaced frame contains both odd and even fields. You can use the Interlace effect after you've finished making the necessary modifications to a deinterlaced clip.

You can apply the Interlace effect only to clips.



To interlace a clip:

1. From the timeline, select a Deinterlace container clip.
2. From the toolbar, click **Time Effects > Interlace**.
A container clip is created and the Interlace property editor is displayed.
3. Select the **Invert Field Dominance** option to change the order in which odd and even fields occur in time.
The duration of the clip is reduced by half.



For more information, click the **Help** button.

To use the Deinterlace and Interlace effects in a composite container clip:

1. Apply the Deinterlace effect to a clip on the top timeline.
2. Apply the composite container clip to the deinterlace container clip.
3. Perform the graphics or compositing tasks inside the composite container clip.
4. Go to the top timeline to apply the Interlace effect.

To preserve your edits on the top timeline, make sure that the Ripple mode is activated.

Understanding the Timewarp Effects

The Timewarp effects let you change the speed of clips. You can speed them up, slow them down, or have them play in reverse.

Applying a Timewarp effect creates a container clip in which frames are added, removed, or rearranged to create the pacing that you want. Slowing the action down increases the number of frames, while speeding the action up decreases it.

The timewarp container clip holds the entire source clip, even if you only used part of it. First frame and end frame markers inside the container clip indicate the portion of the source clip that is actually used in the timewarp.

Applying an Audio Timewarp Effect

The audio Timewarp effect lets you alter the length and speed of an audio clip without affecting the original pitch. There are two methods of changing the speed—by specifying a percentage of the original speed or by typing a new SMPTE duration.

You can also adjust the pitch of any source audio with or without a change in its duration. This effect lets sounds to be transposed a maximum of two octaves up or down in pitch with or without altering playback speed. The audio timewarp has been optimized for human speech.

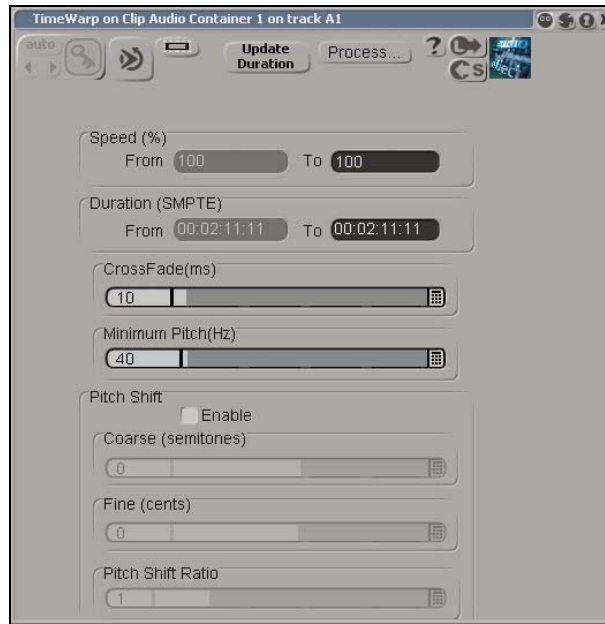


If your Avid DS Nitris system has a Merging Technologies audio card installed, you can use the audio Timewarp Timezone effect, from Merging Technologies. For more information, see “Applying Merging Audio Timezone Effects” on page 330.

To apply the audio Timewarp effect:

1. From the timeline, select an audio clip.
2. From the toolbar, click **Time Effects** > **Timewarp**.

A timewarp container clip is created and the Timewarp property editor is displayed.



3. Do one of the following to define the new speed:

- In the **Speed (%)** box, type a new speed as a percentage of the original speed.
- In the **Duration (SMPTE)** box, type a new end timecode for the container clip.

You can define the speed using either the speed or duration control. Because these properties are interdependent, when you change one, the other is updated automatically. For example, if you specify a new end timecode, the speed is adjusted so that the clip fills the new duration.

- Adjust the length of the crossfade using the **CrossFade** control.
- Adjust the **Minimum Pitch** control to set the minimum or lowest pitch used during the timewarp processing.
- Do the following to adjust the pitch shift:
 - In the Pitch Shift area, click **Enable** to active the pitch shift options.
 - Adjust the pitch by changing the values of the **Coarse** and **Fine** options. The Coarse option transposes in semitones (half steps) and the Fine option transposes in cents (hundredths of a semitone).

- Adjust the **Pitch Shift Ratio** control to set the amount of transposition (pitch change).



For more information, click the **Help** button.

Applying Merging Audio Timezone Effects

The audio Timewarp Timezone effect lets you alter the length and speed of an audio clip without affecting the original pitch. The audio timewarp has been optimized for human speech.



To use the audio Timewarp effect, Timezone from Merging Technologies, you must have a Merging Technologies audio card installed on your system.

There are two methods of changing the speed: by specifying a percentage of the original speed or by entering a new SMPTE duration.

To apply the audio Timewarp (timezone) effect:

1. From the timeline, select an audio clip.
2. From the toolbar, click **Time Effects > Timewarp**.

A timewarp container clip is created and the Timewarp TimeZone property editor is displayed.



3. Click the **Load Preset** button and select one of the Merging TimeZone presets.
4. Do one of the following to define the new speed:
 - In the **Speed (%)** box, type a new speed as a percentage of the original speed.
 - In the **Duration (SMPTE)** box, type a new end timecode for the container clip.

You can define the speed using either the speed or duration control. Because these properties are interdependent, when you change one, the other is updated automatically. For example, if you specify a new end timecode, the speed is adjusted so that the clip fills the new duration.

5. In the **Quality** box, specify how you want the processing to be done. The higher the quality setting, the more processing power, and therefore more time is required to complete the process. You can, for example, set the quality to Fast while you experiment with parameters. Once you've decided on your settings, set the quality to High to process the final result.



- 6. Click the **Update Duration** button to update the clip displayed on the timeline.
- 7. On the **Advanced** property page, set the following parameters:
 - **Blocklength**: Specify the size of the audio blocks used to perform the Timezone processing. As a general rule, percussive sounds, such as drums, piano, or clicks, should use shorter blocklengths, while instruments such as strings, wind, and flute, should use longer blocklengths. For clips that combine both percussive and tonal sounds, like music, you'll need to experiment with this parameter for an optimal setting.
 - **Cross Fading**: Specify the length of the crossfade applied between each audio block during the Timezone processing.
 - **Energy Detection (dB)**: Specify the energy threshold for processing audio blocks. When you select this option, only audio blocks that do not exceed the specified energy threshold are processed. This is particularly useful for percussive content or for speech applications. Do not select this option when an exact processed file size must be guaranteed.

For more information, see “Timewarp (audio timezone) Property Editor” in the Help.

Applying a Video Timewarp Effect

The video Timewarp effect lets you speed up or slow down the action in a video clip. You can also reverse the action in a clip, freeze frames, or match the duration of two clips.

The Timewarp effect has five modes:

Mode	Description
Constant	Speeds up or slows down the action in a clip by giving it a new constant speed—see “Applying a Constant Speed” on page 333 .
Speed	Applies a variable speed, so that the action speeds up and/or slows down progressively—see “Applying a Variable Speed” on page 336 .

Mode	Description
Input Speed	Applies a variable speed based on the source clip in the timewarp container clip, so that the action speeds up and/or slows down progressively—see “Applying a Variable Speed Based on the Source Clip” on page 337.
Position	Rearranges the action completely by changing the position of frames in time—see “Changing the Position of Frames” on page 339.
Hold	Freezes frames—see “Freezing Frames” on page 340.

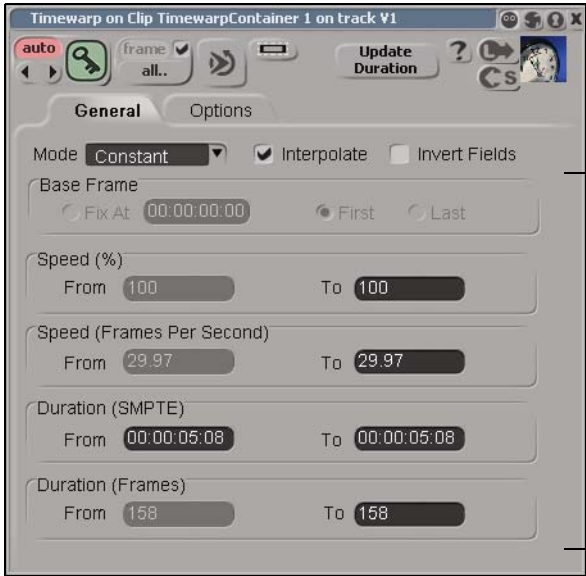


Inside a timewarp container clip, audio and video synchronization are not valid. Therefore, you cannot play the audio portion of a clip from inside a video timewarp container clip or from a clip that is a container clip of a timewarp container clip.

To apply a video timewarp:

1. From the timeline, select a video clip.
2. From the toolbar, click **Time Effects** > **Timewarp**.

A timewarp container clip is created and the Timewarp property editor is displayed.



This portion of the property editor varies according to the mode.



3. From the Mode list, select one of the following:
 - **Constant** to apply a constant speed to the entire clip.
 - **Speed** to specify a speed that varies throughout the clip.
 - **Input Speed** to specify a speed based on the source clip.
 - **Position** to apply frame mapping.
 - **Hold** to freezes frames.



*To freeze frames in the selected clip, you can also go the frame that you want to freeze and click **Time Effects > Freeze** in the toolbar.*

4. Select the **Interpolate** option to create smoother motion.

As frames are added or removed, the timewarp interpolates between frames (or fields in field processing mode) to create a smoother motion.
5. Select the **Invert Fields** option to reverse field dominance in a clip—see [“Understanding Video Settings” on page 75](#).



If you selected the Frames option in the Processing Options dialog box, then the Invert Fields option in the Timewarp property editor will have no effect when you process the timewarp.

6. Click the **Update Duration** button to update the clip displayed on the timeline.



If you have problems applying a timewarp to material that has been transferred from film using a 3:2 pulldown, you should first apply a 3:2 Contract effect, then apply a Timewarp, and then apply a 3:2 Expand effect on the timewarped results, using the Frames option in the Processing Options dialog box. For more information, see [“Applying a 3:2 Contract Effect” on page 322](#) and [“Applying a 3:2 Expand Effect” on page 324](#).



For more information, click the **Help** button.

Applying a Constant Speed

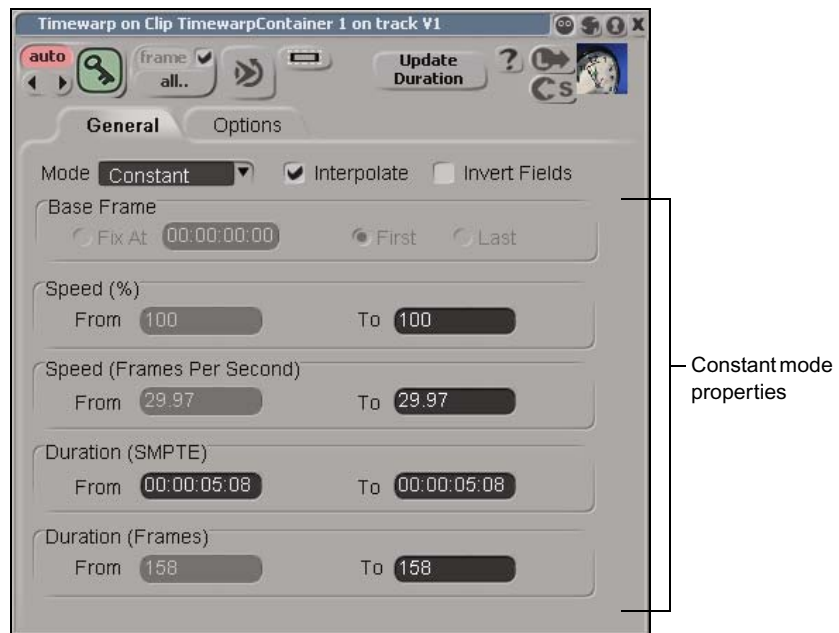
Using the Constant mode, you can assign a new apparent speed to a portion of a clip. For example, in a scene where a runner is crossing the finish line, you can set the speed to 50% to slow down the action.

You can define the speed using any of the speed or duration controls. Because these properties are interdependent, when you change one, the others are updated automatically. For example, if you specify a new duration by changing the end timecode, the speed is adjusted so that the clip fills the new duration.

Once you've applied a new constant speed to a clip, you can adjust the clip's in and out-points and its duration.

To apply a constant speed:

1. From the Timewarp property editor, select **Constant** from the Mode list.
The Constant mode properties are displayed.



2. To define the new apparent speed, do one of the following:
 - **Speed (%):** Type a new speed as a percentage of the original speed.
 - **Speed (Frames per Second):** Type a new speed in frames per second (enter a negative value if you want to reverse the action in the clip).
 - **Duration (SMPTE):** Type a new duration for the container clip.
 - **Duration (Frames):** Type a new duration in frames.



Frames are added or removed from the clip to change the apparent speed of action. Speed values are rounded, so that the number of frames is an integer.

3. Click the **Update Duration** button to update the container clip's duration on the timeline.



If the Interpolate option is deselected and the new constant speed is slower than the original speed, the updated duration of the clip on the timeline may not match the updated duration in the property editor. This is because slowing down the clip without interpolation simply duplicates each full frame a fixed number of times. To remove the extra frames, you can simply trim them in the timeline.

When Interpolation is selected, extra frames are not generated because some frames are mixed together.



For more information, click the **Help** button.

To adjust the clip's in and out-points on the source clip:

1. Select the timewarped clip that contains the in or out-points you want to change.
2. Do one of the following:
 - From the top timeline, select the clip's in or out-point. Hold down the F key and drag the edit handle to move the in or out-point forward or backward in time.
 - From inside the timewarp container clip, select the First Frame or End Frame marker and drag it to the new in or out-point.

The clip now uses more or less material, but its duration on the top timeline does not change. This will either speed up the action or slow it down, depending on whether you increased or decreased the number of frames being used.

To adjust the clip's duration:

1. Select the timewarped clip whose in or out-points you want to change.
2. From the top timeline, select the clip's in or out-point.
3. Hold down the G key and drag the edit handle to move the in or out-point forward or backward in time.

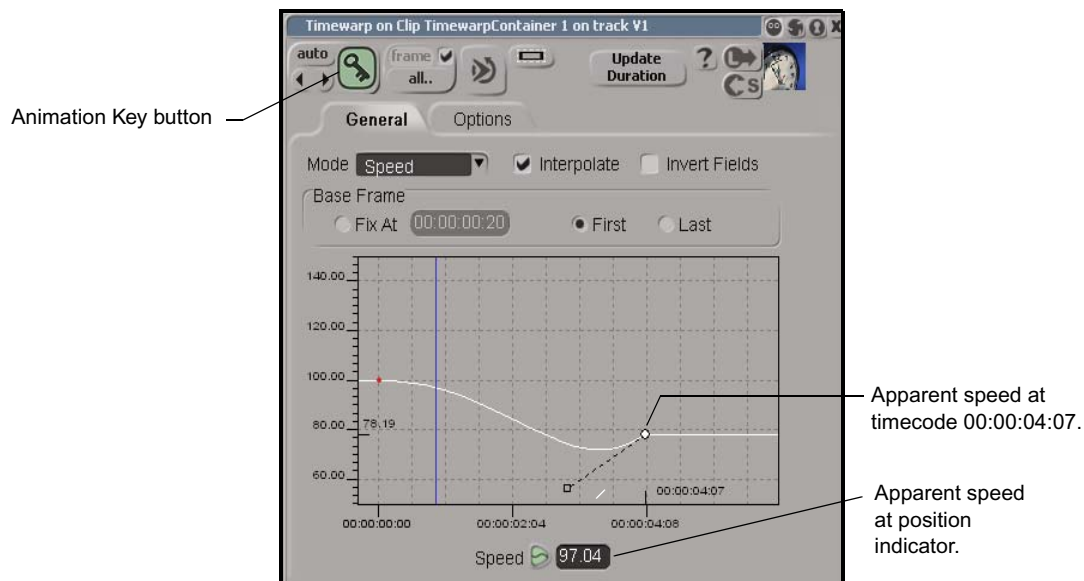
The clip's duration is increased or decreased, but its in and out-points in the source material do not change.

Applying a Variable Speed

Using the Speed mode, you can assign different speeds to different parts of a clip without changing the clip's duration on the timeline.

For example, if you apply a timewarp to a clip in a basketball scene, you can slow the action down and then speed it up again to make the ball gradually slow down as it approaches the net, come to a stop above the net, and then fall through the net at full speed.

Changing the speed changes the portion of the source clip that is used, since more or less material is needed to maintain the clip's duration. After each change, the first frame and end frame markers inside the timewarp container clip are updated accordingly. A base frame marker is set at the frame where you originally applied the timewarp.



To apply a variable speed:

1. From the Timewarp property editor, select **Speed** from the Mode list.
The Speed function curve is displayed.
2. Change the apparent speed of the clip by doing one of the following:
 - Edit the function curve—see [“Working with the Animation Graph” on page 357](#).
 - Move the position indicator to a specific timecode and type a value in the **Speed** text box.

If the Autokey mode is on, a keyframe is created on the function curve.

If the Autokey mode is off, you can use the Set/Remove Key button in the Timewarp property editor to add or remove keyframes from the function curve.



*You can also edit the function curve in the animation editor by right-clicking the Animation Key button and selecting **Animation Editor**.*

In the animation editor, you can work on a copy of the function curve and preserve the original until you're ready to accept your changes. For more information, see [“Making Temporary Copies of Function Curves” on page 374](#).

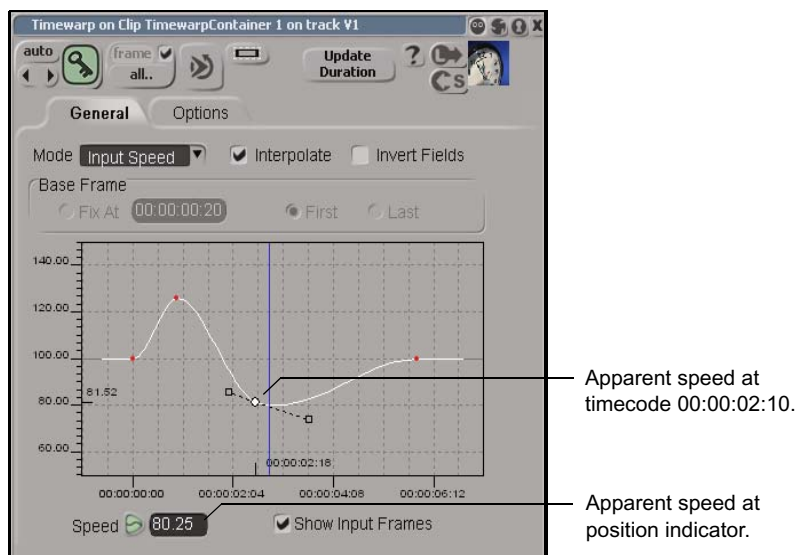


For more information, click the **Help** button.

Applying a Variable Speed Based on the Source Clip

Using the Input Speed mode, you can assign different speeds to different parts of a clip, and update the clip's duration accordingly.

Changing the speed in the Input Speed mode does not affect the portion of the clip that is used because the changes are based on the source material. Instead, the clip's duration is lengthened or shortened, depending on whether you slowed the clip down or sped it up. However you change it, the final timewarped clip will retain the first and end frames that you originally specified.



To apply a variable speed based on the source clip:

1. From the Timewarp property editor, select **Input Speed** from the Mode list.
The Input Speed function curve is displayed.
2. Select the **Show Input Frames** option.
The Input Speed function curve is updated to represent the source material for the timewarp container clip.
3. Change the apparent speed of the clip by doing one of the following:
 - Move the position indicator to a specific timecode and type a value in the **Speed** text box.
 - Edit the function curve—see [“Working with the Animation Graph” on page 357](#).

If Autokey mode is activated, a keyframe is created on the function curve.

If Autokey mode is deactivated, you can use the Set/Remove Key button in the Timewarp property editor to add or remove keyframes from the function curve.

4. Deselect the **Show Input Frames** option.
5. Click the **Update Duration** button to update the duration of the clip on the top timeline.

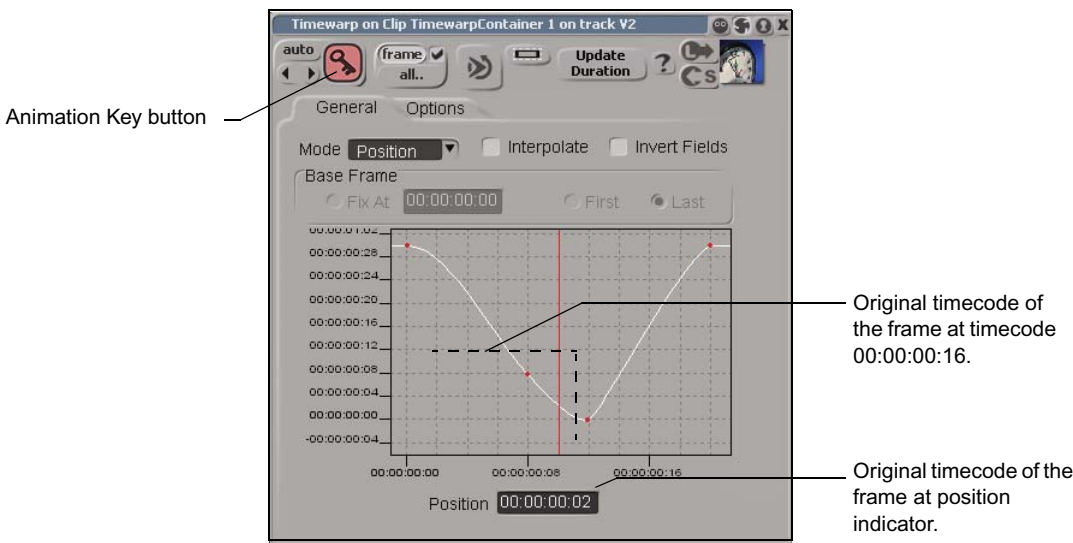
 For more information, click the **Help** button.

Changing the Position of Frames

Using the Position mode, you can move frames to different timecodes. For example, to reverse the action in a clip, you can place the last frame first and the first frame last.

In Position mode, a position curve maps the frames' original timecode inside the container clip (the vertical axis) versus their new timecode (on the horizontal axis). You can change this mapping by editing the function curve.

In the following example, the clip plays backward slowly from the last frame to the first, then plays forward fast, from the first frame to the last.



To change the position of frames:

1. From the Timewarp property editor, select **Position** from the Mode list.
The Position function curve is displayed.
2. Change the position of frames by doing one of the following:
 - Edit the function curve—see [“Working with the Animation Graph” on page 357](#).
 - Move the position indicator to a specific timecode.

- In the Position box, type the original timecode of the frame that you want to move to the current location of the position indicator.

If Autokey mode is activated, a keyframe is created on the function curve.



*You can also edit the function curve in the animation editor by right-clicking the Animation Key button and selecting **Animation Editor**.*

In the animation editor, you can work on a copy of the function curve and preserve the original until you're ready to accept your changes. For more information, see "Making Temporary Copies of Function Curves" on page 374.

To reverse the action in a clip:

1. From the timeline, select a clip.
2. From the toolbar, click **Time Effects > Timewarp**.

A container clip is created and the Timewarp property editor is displayed.



3. Click the **Load Preset** button.
4. From the Load Preset dialog box, select the **Reverse** effect.

In the Base Frame box, Last is selected. In the Speed (%) box, the value is -100, indicating that the clip will play in reverse.

5. Change the negative speed value to make the clip play backwards at a different speed.



For more information, click the **Help** button.

Freezing Frames

Using the Hold mode, you can freeze the action of a specified frame by giving it a speed of zero. Then you can specify whether to freeze a frame or field by using the Hold On options. Avid DS Nitris replaces frames in a specific part of the clip by using the frame or field you specified in the Timewarp property editor. Field-based holds require processing whereas frame-based holds do not.

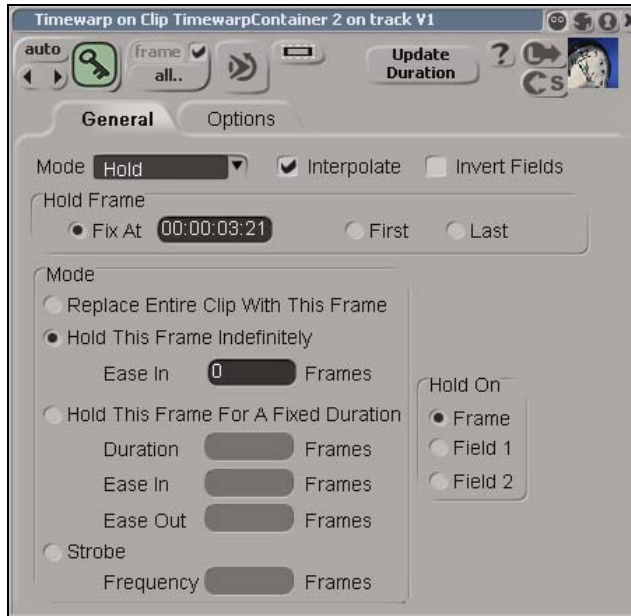
To freeze frames:

1. From the timeline, select a clip.
2. Using the transport controls, locate the frame you want to freeze.
3. From the toolbar, click **Time Effects > Freeze**.

A timewarp container clip is created and the Timewarp property editor is displayed.



*You can also freeze frames by clicking **Timewarp** and selecting **Hold** from the Mode list in the Timewarp property editor.*



Notice that the Fix At text box contains the selected frame's timecode in the timewarp container clip, and not on the top timeline. A base frame marker is set at this timecode on the timeline in the timewarp container clip.

All subsequent frames in the clip are replaced by the current frame causing the action to freeze indefinitely. You also have the option of holding the first or last frame of the container clip.

4. Adjust the base frame by changing the **Fix At** value.



You can also adjust the base frame by moving the base frame marker in the timewarp container clip.

5. By default, the **Hold This Frame Indefinitely** option is selected. If you want the action to slow down gradually, type a value in the **Ease In** text box.

The action slows down over the specified number of frames.

6. If you want to convert the clip into a still image based on the specified frame, select the **Replace Entire Clip With This Frame** option.
7. If you want to freeze a frame and then let the action resume, select the **Hold This Frame for a Fixed Duration** option and set the following:
 - **Duration:** Type the number of frames during which the action is frozen.
 - **Ease In:** Type the number of frames during which the action slows down to a stop.
 - **Ease Out:** Type the number of frames during which the action recovers its original speed.
8. If you want to create a strobe effect do the following:
 - Select the **Strobe** option.
 - In the **Frequency** text box, type the number of frames that are repeated and then skipped.

Starting with the first frame in the container clip, a specified number of frames is repeated and then the same number of frames is skipped.

9. To freeze either a frame or field, select one of the following from the Hold On boxes:
 - **Frame:** Freezes both fields of the selected frame.
 - **Field 1:** Freezes the first field of the frame.
 - **Field 2:** Freezes the second field of the frame.



Freeze frame timewarps do not require processing when you set the Hold On mode to Frame, and you've set the Ease In and Ease Out values to zero.

Freeze frame timewarps do require processing when you set the Hold On mode to Field 1 or Field 2, or when you've specified an Ease In or Ease Out value.

10. Click **Update Duration** to update the clip's duration.



For more information, click the **Help** button.



Giving One Clip the Duration of Another

You can use the Timewarp effect to give one clip the same number of frames as a second clip. This is useful when you want to composite a clip that contains a single-frame image with another clip that contains action.

To give one clip the duration of another:

1. Place two clips on the timeline.
2. Select the first clip (the clip whose duration you want to change).
3. Press Ctrl and click the second clip (the one whose duration you want to match).
4. From the toolbar, click **Time Effects > Timewarp**.

A container clip is created over the first clip and the Timewarp property editor is displayed. On the timeline, the length of the first clip is updated to match the length of the second clip.



For more information, click the **Help** button.





Chapter 10

Animating Objects

This chapter describes the different ways you can animate an object's properties. You can use the animation tools to create and adjust animation by setting keyframes and manipulating function curves.

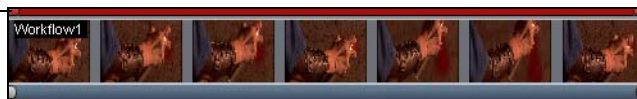
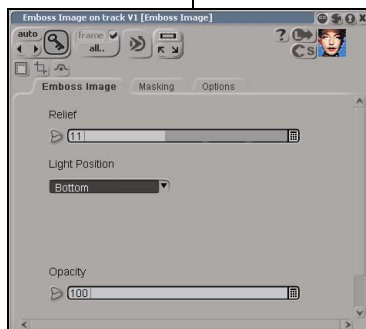
After you master the animation techniques, you can refer to specific chapters in this guide and the *Avid DS Nitris Compositing and Graphics Guide* to learn how to animate transitions, video and audio effects, composited layers, or graphics.

- [Workflow: Animating Properties](#)
- [Creating Animation](#)
- [Understanding the Animation Editor](#)
- [Editing Animation](#)
- [Processing Animation](#)

Workflow: Animating Properties

1 Create animation.

Display effect's property editor.



Keyframing Process

Place position indicator on a frame.

Adjust parameters.

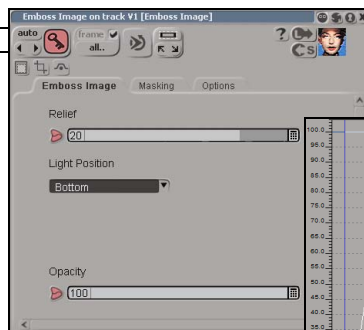
Set a keyframe manually

or

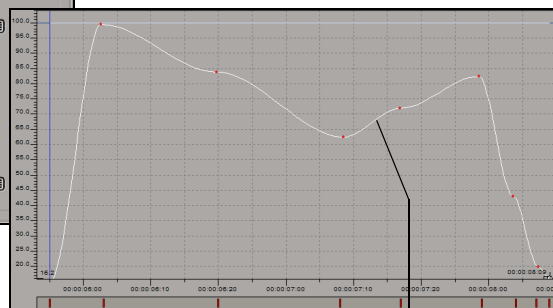
automatically (Autokey mode).

2 Edit animation.

Move between keyframes, adjust parameters, and reset, add, and/or remove keyframes.



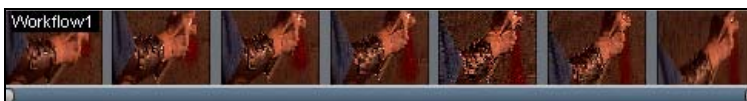
or



3 Process animation.

In the final sequence, the effect's properties change over time.

Display animation editor and modify the function curve.



Creating Animation

Animation is the change of an object/image over time. To create animation, you record changes to an object's properties. Using a process called *keyframing*, you specify the object's properties at the first and last frame of each change. Properties are automatically calculated and set for the frames in between, producing a change in the object. You can add as many keyframes to an object as you need to create your animation.



Adding animation requires system resources that might impact your system's performance.

Objects and effects that you can animate include transitions, video and audio effects, layers, and graphics. For example, you can animate the blur on a video effect, the order of a layer in a composite, the rotation of a stroke, or the color of a title.

There are several ways to create animation:

- Use the Autokey mode to set keyframes automatically, as you adjust the object's properties—see [“Setting Keyframes Automatically” on page 347](#).
- Use the Animation Key button and Animation button to set keyframes manually each time you adjust the object's properties—see [“Setting Keyframes Manually” on page 349](#).
- Use the animation editor to manipulate the function curves of selected object properties—see [“Understanding the Animation Editor” on page 352](#).
- Create a motion path to animate a DVE.
- Record audio animation in the mixer.

When you create animation, the corresponding animation keys appear in the animation editor and in the position bar below the Record viewer.

Setting Keyframes Automatically

When you activate the Autokey mode, keyframes are automatically created each time you modify an object's properties. Automatic keyframing only sets keyframes for the properties that you modify, which is useful when you want to adjust specific properties without adding or modifying the keyframes of the other properties.

To set keyframes automatically:

1. When you're ready to begin animating, do one of the following:



- ▶ On the status bar, click the **Autokey** button.
- ▶ From the File menu, select **User Preferences** to open the User Preferences dialog box. From the Animation property page, select the **Set Keys When Changing Values** option.
- ▶ Right-click the Animation Key button in the property editor of the object that you want to animate, and select **Autokey**.
- ▶ Click the **auto** button in the property editor.

The Autokey mode is activated and the Animation Key button turns red whenever a keyframe is set. Keyframes will automatically be set for all property editors and animatable properties until Autokey is deselected.

2. Move the position indicator to the frame on which you want the animation to start.
3. Use the property editor to adjust the values of the properties that you want to animate.

A keyframe is automatically set each time you adjust the properties.

4. Go to another frame and adjust the properties again.

A new keyframe is set at the current timecode and property values are computed for all frames between the keyframes.

5. If necessary, go to different points in the clip and continue adding keyframes.
6. If you want to stop adding keyframes automatically, click the **Autokey** button again to deactivate the Autokey mode.
7. Do one of the following to view the animation:

- ▶ Process the effect and play the clip—see [“Processing Animation” on page 385](#).



- ▶ In the property editor, click the **Preview** button.
- ▶ Press **Ctrl** and click **Play** to play the clip frame by frame.

When you play the clip, the keyframed properties change as the clip advances.



In the Autokey mode, keyframes are set only for the properties that you modify. To set a keyframe for all animatable properties, you should use the Animation Key button. For more information, see “Setting Keyframes Manually” on page 349.

Setting Keyframes Manually

You can create animation by adjusting properties and manually setting keyframes at different points in time. Manually setting keyframes lets you to preview your changes before you actually set any keyframes.

This method is also useful when you want to set keyframes using the controls in the property editors or views, or interactively in the viewer.



The Animation button at the left of numeric parameters on property editors lets you to set a keyframe for individual parameters at the current position of the position indicator.

The animation controls change color depending on the status of the animation and keyframe. For example, the animation controls turn yellow when you modify the value of an animation parameter but do not set a keyframe. The yellow indicates a temporary value for the parameter. If you move the position indicator to another frame, the temporary value is removed and the curve is restored. If you want to set a keyframe for the temporary value of the parameter, click the Animation button for that parameter.

When you click the Animation Key button, keyframes are set for all animation properties of the effect at the current position of the position indicator. However, when the Animation Key button is yellow (indicating there are temporary values) clicking the Animation Key button will set keyframes only for those properties that have temporary values.



When keyframes are set for all properties, clicking the Animation Key button removes all the keyframes.

The following table describes the animation control status indicator colors.

Color	Status description
Gray	No keyframes are set. You can preview adjustments to animation parameters.
Green	No keyframes are set at the current position of the animation.
Red	Keyframes are set at the current position of the animation.
Yellow	Temporary change to a parameter value at the current position of the animation.



For the Color Correction and Color Correction Classic effects, clicking the Animation Key button does not set keyframes if all the parameters are set to their default settings. For more information, see “Returning to Default Values” in the Help.

To set keyframes manually:



1. Click the **Autokey** button to turn off Autokey mode.
2. Open the property editor in which you want to create animation.
3. Move the position indicator to the frame in which you want the animation to start.
4. Adjust the properties that you want to animate.
5. Set keyframes by doing one the following:



- ▶ To set a keyframe for an individual numeric parameter, click the **Animation** button beside the parameter.
 - ▶ To set keyframes for several properties that you modified, click the **Animation Key** button.
 - ▶ To set a keyframe for all properties in the property editor when there are temporary values, press **Ctrl** and click the **Animation Key** button.
 - ▶ To set a keyframe for all properties in the property editor when there are no temporary values set, click the **Animation Key** button.
6. If necessary, go to different points in the clip and continue adding keyframes.

7. To view the animation, do one of the following:

- ▶ Process the effect and play the clip—see [“Processing Animation” on page 385](#).

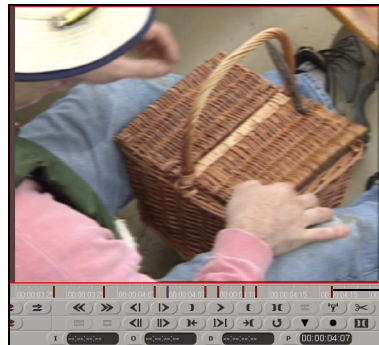


- ▶ In the property editor, click the **Preview** button.
- ▶ Press **Ctrl** and click **Play** to play the clip frame by frame.

When you play the clip, the keyframed properties change as the clip advances.

Viewing and Moving Animation Keys

Once you’ve created animation, each animation key you set is displayed in the position bar below the Record viewer. Animation keys are represented as red bars. You can only view and reposition animation keys in the position bar.



To view animation keys:

- ▶ Select an effect from the timeline.

If the effect has animation, its animation keys are displayed in the position bar.

To reposition animation keys:

- ▶ Select an animation key from the position bar and drag it to a new location.

To show or hide the animation keys:

- ▶ Right-click the position bar and select/deselect **Show Animation Keys**.

To snap the position indicator to an animation key:

1. Press Ctrl and click an animation key.
2. Reposition the key in the position bar.

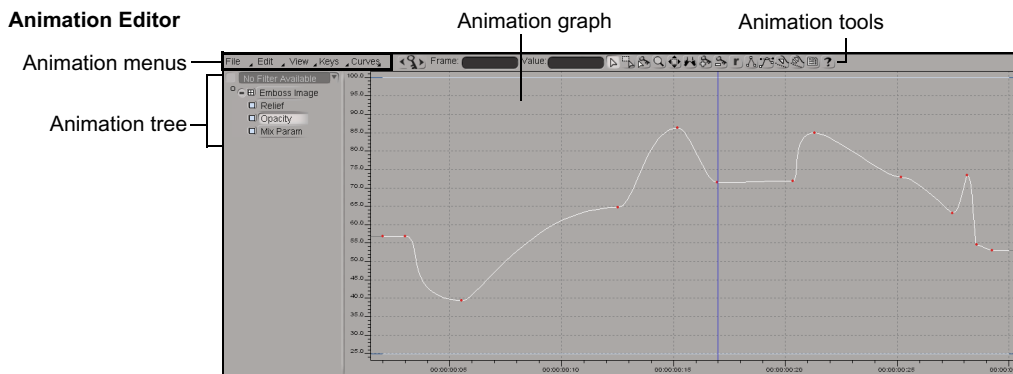
The key moves with the position indicator and you can see, in the viewer, where you're moving it.

Understanding the Animation Editor

The animation editor is where you can display and control the animation of a selected object. An object's animation is represented by a function curve on the animation graph. A function curve is a graphical representation of an object's property changes over a period of time. All function curves can be edited.



Some property editors contain animation graphs, where you can view or manipulate function curves without opening the animation editor.



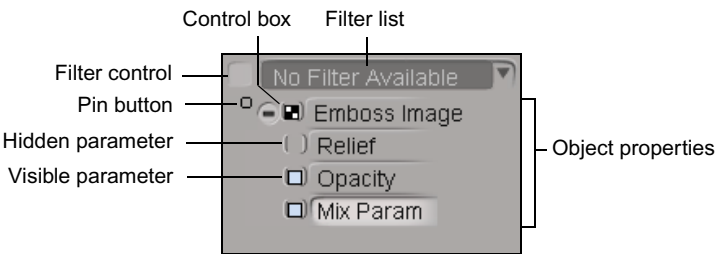
To access the animation editor, do one of the following:



- ▶ From the view switcher, select the **Animation Editor** button.
- ▶ Select **View > Single-Instance Views > Animation Editor**.
- ▶ In a property editor with animation controls, right-click the Animation Key button and select **Animation Editor**.

Using the Animation Tree

The animation tree displays a hierarchy of animated objects, such as effects or layers. You can navigate this tree to locate individual animated properties. When you select an item in the tree, its function curve is highlighted in the animation graph. You can also hide individual curves, leaving only the ones that you want to edit.



Option	Description
Control box	Indicates properties where function curves exist
Filter list	Displays a list of filters for displaying function curves that meet a specific set of criteria
Filter control	Makes the tree display the contents of the filtered list
Pin button	Marks an object so that it remains in the animation editor when you select a different object
Hidden parameter	Represents a parameter that is not displayed in the graph
Visible parameter	Represent a parameter that is displayed in the graph.
Object properties	Represents the animated properties of an object

Navigating the Animation Tree

When you select an object, the animation property tree displays its properties. When you select a property from the tree, it highlights the corresponding function curve.

You can expand and collapse the tree to show or hide properties. A plus sign (+) marks each property icon that has additional properties. After you click the plus sign to expand an item in the tree, it changes to a minus sign (-) to indicate that it can be collapsed.

To expand or collapse the animation tree:

- ▶ To expand the animation tree, click the plus sign (+) next to an object.
The object's animatable properties are listed below the expanded object, and the plus sign changes to a minus sign.
- ▶ To collapse the animation tree, click the minus sign (-) next to an object.
The object's properties are no longer visible in the animation tree, and the minus sign changes to a plus sign.

Displaying Function Curves

When editing function curves, it is often useful to display several curves simultaneously, so that you can synchronize the animation of different properties. Conversely, it is useful to hide the function curves of properties that you do not want to animate.

To show or hide a property's function curve:

- ▶ In the animation tree, click the control box next to the property whose function curves you want to hide or display.
The control box is light-blue when the function curve is displayed. It is gray when the function curve is hidden.

To hide or display all the function curves of an object:

- ▶ In the animation tree, click the control box next to the object whose function curves you want to show or hide.
A plus sign in the control box indicates that all of its function curves are displayed. The control box is gray when all the function curves are hidden.

Displaying Function Curves of Different Objects

You may want to view or edit several function curves simultaneously. For example, when applying color correction to two clips, you may want to see their animated properties simultaneously. You can do this by pinning (marking) the function curves of different objects, so that they can all be viewed in the animation editor at the same time.

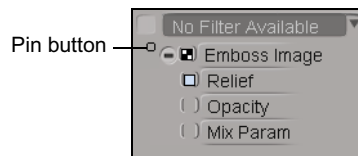


If more than one object is selected in the 3D DVE layout, the animation editor does not display its function curves.

To see the animation curves, select the first graphics object and view the desired animation parameters in the animation editor. Pin these parameters by clicking the pin icon to the left of each parameter (e.g. Transform, Surfaces ...) in the animation editor. The pin icon will turn red. Now, select the second graphics object and view the desired animation parameters in the animation editor. The animation curves for both objects should be displayed.

To view the function curves of multiple objects:

1. Open the property editor of the first animated object.
2. Right-click the Animation Key button and select **Animation Editor**.
The animation editor is displayed. In the animation tree, all the animatable properties are displayed.
3. Click the **Pin** button of the function curve that you want to keep displayed in the animation editor.



4. Leaving the animation editor open, select another object whose function curve you want to view.
The animatable properties of the second object are displayed in the animation editor above the pinned properties.
5. Pin the properties of the new objects that you want to display.

To unpin a function curve:

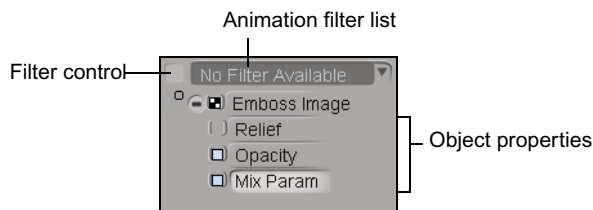
- Click the **Pin** button to unpin the property.

When you open a different object, the unpinned properties are no longer displayed in the animation editor.

Filtering Function Curves

By filtering function curves, you can customize the contents displayed in the animation tree and view only those files that meet a specific set of criteria. For example, you may want to view or edit only the function curves that begin with the letter “c” and have the opacity parameter. By displaying only the function curves that meet these criteria, you can easily locate and edit them.

The animation filter is located at the top of the animation tree. By default, the animation filter list is displayed; you can hide it you need more room to display function curves in the animation tree. You can also turn the list on or off, but only if there is one or more filters present in the list. If there are no filters, then the entire tree is displayed.

**To show or hide the animation filter:**

- In the animation editor, select **View > Filter**.

To turn the animation filter on or off:

- Select the Filter control beside the filter list to turn it on.

The function curves that meet the criteria of the selected filter are displayed.

- Deselect the Filter control to turn it off.

The entire animation tree is displayed.

To create a filter:

1. In the animation editor, select **View > Edit Filter**.
The Edit Filter dialog box opens and the last created filter is displayed.
2. Click the **Clear** button.
3. From the Criterion list, select a filter option.
4. In the Value text box, type the text or portion of text that you want to use as a filter criterion. For example, to view function curves that contain opacity, select Contains as the criterion and type “opacity” in the Value text box.
5. Repeat step 4 to add additional filter criteria.
6. To clear all data, click the **Clear** button.
7. Click the **Save** button and type a name for the filter. Click **OK**.
8. Click the **Close** button.

The animation filter list is activated and your filter appears as an option in the list.

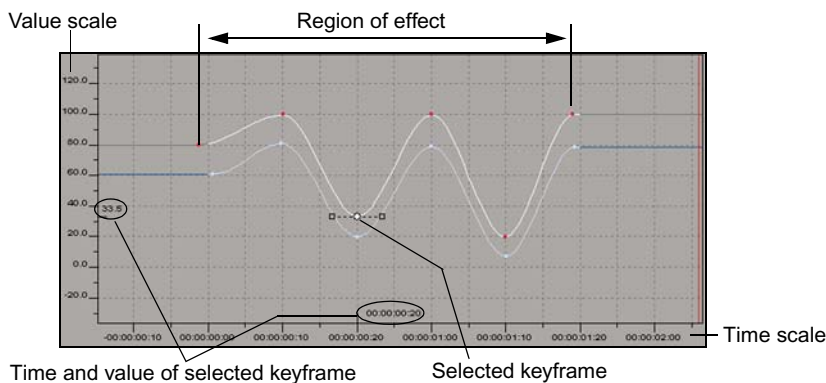
To delete a filter:

1. In the Edit Filter dialog box, select a filter from the Filter Name list.
2. Click the **Delete** button.

Working with the Animation Graph

The animation graph is the area on the animation editor where you can manipulate the function curve or keyframe values of any animated property. You can edit the keyframed values by adjusting the key points on a selected function curve. The horizontal axis (X axis) displays the time scale in frames or milliseconds. The vertical axis (Y axis) displays the values of the animated property.

In the animation graph, function curves are highlighted in light-blue over the duration of the animated effect. In addition, when you select a function curve, it is displayed in white over the duration of the effect and its keyframes are displayed in red. When you select a keyframe, its precise coordinates are reflected on the X and Y scales.



Customizing the Animation Graph

By customizing the display of the animation graph, you can change the incremental values of the time and value scales, the spacing between grid lines, and show or hide other indicators on the graph. For example, the grid in the animation graph is useful when adding or moving keyframes. You can display or hide the vertical or horizontal grid lines independently.

To customize the animation graph:



1. From the animation editor, click the **Preferences** button.
2. In the Animation Editor Preferences property editor, select the **Editor** tab.
3. To show or hide the grid, do one of the following:
 - ▶ In the Grids area, set the **Display Grid** options.
 - ▶ Press G.
4. To display the precise coordinates of a selected keyframe, select the **Key Coordinates** option, in the View box.

Small indicators on the animation graph's axes show the value and time of the selected keyframe.

Changing the Time Scale

Like the timeline, you can set the time scale on the X axis to display in frames or milliseconds.

To change the time scale:

- ▶ In the timeline, right-click the ruler and select **Display As**.
The time scale on the ruler changes according to your selection.

Zooming the Animation Graph

You can enlarge or reduce the animation graph to view function curves at close range or view all the function curves in an animation.

To zoom in and out:

1. To activate the zoom mode, do one of the following:

- ▶ Press Z.
- ▶ In the animation editor, click the **Zoom** button.



2. To zoom in on a specific rectangular area, drag on the animation graph.

When you drag the pointer, a rectangle is displayed. When you release the mouse button, the display zooms into the rectangular area.

3. To perform a continuous zoom, right-drag on the animation graph.

To reset the zoom:

- ▶ Press Z and click the animation graph.

Panning the Animation Graph

You can scroll over the animation graph to view the full length of the function curves in an animation.

To pan the animation graph, do one of the following:

- ▶ Press X and drag up/down to pan the Y axis, and drag left/right to pan the X axis.
- ▶ In the animation editor, click the **Pan** button to activate the pan mode.

**To reset the pan:**

- ▶ Press X and click the animation graph.



***Tip:** To reset both the pan and the zoom, press the Z+X keys, and click the animation graph.*

Editing Animation

Once you've animated an object, you can use the animation editor to view and modify its properties. The animation editor represents the animation as one or more function curves on the animation graph, where the values of the animated properties are plotted over time.

Emboss effect changes over time



Frame 0



Frame 4

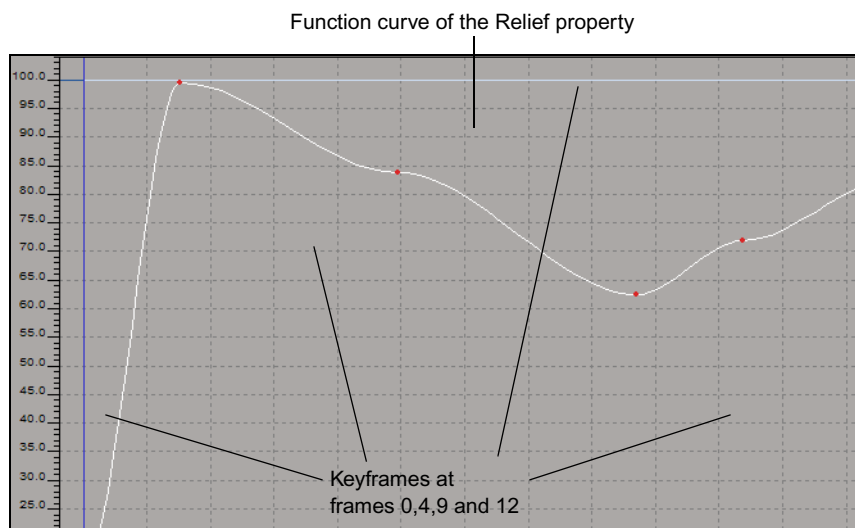


Frame 9



Frame 12

Relief property gradually increases from frames 0 to 9 and then decreases rapidly from frames 9 to 12.



You can use the animation editor to manipulate a function curve, or to fine-tune the animation frame-by-frame. You can also add, move, or delete function curves or keyframes, and trim, crop, or remove an entire animation.

The animation editor can display function curves for multiple animations simultaneously. Pinning an animation to the animation editor keeps its function curves displayed while you work on other function curves.



Some effects, like fades or transitions, have an animation graph built into one of their property pages. You can add keyframes on this function curve the same way you add keyframes to function curves in the animation editor.

When you want to adjust properties using the controls in property editors or layer controls on other views, you can edit animations with the Animation Key. For example, if you're adding a graphics animation to a composite, you would typically create the graphics in the viewer and record keyframes using the Animation Key.

Editing Keyframes Manually

You can manually set or delete keyframes on a frame-by-frame basis using the object's property editor.

To edit keyframes manually:



1. Open the property editor in which you want to create animation.
2. In the property editor, right-click the Animation Key button and select **First Key**.

The position indicator moves to the first keyframe in the animation.

3. If necessary, edit the settings and click the **Animation Key** button to set a keyframe.

The new settings at this frame automatically override any previous settings.



4. Click the **Next Key** button to move to the next keyframe.
5. If you want to add a keyframe, use the **Frame Backward** and **Frame Forward** buttons on the transport controls to advance your clip to the appropriate timecode. Change the values and click the **Animation Key** button to add a keyframe.
6. Continue to edit keyframes until you reach the end of the animated sequence.

To remove a keyframe:

1. In a property editor or view, click the **Previous Key** or **Next Key** buttons (located next to the Animation Key button) to go to a timecode where a keyframe has been set.

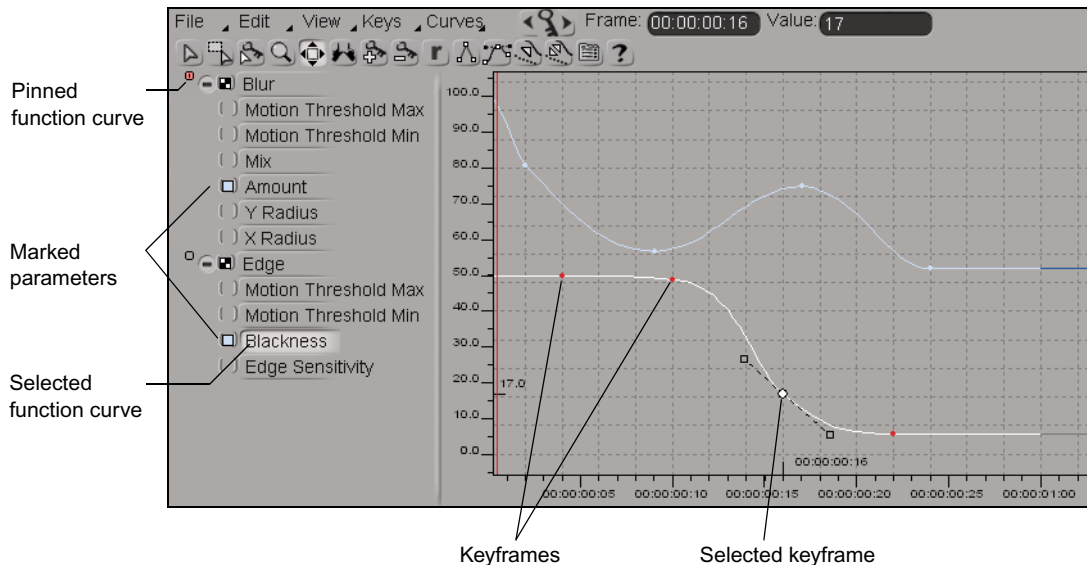
The Animation Key button will be red to indicate that a keyframe is set on the current frame.

2. Right-click the Animation Key button and select **Remove Key**.

The current keyframe is removed.

Editing Animation on the Animation Graph

In the animation editor, each animatable property is represented by a different function curve on the animation graph. You can modify these curves to edit the animation.



When working in the animation graph, you can display the function curves of properties that you want to animate, or hide curves to isolate a specific property. Function curves on the graph appear in blue for the duration of an effect. When you select them, they're highlighted in white and their keyframes are displayed.

As you modify function curves, you can take snapshots that let you compare the results of a change to a function curve to the original curve. Snapshots appear in black on the graph.

There are several ways of manipulating keyframes to change the result of an animation. You can add new keyframes, delete existing ones, move a keyframe to a new value or time, and control all of the keyframes at a specific timecode.

You can also adjust a keyframe's tangents to increase or decrease the slope of the function curve at that keyframe. For example, if you want a property to change rapidly at a specific time, you can increase the slope of the function curve at that keyframe.

Once you've finished adjusting a curve, you can snap keyframes to the nearest point on the grid to precisely align keyframes with timecodes.



You can undo any operation performed on a function curve. From the Edit menu, select Undo or press Ctrl+Z.

For more information, see “Animation Graph Menu” in the Help.

Viewing Locators in the Animation Graph

In the animation graph, you can display any locators that you placed on the timeline to help you align keyframes at specific points in your sequence.

To display locators in the animation graph:

- From the animation editor, select **View > Locators**.

Selecting Keyframes in the Animation Graph

Once animation has been created for an object, you can edit the individual keyframes that have been set. Before you can edit a keyframe, you must select it.

To select a keyframe:



1. In the animation editor, click the **Select** button.
2. In the animation graph, click a keyframe.

The selected keyframe is highlighted and its tangent handles are displayed.

To select multiple keyframes:

- Press Shift and click a keyframe.

The selected keyframes are highlighted.

To select a range of consecutive keyframes:

- Press V and drag over a section of the function curve.

The selected region is highlighted in white.



***Tip:** To change the value of multiple keyframes, press Shift and click to select the keyframes and enter a new value in the Value text box.*

Adding, Moving and Deleting Keyframes

Using the animation tools, you can add, move, and delete keyframes to edit an animation.

On the animation graph, you can move keyframes to values that are out of a property's range. However, the values that are actually processed are the maximum or minimum values displayed in the property editor.

To add a keyframe:

1. In the animation tree, click a property to select its function curve.

In the animation graph, the function curve is selected and the keyframes are displayed in red.

2. To add a keyframe, click the **Add Key** button and click the animation graph.

The closest selected function curve updates to pass through the new keyframe.



You can use the Select tool to change the value of multiple keyframes. Press Shift and click keyframes to select them. Now enter a new value in the animation graph value box.

To move a keyframe:

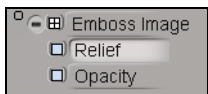
1. In the animation tree, click a property to select its function curve.

In the animation graph, the function curve is selected, and the keyframes are displayed in red.

2. To move a keyframe, click the **Select** button and do one of the following:

- Drag a keyframe to a new position.

The value and/or frame of the selected keyframe is updated.



- Click a keyframe and in the Frame and Value boxes, enter a new frame and/or value.

The function curve is updated to pass through the modified keyframe.

To delete a keyframe

1. In the animation tree, click a property to select its function curve.

In the animation graph, the function curve is selected and the keyframes are displayed in red.



2. To delete a keyframe, click the **Remove Key** button, and click a keyframe.

The keyframe is removed and the function curve is updated.



3. To remove all the keyframes on the selected function curve, right-click the **Animation Key** button and select **Remove Animation**.

You will be prompted to confirm before all the keyframes are deleted.



Pressing the Delete key only deletes selected keyframes.

Selecting Function Curves

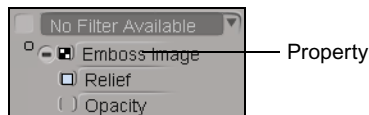
Before you can manipulate a function curve or edit specific keyframes, you must select it. Before you can cut, copy, or paste function curves, you must select a region.

You can select individual keyframes, a region of the function curve, the entire function curve, or several function curves.

To select function curves:



1. In the animation editor, click the **Select** button and do one of the following:
 - In the animation tree, click a property and select its function curve. Press Shift and click additional properties to select multiple function curves.



- ▶ Press Shift and click a function curve to select it. Click additional function curves for multiple selection.
- ▶ Drag the pointer to form a rectangle over the function curve(s) that you want to select.

Any function curves that pass through the rectangle are selected. Using this method, you also select the individual keyframes.

In the animation graph, selected function curves are displayed in white over the duration of the effect, and keyframes are red.



2. Click the **Frame** button to view the entire selection.

The selected function curve is framed, so that you can see it in full view. Framing is based on the duration and values of the keyframes on the function curve.

To select a region of a function curve:

1. Select a function curve.
2. In the animation editor, click the **Select Region** button or press V to activate the Select Region mode.
3. In the animation graph, drag over a region to select it.



Using this method, you also select the individual keyframes that are within the region and on the selected function curve.

Manipulating Keyframes

When you select a function curve, its keyframes are displayed in red. You can add new keyframes, as well as move or delete existing keyframes. In addition, you can change the value or frame of a keyframe.

To add a keyframe:

1. From the animation graph, select a function curve.
2. Click the **Add Key** button or press A.
3. On the animation graph, click to add a keyframe.



The closest selected function curve is updated to pass through the new keyframe.

To move a keyframe:

1. From the animation graph, select a function curve.
The function curve is highlighted and the keyframes are displayed in red.
2. Drag a keyframe to move it to a new position.
The value and/or frame of the selected keyframe is updated.



On the animation graph, you can move keyframes to values that are out of a property's range. However, the values that are actually processed are the minimum or maximum values displayed in the property editor.

To remove a keyframe:

1. From the animation graph, select a function curve.
The keyframes are displayed in red.
2. Do one of the following:
 - ▶ Click the **Remove Keyframe** button.
 - ▶ Press D.
3. Click the keyframes that you want to remove.



***Tip:** To remove a keyframe, you can also select it and press Delete.*

To remove all the keyframes on a function curve:

1. From the animation graph, select a function curve.
The keyframes are displayed in red.
2. Press the Backspace key.
You are asked to confirm the deletion. Click **OK** to delete all the keyframes on the selected curve.



Pressing the Delete key only deletes selected keyframes.

To change the value or frame of a keyframe:

1. In the animation graph, select a keyframe.
2. In the **Frame** and **Value** text boxes, enter a new frame and/or value.
The function curve is updated to pass through the modified keyframe.

Adding, Moving, and Deleting Keyframes on Multiple Function Curves

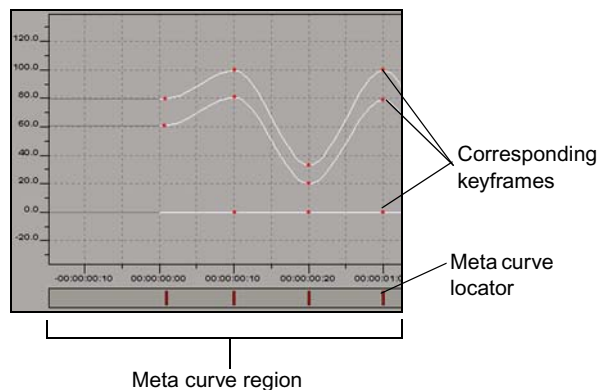
The meta curve region is a powerful tool that lets you add, move, and remove keyframes on every visible function curve in the animation graph.

When you display the meta curve region, red locators appear below the animation graph at every timecode at which a keyframe is placed on a function curve. If several function curves have keyframes at the same timecode, all of those keyframes are represented by a single locator.



Though locators in the meta curve region can represent and control multiple keyframes, those keyframes are not locked together. If you move a keyframe out of alignment with other keyframes, a new locator will appear in the meta curve to represent the keyframe's new location.

Adding keyframes in the meta curve region places a keyframe on every visible curve, at the current timecode. Moving a locator in the meta curve region moves all of the keyframes at that timecode. Deleting keyframes from the meta curve region removes any keyframes on any function curves at the current timecode.



To display the meta curve region, do one of the following:

- ▶ To display all curves, select **View > Meta Curve Region > Display for all curves**.
- ▶ To display selected curves only, select **View > Meta Curve Region > Display for selected curves only**.

The meta curve region is displayed below the animation graph.

To hide the meta curve region:

- From the animation editor, select **View > Meta Curve Region > Hide Meta Curve Region**.

The meta curve region is hidden.

To add a keyframe to all visible function curves:

1. From the animation editor, click the **Add Key** button.
2. Click anywhere in the meta curve region.

A keyframe is added to every visible function curve in the animation editor at the current timecode.

To move all keyframes at a specific timecode:

1. From the animation editor, click the **Select** button.
2. Drag a locator in the meta curve region.

All keyframes represented by the locator are moved to the new timecode.

To delete a keyframe from all visible function curves:

1. From the animation editor, click the **Remove Key** button.
2. Click a locator in the meta curve region.

All keyframes represented by the locator are deleted.

Synchronizing Animation

You can synchronize keyframes in the animation editor by dragging their locators in the meta curve region. Moving one locator to the same timecode as another synchronizes their respective keyframes at the current timecode. This is useful when, for example, you want to coordinate changes to several of an object's properties at the same time.

To synchronize keyframes:

1. In the animation graph, select a function curve and add a keyframe to it.
A locator is displayed in the meta curve region, representing the first keyframe.
2. Select a different function curve, and add a keyframe to it.
A locator is displayed in the meta curve region, representing the second keyframe.

3. In the meta curve region, click the second keyframe's locator and drag it on top of the first keyframe's locator.

The keyframes are now synchronized, and represented by a single locator in the meta curve region. Moving the locator moves both of the keyframes.

Modifying Regions

In Avid DS Nitris, you can select and modify a region of the animation graph. Keyframes in a selected region are automatically selected, and can be moved simultaneously. You can also stretch or shrink a selected region horizontally or vertically.

To modify a region of the animation graph:



1. Click the **Select Region** button, and select the region of the function curve that you want to copy.

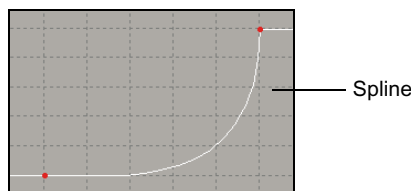
The selected region is highlighted, and edit controls appear along on all four sides.

2. Drag the edit controls to stretch or compress the region.

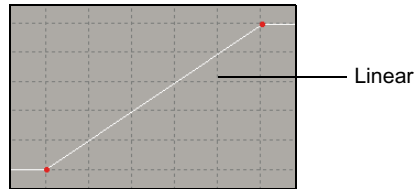
Changing the Slope of a Function Curve

The slope of a function curve determines how a property changes between keyframes. For example, in a scene where an actor moves from artificial lighting to sunlight, you can animate the color correction, so that it changes at the same rate as the light changes, as illustrated in the following examples:

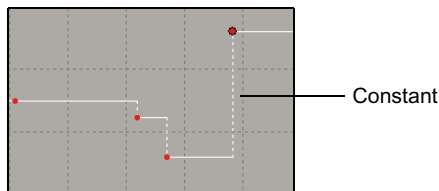
- If the actor is walking through an open door, the color correction should increase rapidly along a spline curve.



- If the actor steadily approaches the end of a tunnel, the color correction should increase linearly.



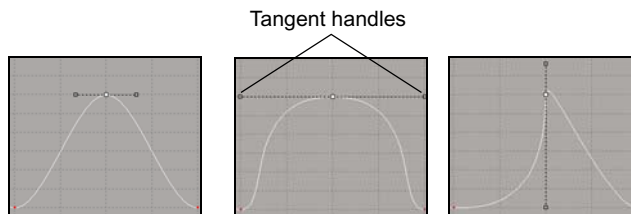
- If the actor is suddenly exposed to sunlight, the color correction should be constant, and then change in one step.



When you select a keyframe, its tangent handles are displayed, allowing you to change the slope of the function curve at that keyframe.

To change the slope of a function curve:

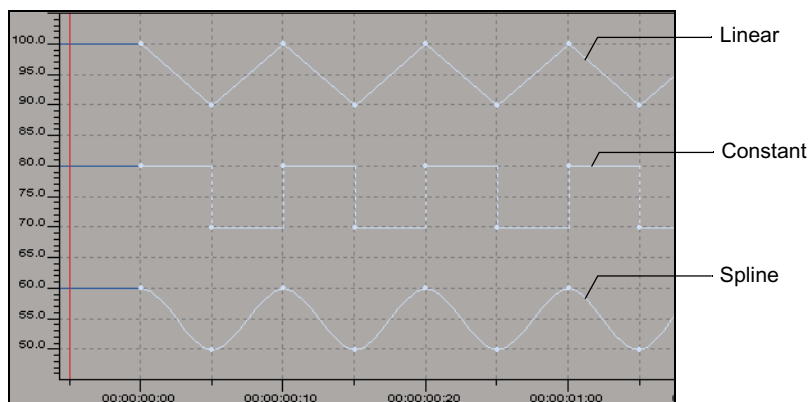
1. Select a keyframe.
The tangent handles are displayed.
2. Select a tangent handle and drag it to a new position. If the tangent handle is close to the key point, press Ctrl to give priority to the tangent handle.



Changing the Type of Function Curve

There are three types of function curves: linear, constant, and spline.

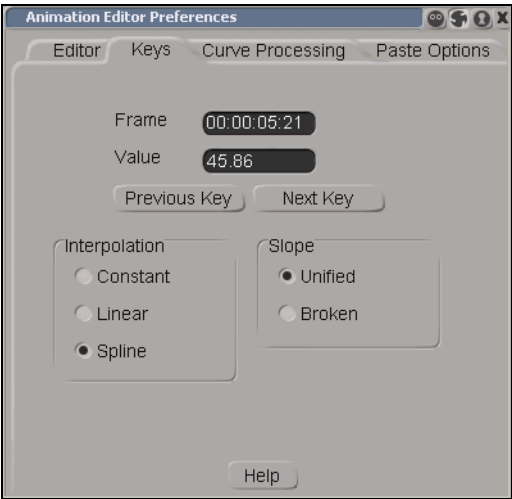
- **Linear:** A type of curve that consists of straight line segments between control points. Use this type of curve when you want a property to change at a constant rate between two keyframes.
- **Constant:** A type of curve where a property's value changes only at keyframes; between keyframes, the value is constant.
- **Spline:** A type of curve that lets you fine-tune the animation by changing the slope of the curve at each keyframe.



To change the type of curve for selected keys:

1. From the animation editor, select a function curve.
2. Click the **Animation Editor Preferences** button.





For detailed information, click the Help button.

3. From the Animation Editor Preferences property editor, select the **Keys** tab.
4. From the **Interpolation** box, select a curve type.

Option	Description
Constant	Creates a curve with constant values that change in steps.
Linear	Creates a curve where keyframes are joined by straight lines.
Spline	Creates a smooth curve whose slope you can modify at any point.

The function curve is updated between the keys that you selected.

To change the type of curve for selected curves:

1. From the animation graph, select a function curve.
2. Do one of the following:
 - From the animation editor menu, select **Curves > Constant Interpolation**, **Linear Interpolation**, or **Spline Interpolation**.

- ▶ Right-click the curve, and select **Constant Interpolation**, **Linear Interpolation**, or **Spline Interpolation**.
 - ▶ From the animation editor, click one of the interpolation buttons.
- The function curve is updated according to the option you selected.

To set the tangent slope options:



1. From the animation editor, select a function curve.
2. Click the **Animation Editor Preferences** button.
3. On the Keys property page, select one of the following options from the Slope box:
 - **Unified** to keep the slopes together as they move, keeping a constant angle between them.
 - **Broken** to let the slopes move freely as you drag each handle individually.

Click **Help** for detailed information on the Animation Editor Preferences.

To change the slope of a spline at a keyframe:

1. On a spline function curve, select a keyframe.

The tangent handles are displayed at the selected keyframe.
2. Click a tangent handle to select it and drag it to a new position.

The slope of the function curve changes at the keyframe.



If the tangent handle and the keyframe are close together, hold down the H key and drag. This lets you manipulate the tangent handle.

Making Temporary Copies of Function Curves

Snapshot curves are temporary copies of function curves that stay in the animation graph after you edit the original curves. Using the snapshot curves, you can edit function curves, compare the edited curve to the temporary copy of the original, and revert to the original if you're not satisfied with the change. When you're ready to accept your changes, you can update the snapshot curve to reflect the edits that you made.

To use snapshot curves:

1. From the animation editor, select a function curve.
2. Click the **Animation Editor Preferences** button.
3. On the Editor property page, select the **Snapshot Curve** option from the View box.

A snapshot curve is created and hidden behind the original function curve.

4. Edit the selected function curve.

The snapshot curve is displayed in black.



5. If you want to revert to the snapshot curve, click the **Swap** button.

The original curve is highlighted and you can edit it.



6. When you're satisfied with the edits, click the **Snap** button.

The black snapshot curve is updated to match the white function curve.

For detailed information, click the **Help** button.

Snapping Keys to Grids and Frames

You can make keyframes snap to the nearest frame on the grid's X axis or to the nearest frame on the grid's X axis. Snapping keyframes to the grid lets you position them at precise timecodes.

To snap a keyframe to the grid:

- ▶ Select **Edit > Snap to Grid**.

To snap a keyframe to its nearest frame:

- ▶ Select **Edit > Snap to Frame**.

Click Help for detailed information on the Edit menu commands.

Locking Keyframe Positions

You can freeze a keyframe's values, as well as its location in time by locking the key's position on the X or Y axis.

If the function curve uses a spline interpolation to transition action to the next keyframe, you can also freeze the keyframe's speed of transition and influence on the function curve by using the animation editor's tangent handle locking controls.

To lock a keyframe's position on the animation graph:

1. From the animation graph, select a keyframe.
2. Do one or both of the following:
 - ▶ Click **Keys** and select **Lock in X** (Time) to lock the key's location in time on the X axis.
 - ▶ Click **Keys** and select **Lock in Y** (Value) to lock the key's value on the Y axis.

The keyframe is frozen in place on the graph and cannot move until Lock in X or Lock in Y is deselected. You can still manipulate the keyframe tangent handles to change the shape of the slope.

Offsetting Animation

You can offset an animation by moving an entire function curve. If, for example, you're satisfied with a function curve's slope, but want the corresponding change in properties to occur later in the animation, you can move the entire curve farther down the timeline.

To offset an animation:

1. From the animation editor, select a function curve.
2. Hold down the R key, and drag the curve to reposition it on the timeline.

To offset multiple function curves:

1. Hold down the Shift key, and click each function curve to select it.
2. Hold down the R key, and drag the curve to reposition it on the timeline.

Copying Animation

You can copy the animation of one property to another by copying the function curve. For example, you can animate the Z position of an object, so that it appears to move away from the viewer. You can then copy the animation to a blur effect, so that the blur increases as the objects move away from the viewer. You can then adjust the blur function curve according to the scale of the blur parameter.

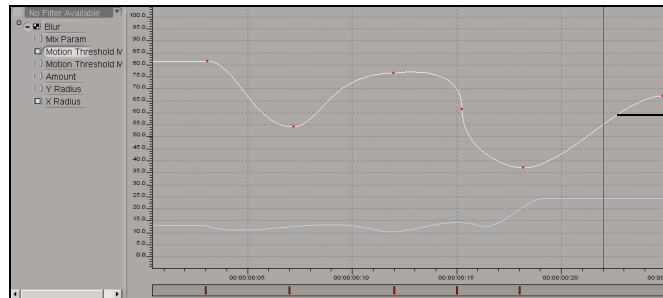
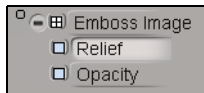
To copy an animation, you simply copy a property's function curve and paste it onto the function curve of another property. You can copy the entire curve or a region of a curve. When pasting the animation, you can do one of the following:

- Insert the copy at a selected timecode.
- Replace a portion of the function curve at a selected timecode.
- Paste the copy over a selected region.

To copy an entire animation:

1. In the animation tree, click a property.

In the animation graph, the property's function curve is highlighted.

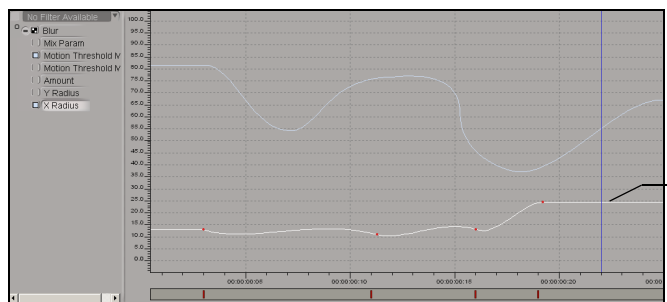


2. Press Ctrl+C.

The animation is copied.

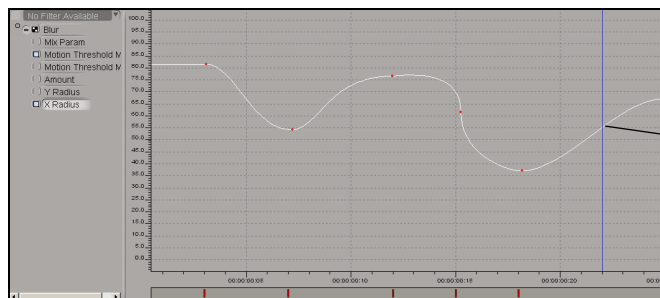
3. In the animation tree, click a property to receive the animation.

In the animation graph, its function curve is highlighted.



4. Press Ctrl+V.

The animation is pasted. In the animation graph, the function curves for both properties are identical and appear as only one curve.



Two identical curves appear as one.

To copy a region of a function curve:

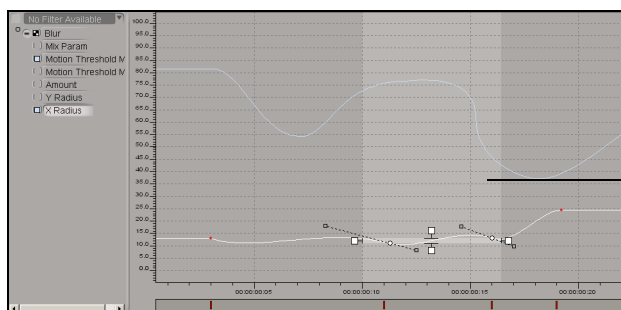
1. In the animation graph, do one of the following to specify the region that you want to copy:

- ▶ Select contiguous keyframes.

The region to be copied is between the first and last selected keyframes.



- ▶ Click the **Select Region** button and select the region of the function curve that you want to copy.



Region to be copied.

2. Press Ctrl+C.

The animation is copied.

3. If you want to paste the animation to a different property, select a function curve.

- Specify where to paste the animation by clicking the **Select Region** button and doing one of the following:

- ▶ Clicking a timecode.

When the animation is copied, it starts at the specified timecode.

- ▶ Selecting a region.

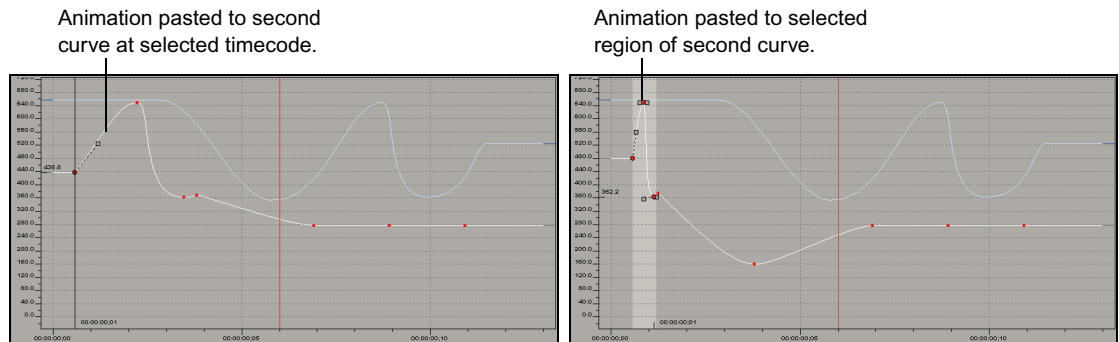
When the animation is copied, it fits into this region. If you copy an animation to a region of a different size, the animation is automatically scaled in time.



If you do not specify where to paste the animation, it's pasted at its original timecode on the selected curve.

- Press Ctrl+V.

The animation is pasted, replacing the selected function curve over the specified region.



To insert a copied region of a function curve:

- In the animation graph, do one of the following to specify the region that you want to copy:

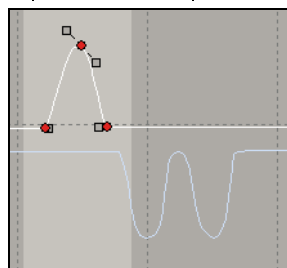
- ▶ Select contiguous keyframes.

The region to be copied is between the first and last selected keyframes.



- ▶ Click the **Select Region** button and select the region of the function curve that you want to copy.

Region to be copied.



2. Press Ctrl+C.

The animation is copied.

3. If you want to paste the animation to a different property, select a function curve.



4. Click the **Animation Editor Preferences** button.

5. On Paste Options property page, select the **Insert** option from the Paste Options box.

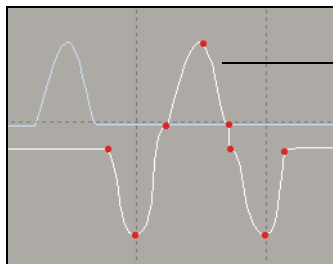
6. To specify where to insert the animation, click the **Select Region** button, and click a timecode.



If you do not specify where to paste the animation, it's pasted at its original timecode on the selected curve.

7. Press Ctrl+V.

The animation is pasted at the selected timecode on the selected curve.



Copied animation inserted in second curve.

Repeating Animation

Cycling animation lets you to repeat a function curve for the duration of an animation. By applying different types of cycles, you can quickly create repetitive animations like blurring in and out.

When you create cycles, the repeated information is not added to the function curve. It's based on the original keyframes, but does not contain any keyframes. When you adjust the original keyframes, changes are reflected throughout the cycle.

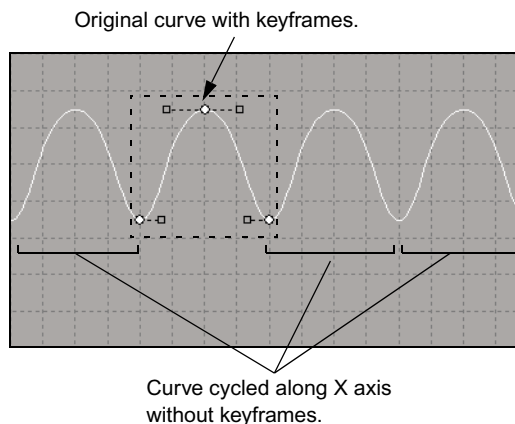
Creating a Basic Cycle

A basic cycle repeats the shape and pattern of a function curve, as defined by the keyframes, for the duration of the animation. For example, you can use a basic cycle to animate a blur in and out of a clip.

To create a basic cycle:

1. In the animation graph, select the function curve whose shape you want to repeat.
2. Click **Curves** and select **Cycle**.

The pattern is repeated along the X axis of the animation.

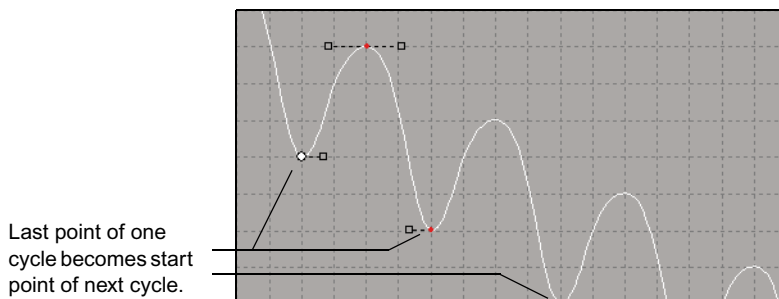


Creating a Relative Cycle

A relative cycle repeats the shape and pattern of the function curve by starting each cycle at the value of the last key in the preceding cycle. The result is a progressive offset that creates a gradual overall change in the animation while repeating the basic pattern. For example, you can use a relative cycle to blur in and out of a clip, while gradually sharpening the overall focus.

To create a relative cycle:

1. In the animation graph, select the function curve whose shape you want to repeat.
2. Click **Curves** and select **Relative Cycle**.



Freezing a Cycle

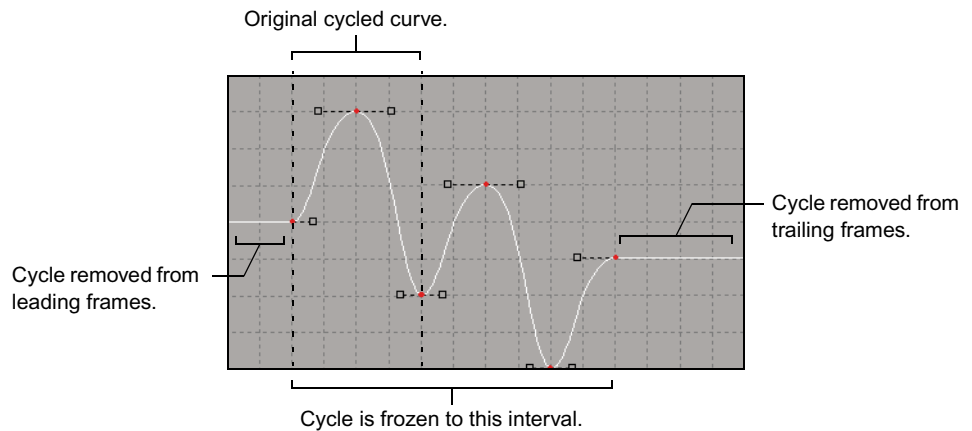
Freezing a cycle applies it to the time span between two specified timecodes in the animation. When the cycle is frozen, the keys in the cycled part of the function curve are sampled and applied to each cycle in the frozen part of the curve. You can then edit the function curve. If the cycle is not frozen to the entire length of the animation, it will be removed from any leading or trailing frames.

Freezing cycles is useful when you only want to repeat a cycle for part of an animation, or when you want to make slight modifications to the same basic curve throughout the animation.

To freeze a cycle:

1. In the animation graph, select the function curve whose shape you want to repeat.
2. Click **Curves** and select **Freeze Cycle**.
The Freeze Cycle dialog box is displayed.
3. Enter a start and end timecode.

The cycle is applied between the start and end timecodes, and the repeated information is added to the function curve.



Deleting a Cycle

Since the repeated information is not added to the function curve, you can delete the cycle while preserving the original keyframes.

To delete a cycle:

- Click **Curves** and select **Constant Extrapolation** or **Gradient Extrapolation**.

Trimming Animation

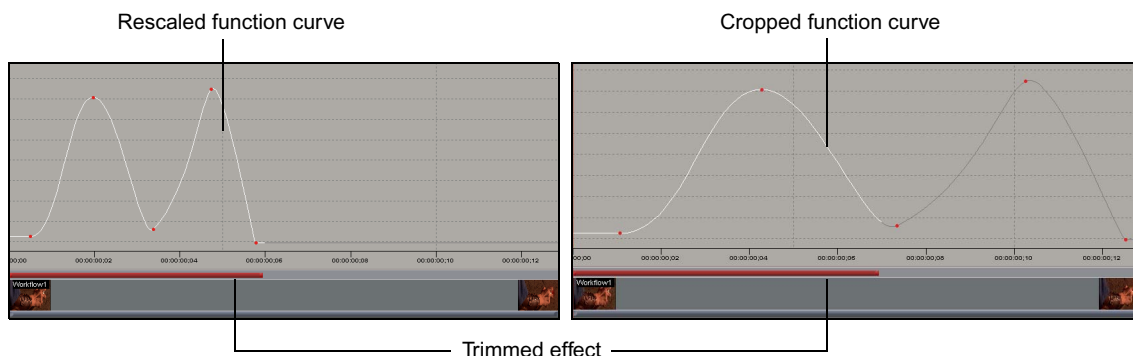
When you want to trim animation, you should trim the animated effect by rescaling the function curves or cropping them.

To specify how the animation is trimmed:

1. Open the property editor of the effect that you want to trim.
2. In the property editor, do one of the following:
 - ▶ Deselect the **Crop Curves** option to rescale the function curves.
 - ▶ Select the **Crop Curves** option.

When you trim the effect on the timeline, the function curves are rescaled in the animation editor.

When you trim the effect bar on the timeline, the function curves are cropped in the animation editor. On the animation graph, the highlighted area of the function curve shows the new length of the animated effect. For more information, see [“Saving Effects”](#) in the Help.



Removing Animation

An object's animation can be composed of more than one function curve. A separate function curve exists for each animatable property of an object. When removing animation, you can choose whether you want to remove the entire animation or just selected animated properties within the animation.

Removing the Entire Animation

When you remove an animation, you're deleting the function curves for all the animated properties of the selected object.



When you remove animation, locked keys will also be deleted.

To remove the entire animation:

1. Open the property editor or view for the property whose animation you want to remove.
2. Right-click the Animation Key button and select **Remove Animation**.

All keyframes on all functions curves are deleted. The function curves become straight lines.

Removing the Animation of a Single Property

You can remove the animation of a single property by removing all the keyframes from the property's function curve.

To remove all the keyframes on a function curve:

1. Select an animated object.
2. In the animation editor, select **View > Animation Editor**.
The animation tree is displayed.
3. From the animation tree, click the property whose function curve you want to remove.
In the animation graph, the corresponding function curve is highlighted.
4. Press the Backspace key.

All keyframes on the function curve are deleted and the function curve becomes a straight line.

Processing Animation

You can view the evolution of your animation by stepping through the animation frame by frame. Before you can play the clip, you must first process the animation.

To process animation:

1. Do one of the following:
 - ▶ From the toolbar, click **Processing > Process**.
 - ▶ In the timeline controls, click the **Process** button.
2. In the Processing Options Dialog Box dialog box, select the appropriate options.



3. Click **OK** to begin processing.

A progress bar is displayed on the bottom of the desktop to show the status of the process.

4. Click **Cancel** to stop the process at any time.

For more information, click the **Help** button or see [“Understanding Processing” on page 265](#).



Chapter 11

Mixing Audio

This chapter describes how to mix audio, as well as how to create mixes and submixes using audio container clips and effects. You will also learn how to animate your audio mixes.

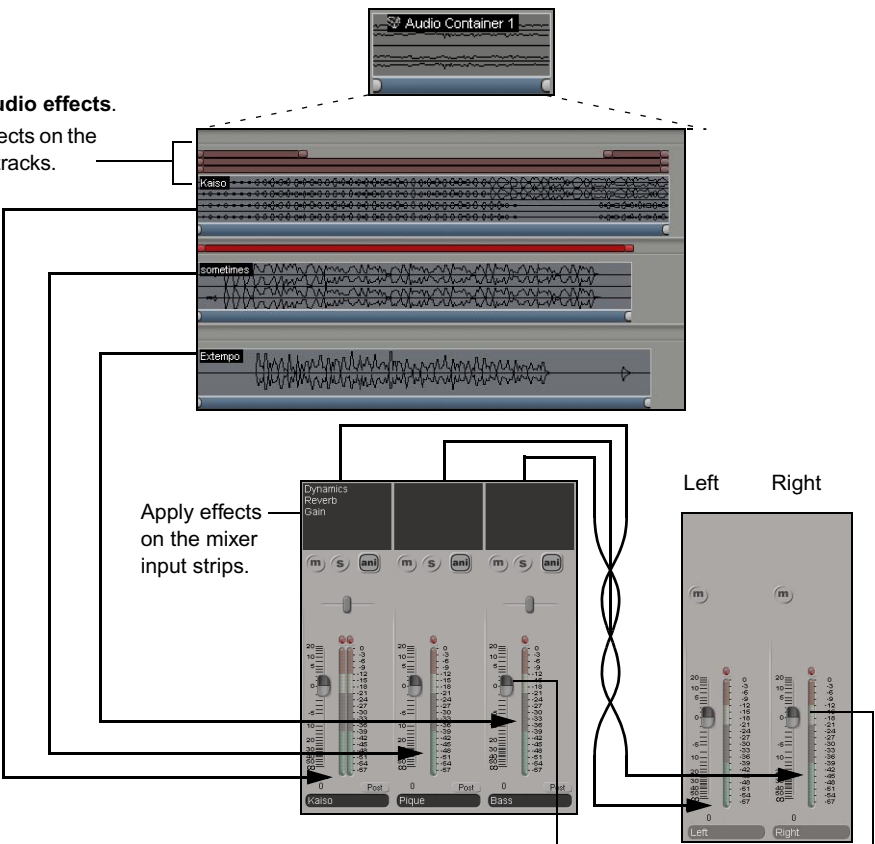
- [Workflow: Mixing Audio](#)
- [Working in Audio Container Clips](#)
- [Audio Clips and Tracks](#)
- [Understanding the Mixer](#)
- [Using an External Controller](#)
- [Building an Audio Mix](#)
- [Fine-tuning the Mix](#)
- [Animating the Audio Mix](#)
- [Audio Media Conversion](#)
- [Processing the Mix](#)

Workflow: Mixing Audio

Audio mixes are best created in an audio container clip. The following illustration shows how the audio tracks are created and fed into the mixer.

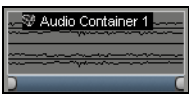
- 1 Create an audio container clip.**
Create an audio container clip to hold all the clips that will be mixed.

- 2 Apply audio effects.**
Apply effects on the timeline tracks.



- 3 Fine-tune the mix.**
Adjust the volume and balance of the audio streams.

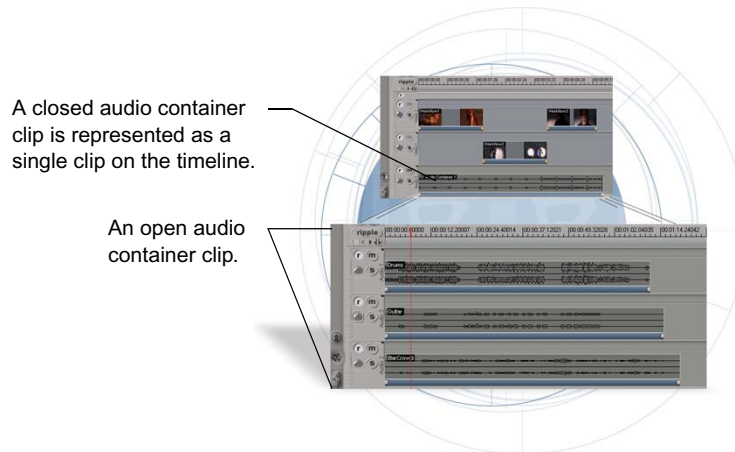
- 4 Process the mix.**
Close the audio container clip to automatically process the mix.



Working in Audio Container Clips

Audio container clips let you compress multiple audio tracks with up to 64 tracks of audio down to a single audio clip on one track, leaving you with more audio streams and tracks to work with. You can have any combination of audio clips and tracks in an audio container clip. The format of the container clip itself, however, depends on the mixer configuration specified inside the container clip.

This illustration shows a group of audio clips that have been mixed down to a single clip on the timeline.



Here are other reasons for using audio container clips:

- **Animating (automating) your mix:** If you need to boost or lower the signal at different points in time, it's more efficient to animate the mix in a container clip. This way, if you move the container clip, its animation moves with it.
- **Submixing:** You can edit specific sounds more efficiently by creating submixes of common track types. For example, mix hard sound effects like creaking floors and footsteps in one container clip, vocal tracks in another, and instrumentals in yet another container clip. Then, premix all of the clips in their respective container clips and play them simultaneously on the parent timeline.



- **Sample Accurate Editing:** Within an audio container clip, you can do your editing in terms of audio samples as opposed to the video frames used on the top timeline.
- **Processing:** When you close an audio container clip, the tracks and any effects are automatically processed and represented as a single clip on the parent timeline.

For more information, see [“Creating Nested Clips” on page 306](#).

Audio Clips and Tracks

Audio clips and tracks can have up to eight channels of audio in any of the following formats:

Format	Description
Mono	Single channel of audio
Stereo	Two audio channels: Left and right
Quadraphonic	Four audio channels: Left, right, left rear, right rear
LCRS	Four audio channels: Left, center, right, surround
4 Stream	Four audio channels: Output 1 to 4
5.1	Six audio channels: Left, right, center, Low Frequency Emitter (LFE), left surround, right surround
6.1	Seven audio channels: Left, right, center, Low Frequency Emitter (LFE), surround center, side left, side right
7.1	Eight audio channels: Left, right, center, Low Frequency Emitter (LFE), left surround, right surround, left center, right center
8 Stream	Eight audio channels: Output 1 to 8

Since the clip and track formats are independent of each other, you can place any kind of audio clip on any audio track. You can also place different format clips on the same track. For example, you can place a mono and a stereo clip on the same stereo track.



You can manipulate audio clips in much the same way as video clips. You can play them in the viewer, drag and drop them from the Avid Explorer to the timeline, trim, copy, and delete clips, and add effects to them.



When you place an audio clip on a track with a different format, it turns orange. This does not prevent you from playing it back.

Understanding the Mixer

Although you can perform some mixing by applying effects to the audio clips on the timeline, the mixer gives you greater flexibility and control over your overall audio mix. The mixer combines the audio signals coming from the audio tracks and routes them to the output strips.

You can assign the channels of an audio track to a specific output strip. Depending on your audio hardware configuration, you can have up to eight audio output channels available. For more information, see [“Assigning a Mixer Input Strip to an Output Channel”](#) on page 399.

Standard view	The standard view is the default view of the mixer. In this view you can add audio effects, adjust the volume levels, pan the signals, and mute or solo the various tracks. You can also animate most of the controls on the mixer.

Also, in this view, the number of level meters on the input strips matches the number of audio channels on the track. For example, 5.1 tracks have six level meters and eight stream tracks have eight level meters.

 If you've activated the pan on a mono track, the number of level meters on the input strip matches the number of output channels. This is because the mono signal has been split to allow for the positioning of the sound with the pan control.

- From the view switcher, click the **Mixer** button.

- Click the **Routing View** button.

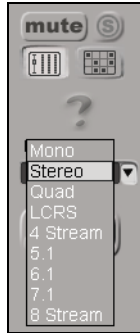
- Click the **Standard View** button.

For information about the mixer controls, click the **Help** button.

You can capture and output up to eight channels of audio in various formats. For more information, see “Mixer Configuration Formats” in the Help.

To change the mixer configuration:

- Click the **Mixer Config** list box and select a configuration.



Using the Input Strips

Input strips appear on the mixer as you add audio tracks to the timeline. On each input strip, you can control the sound of all the clips on its corresponding audio track. You can use the strip controls to adjust the overall volume, add effects to the whole track, and pan the signal to the output strips.

The results of the adjustments on the input strips are mixed and passed to the output strips, which let you adjust the output volume of the audio signals. The signal from the output strips is then directed to an external device.

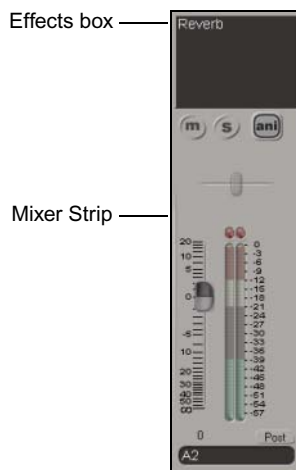
An input strip corresponds to an audio track on the timeline. The strip controls let you add effects and adjust the overall volume and balance of each track. The signals from all strips are then mixed and routed to the output strips.

For more information, see “Mixer Input Strips” in the Help.

Adding Effects on a Mixer Input Strip

Adding an effect on the mixer strip is equivalent to applying an effect to the entire audio track. When you apply an effect to a mixer strip, the effect is displayed in the mixer strip’s effects box. Effects on the mixer strips are processed from top to bottom. These effects are also applied before you make any adjustments to the volume and pan controls.

You can apply an effect to a mixer input strip by selecting one from the Load Preset dialog box or by dragging an effect preset from a toolbar.



To add an effect using the Load Preset dialog box:

1. Right-click the effects box and select **Add Effect**.

The Load Preset dialog box is displayed.

2. Select an effect and click **OK**.

The effect is applied to the strip and displayed in the effects box.

To add an effect using a toolbar:

- From a toolbar, drag an audio effect or preset to the effects box.

The effect is applied to the strip and displayed in the effects box.

Adjusting the Volume

The level meter lets you monitor the level of incoming and outgoing audio signals (in decibels). There are level meters on the input and output strips.

The fader is used to control the volume on the mixer strips. It simulates an audio taper fader, except the scale is more precise (between +5 and -5 dB).

To adjust the volume on the mixer strips:

- Drag the fader up or down to set the volume at the appropriate decibel level.



The fader levels do not correspond to the level meter. The fader levels range from 20.0 dB to -inf dB, while the level meter shows the energy level of the signal from 0 dB to -inf dB.

By default, the level meters on the input strips are post-effects and pre-fader. This means that they display the energy levels according to the strip effects that have been applied. When you adjust the volume, the change is only shown on the output strips. However, it is possible to make the level meters on the input strips post-fader.

To make the level meters of an input strip post-fader:

- Click the **Post** button on the mixer input strip.



Tip: Double-clicking the fader returns it to the zero position.

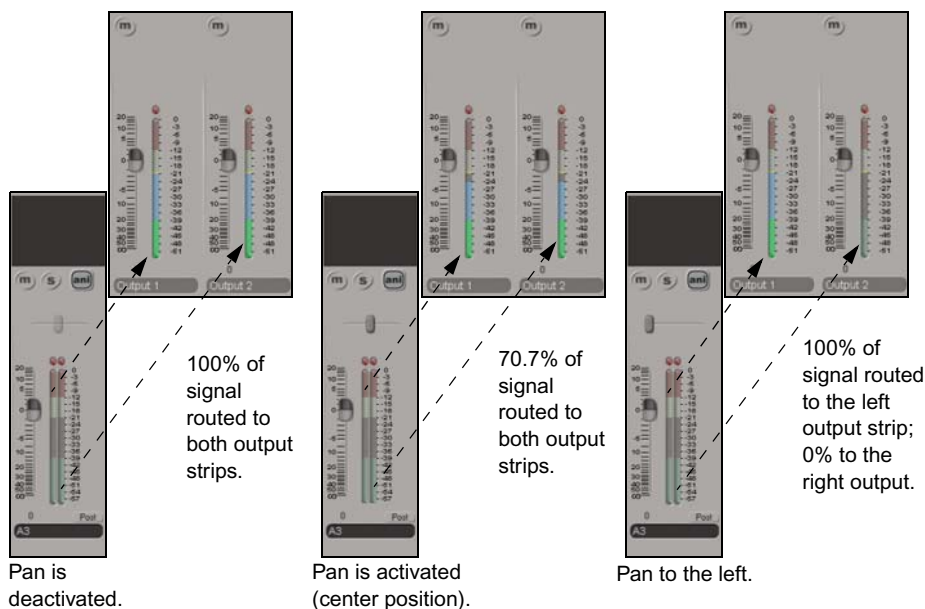
Adjusting the Audio Balance

The pan control lets you adjust the balance of the signal to the output strips. Dragging the slider left or right determines the percentage distribution.

You can only change the balance of the signal if the mixer is configured as stereo. If the mixer is configured in one of the surround formats (LCRS, Quadraphonic, 5.1, 6.1, or 7.1) you must use the Surround Panner.

If you move the pan control all the way to the left or right, then 100% of the signal is routed either to the left or right output strip. On mono tracks, the pan control at the center position splits the signal 50/50. For stereo tracks, however, 70.7% of the signal is routed to each of the output strips when the pan control is at the center.

The following example illustrates the distribution of the signals on a stereo track with the pan activated and deactivated.



To pan the signal on the input strips:

1. Right-click the pan control and select **Enable Pan**.

The pan control is activated; you can now adjust the balance. A check mark is displayed beside the selection indicating that pan has been activated.

2. Drag the pan control to the left or right.



Tip: Double-clicking the pan control returns it to the center position

3. To deactivate the pan control, right-click it and select **Enable Pan**.



If you leave the pan control enabled at the center position, there will be a 3 dB loss in your signal.

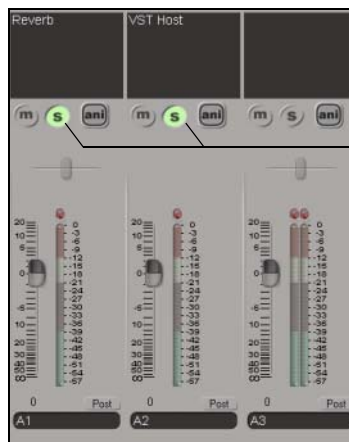
Using the Mute and Solo Buttons

You can listen to individual audio tracks by isolating their signals or muting them. The Solo buttons let you monitor track signals and do not affect the recording. You can also use the Mute buttons on the input strips when listening to tracks, but it actually prevents the signal from being routed to the outputs.

To listen to a single track:

- Click the **Solo** button of a strip.

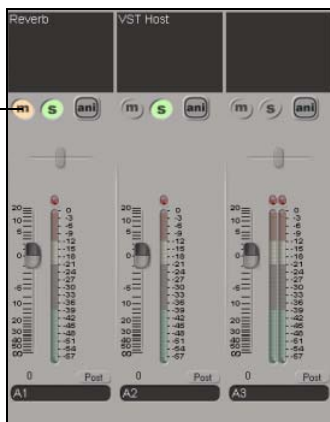
You can activate the Solo button on more than one input strip at a time.



Solo the input strips that you want to hear during playback.

Also, you can activate both the Mute and Solo buttons at the same time. In this case, mute always overrides solo. For example, first solo the strips you want to hear. During playback, click the Mute button on those same strips to hear the various combinations of the signals.

Mute the strips that you do not want to hear.



For example, if you are working on background noise effects for a voice dialogue, solo the voice track and the different background noise tracks. You can then selectively mute the various background tracks to listen to their combined effects against the voice track.

To mute a mixer strip:

- Click the **Mute** button on the strips that you do *not* want to hear.

To mute all of the mixer strips:

- Click the **Master mute** button on the mixer.

To isolate a mixer strip:

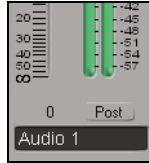
- Click the **Solo** button on the strips that you do want to hear.

Naming a Mixer Input Strip

You can change the default name of any mixer input strip. This name is on its corresponding audio track in the timeline. If you change the audio track name, the mixer input strip name is updated accordingly.

To change the name of an input strip:

- Click in a strip name text box, type a new name, and press Enter.



***Tip:** Since the strip name corresponds to the track name, you can also change the name from the Track property editor.*

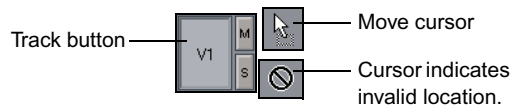
Reordering the Mixer Input Strips

The input strips appear in the order that their corresponding audio tracks appear on the timeline. Therefore, reordering the tracks changes the order of the input strips.

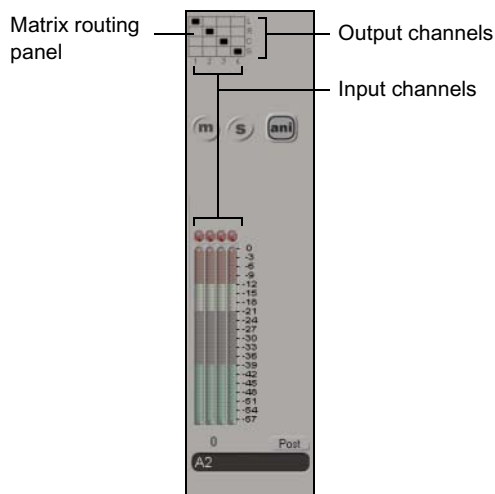
To reorder the input strips:

- From the Track selector, drag the audio **Track** button to a new location.

The track is moved to the new location and the order of the input strips changes to match the tracks.

**Assigning a Mixer Input Strip to an Output Channel**

You can specify which output channels are used by the audio channels of each input strip during playback and recording using the Matrix Routing panel. The Matrix Routing panel is available in the Routing view of the mixer and is located at the top of each input strip.



The Matrix Routing panel has a tabular format where each column represents an audio channel of the input strip and each row represents one of the output strips or output channels. Using this panel, you can route each input channel to one or more output channels.



If you've enabled the pan on a mono track, the number of input channels on the input strip matches the number of output channels. This is because the mono signal has been split to allow for the positioning of the sound with the pan control.

To assign an input strip to an output channel:

- For each input channel, click each cell that corresponds to the output channel to which you want to assign it.

A black dot is displayed in the cell to indicate the assignment. You can assign an input channel to more than one output channel.

Using the Output Strips

The results of the refinements on all the input strips are mixed and passed to the output strips. Output strips let you adjust the output volume of the audio signals. The number of output strips on the mixer depends on the mixer configuration selected. The signal from the output strips is then directed to an external device.



If you are working within a container clip, the signal is routed to the parent container clip.

For more information, see “Mixer Output Strips” in the Help.

Muting the Output Strips

The Mute button on the mixer output strip activates or deactivates the sound of a selected output strip. When mute is activated for a mixer output strip that is on the top timeline, it prevents the signal from being directed to the output device.



When mute is activated on a mixer output strip in a container clip, it prevents the signal from being directed to the parent container clip.

To mute an output strip:

- ▶ On an output strip, click the **Mute** button.

Using an External Controller

An external controller is a hardware device that’s connected to your Avid DS Nitris workstation. It lets you access commands in the software through controls on the device. You can, for example, use the fader on a controller to move the fader in an audio strip or, vice versa, use the position indicator to move the jog wheel.

The only restriction is that specific control types, such as faders, rotary knobs, or switches should be assigned to appropriate commands in Avid DS Nitris. For example, assigning a fader on the external controller to a button in Avid DS Nitris is not possible.

The External Controller Setup view lets you assign the controls on the external controller to any of the hundreds of commands available in Avid DS Nitris.

To access the External Controller Setup view:

- ▶ Select **View > Single-Instance Views > External Controller Setup**.

For more information, see “External Controller Setup View” in the Help.

Mapping External Controls to Avid DS Nitris Commands

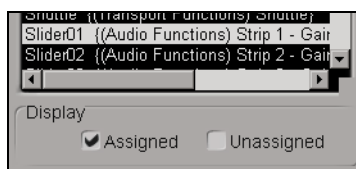
When reassigning a command or control, you should first check for assigned items.

To view the status of controls and commands:

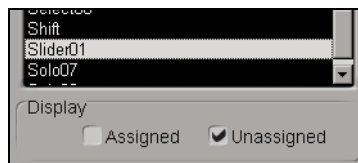
- In the Display box of the External Controller Setup view, use the options to filter the controls and commands.

When both options are selected, all controls and commands are displayed.

Slider01 is assigned to Gain in Strip 1 (Audio Functions).



Slider01 is unassigned.



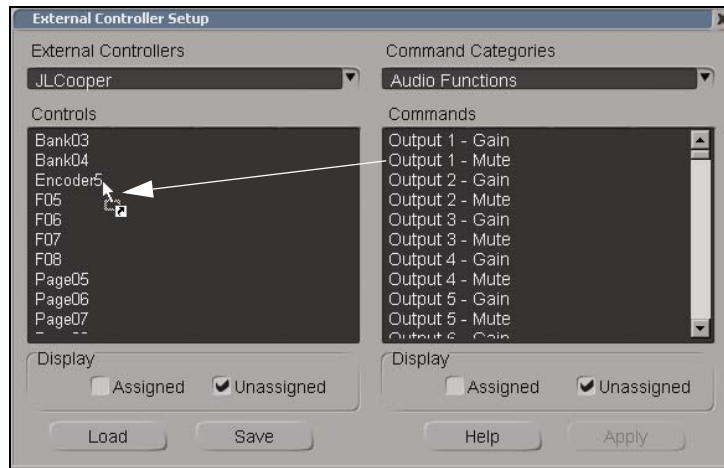
To assign a control to a command:

1. In the External Controller Setup view, select the **Unassigned** option from the Display box to display unassigned controls and commands.



You can only map unassigned controls to unassigned commands.

2. From the Commands list, select a command and drag it to a control in the Controls list on the left.



Audio gain on Output1 is assigned to Encoder5 on the external controller.

3. Continue to drag items from the Commands list to items in the Controls list.
4. When you are satisfied with the new mapping, click the **Apply** button.

To unassign a control or command:

1. In the External Controller Setup view, click an assigned control or command in the Controls or Commands list.

The name is highlighted.

2. Click **Delete**.

The item becomes unassigned. If only the Assigned option is selected, this item disappears from the list and appears in the unassigned list.



Tip: You can undo a mapping operation by choosing **Undo** from the **Edit menu**.

3. When you are satisfied with the mappings, click the **Apply** button.

Creating a Command Mapping Set

You can configure the command mapping of the external controller to suit the type of work you do and your particular work habits.

To create a command mapping preset:

1. In the External Controller Setup view, click the **Save** button.
The Save Preset dialog box is displayed.
2. Select a folder in which to save the preset, and enter a name in the **File Name** text box. You can also add a comment in the Comments text box.
3. Click **OK**.

Loading a Command Mapping Set

You can load the default command mapping set or one that you created with your personal preferences.

To load a command mapping set:

1. In the External Controller Setup view, click the **Load** button.
The Load Preset dialog box is displayed.
2. Select a command mapping preset.
3. Click **OK**.

Building an Audio Mix

You can use the Editing layout to create mixes and add audio effects to your clips at different stages. You can start your mixing session by overlapping audio clips on the timeline, and then fine-tune the signal on the mixer by adding audio effects, and adjusting the volume and balance of the signal before output.

Avid DS Nitris supports up to 64 tracks of audio on a timeline. This capability also depends on the overall throughput of your system. For example, the number of video tracks, compression settings, disk fragmentation, or audio effects can all affect the system throughput. Instead of relying solely on the throughput, you can give yourself more flexibility by creating mixes using audio container clips.

Audio container clips let you compress as many as 64 tracks down to one, leaving you more audio tracks to work with. Here are some other reasons to use container clips:

- **Grouping sound tracks:** If you want to edit specific sounds more efficiently, you can group sound tracks and create submixes of common track types in an audio container clip. For example, you can mix hard sound effects like creaking floors and footsteps in one container clip, vocal tracks in another, and instrumentals in yet another container clip. All of these clips can be premixed in their respective container clips, and then played simultaneously on the top timeline.
- **Animating (automating) your mixes:** If you need to boost or lower the signal at different points in time, it's more efficient to animate the necessary controls in a container clip. This way, if you move the container clip, its animation moves with it.
- **Sample accurate editing:** Inside an audio container, the timeline ruler is displayed in terms of audio samples, as opposed to video frames. This lets you have greater control over the placement of your audio clips.

When you close the audio container clip, the tracks are automatically processed and represented as a single clip on the top timeline. You can now play the mix in real time.



Before doing your mixes, make sure you've already edited your sound tracks (music and dialogue).

Creating Audio Tracks

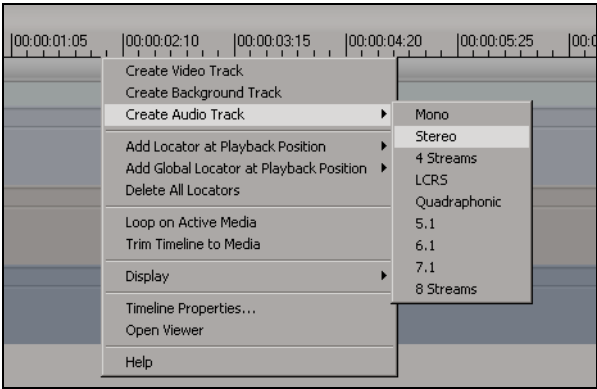
Whether you're building a mix in an audio container clip or not, you need to add audio tracks to the timeline. Audio clips and tracks in Avid DS Nitris can have up to eight channels of audio in any of the following formats:

Format	Description
Mono	Single channel of audio
Stereo	Two audio channels: Left and right
Quadraphonic	Four audio channels: Left, right, left rear, right rear
LCRS	Four audio channels: Left, center, right, surround

Format	Description
4 Stream	Four audio channels: Output 1 to 4
5.1	Six audio channels: Left, right, center, Low Frequency Emitter (LFE), left surround, right surround
6.1	Seven audio channels: Left, right, center, Low Frequency Emitter (LFE), surround center, Side left, Side right
7.1	Eight audio channels: Left, right, center, Low Frequency Emitter (LFE), left surround, right surround, left center, right center
8 Stream	Eight audio channels: Output 1 to 8

To create an audio track, do one of the following:

- ▶ Right-click in the overview area, and select **Create Audio Track** and a track format.



- ▶ Drag an audio clip from the Avid Explorer to the timeline ribbon. Tracks created this way adopt the format of the audio clip.

To determine a clip's audio format:

- ▶ Right-click a clip on the timeline and select **Properties**. The Clip property editor is displayed, and the audio format is shown in the Type box.

To determine a track's audio format:

- ▶ Right-click a track and select **Track Properties**.

The Track property editor is displayed, and the audio format is shown in the Format list box.

To change a track's audio format:

1. Right-click a track and select **Track Properties**.

The Track property editor is displayed.

2. In the Format list box, select the format you want.



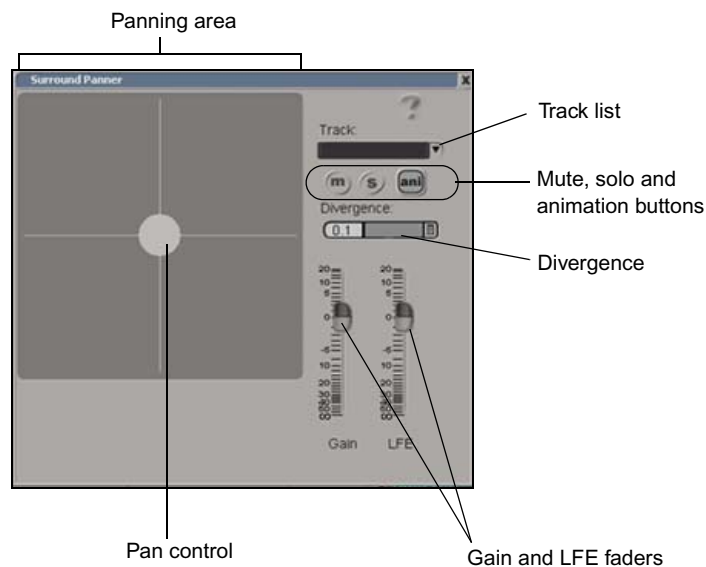
Audio clips appear yellow if their format does not match the audio track format, such as when a stereo clip is placed on a mono track.

Using the Surround Panner

The Surround Panner lets you specify the positioning and movement of the sound elements in your sequence. You can, for example, use it to create the effect of footsteps crossing a room, or simulate the sound of a door closing behind your listening audience.

You can only use the Surround Panner on mono tracks and if the mixer configuration is set to one of the surround output configurations, namely LCRS, Quadrophonic, 5.1, 6.1, or 7.1.

For more information, click the **Help** button or see “Surround Panner” in the Help.



To access the Surround Panner:

- ▶ Select **View > Single-Instance Views > Surround Panner**.

To specify the location of a sound:

- ▶ Drag the pan control to the location you want in the panning area.

To specify the size of a sound source:

- ▶ Adjust the Divergence value.

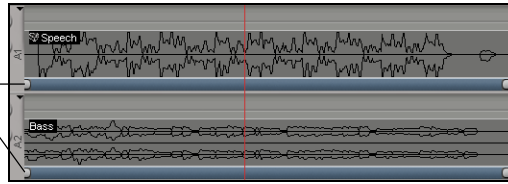
Mixing Clips

There are several ways of mixing audio on the timeline. You can:

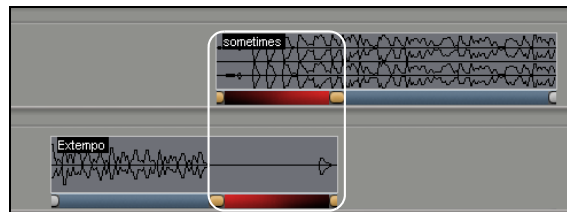
- Place audio clips on different tracks on the timeline, but within the same region. Unlike video clips on background tracks, audio clips do not lose their activeness when placed at the same timecodes as other audio clips. This lets you play several clips simultaneously.

Mixing audio tracks.

Both clips are active.



- Overlap clips on the timeline to create a crossfade from one audio clip to another. The two audio clips can be on the same track or different tracks. For more information, see [“Applying Crossfade Effects”](#) on page 428.

Crossfade between two audio clips.

Crossfade transition

- Create a submix in an audio container clip. Place multiple audio clips in a container clip and mix them down to a single clip on the top timeline.

Creating a Submix

The mixer can support up to 64 input tracks. If you notice frames skipping during playback (indicated by a red light on the transport controls), you should mix your audio tracks in container clips instead.

In a container clip, you can mix 64 tracks of audio down to one, giving you more tracks to work with. An audio container clip can also contain other container clips, letting you create many more submixes.

For example, create a container clip to hold different dialogue, foley, and background music tracks, and mix them down to a single track in preparation for a scene. When the audio container clip is closed, these tracks appear as a single clip, which you can mix with other audio clips and/or synchronize with corresponding video clips.

Audio container clips also lets you display the timeline ruler in samples, frames, or milliseconds, giving you greater accuracy when editing audio clips.

The initial format of your audio container clip depends on the clip selected. That is, if the audio container is created from a stereo clip, then the container will be stereo. You can, however, change the format of an audio container clip by changing the mixer configuration within the container. For more information, see [“Changing the Mixer Configuration” on page 392](#).

To create an audio container clip:

1. Place a clip on the track where the container clip will be created.
2. Right-click the clip and select **Create Audio Container Clip**.



*You can select more than one clip on a track by holding down the **Ctrl** key and clicking the clips that you want to select. These clips all become part of the new container clip.*

Audio container clip button



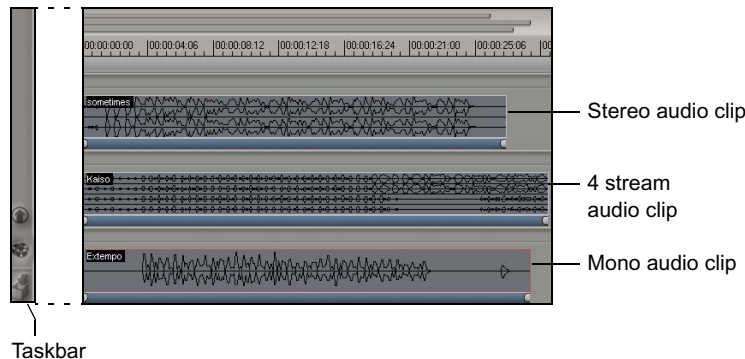
A new timeline is opened, and the selected audio clip is placed on the first track. You can now insert additional audio tracks on which to place other audio clips that form the mix.

Also, notice that a new container clip button is displayed in the taskbar. This button indicates that you’re working in an audio container clip.



Inside an audio container clip, the ruler time scale is set to samples by default. You can change the time scale by right-clicking on the ruler and choosing a different time scale.

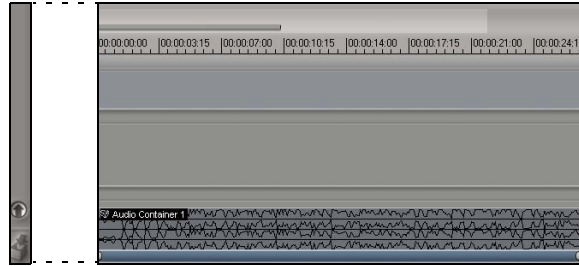
An open audio container clip.





- When you've finished editing the clips in this container clip, click the **Top Timeline** button in the taskbar to close the audio container clip and return to the top timeline.

A closed audio container clip is represented as a single clip on the timeline



Taskbar

When you close the container clip, Avid DS Nitris automatically processes the mix and displays a single clip on the parent audio track. While processing, a progress bar indicates the status of the process. The number of passes that Avid DS Nitris processes is based on the number of nested container clips in the current container clip.

Container clip icon



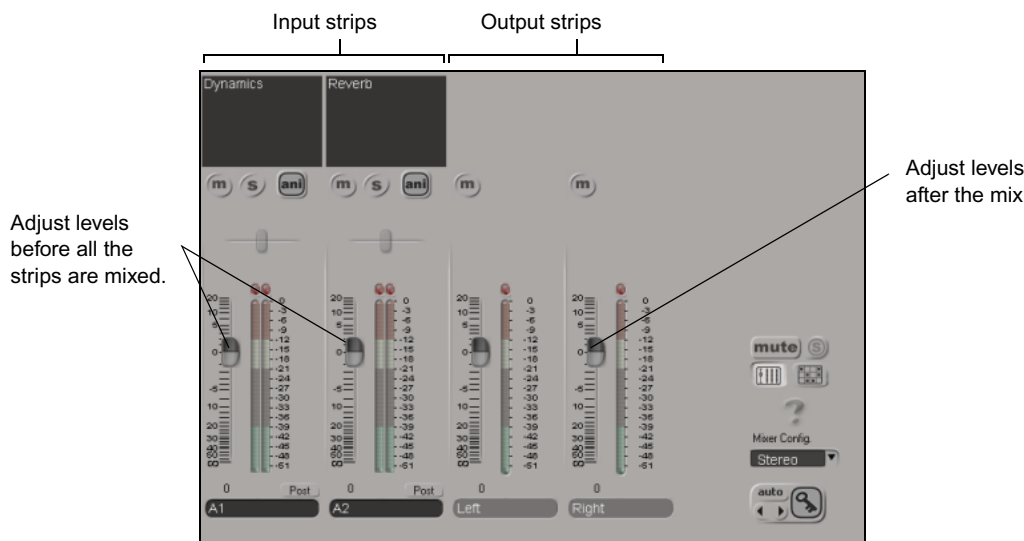
After processing, you can mix the resulting clip with other audio clips on the timeline. You can reopen the container clip by clicking the icon on the container clip.

Fine-tuning the Mix

After you've placed and edited your audio clips on the timeline, you can fine-tune the signal using the mixer. Each input strip in the mixer corresponds to an audio track on the timeline. The strip controls let you add effects and adjust the overall volume and balance of each track. The signals from all the strips are then mixed and routed to the output strips.

A strip's volume level is displayed in decibels on the level meter. The level meters resemble a plasma display, which shows the level of energy for an audio signal at a specific point in time. Stereo tracks have a dual level meter to indicate the strengths of each stream. Mono tracks only have a single level meter.

The signal that results from the adjustments on the input strips are then fed into the mixer, where all the audio signals are combined into a single composite signal. The mixed audio signals are then directed to the output strips. Here, again, you have the option to adjust the volume before outputting it to a parent container clip or external device. For more information, see [“Understanding the Mixer” on page 391](#).



Adjusting the Mixer Inputs

As you add audio tracks to the timeline, the input strips appear on the mixer, which always reflects the appearance of the audio tracks on the timeline. If you reorder the audio tracks on the currently-displayed timeline, the mixer is updated accordingly.

The quality of an audio mix depends on the volume and pan levels on each input strip. You should set the levels, so that the mix is well balanced. The controls on the input strips let you manipulate the signal coming from each

audio track on the timeline. You can adjust the volume and pan levels of each strip before the signal is fed into the mixer. You can also use the Mute and Solo buttons to listen to the signals coming from individual tracks.



The Solo buttons are for monitoring purposes only and do not stop the signal from going into the mixer.

The fader is used to control the volume on the mixer strips. It simulates an audio taper fader, except that the scale is more precise between the +5 dB and -5 dB range.

The level meter ranges from 20.0 dB to $-\infty$ dB. On the input strip, the level meter maintains the energy levels even if the volume is adjusted or the strip is muted. This lets you view the signal as it comes from the audio tracks. The volume change is only shown on the output strip level meters.



Click Post on the mixer input strip to have the level meter reflect the volume change.

You can also add effects to the signal before it's processed in the mixer. For more information, see [“Fine-tuning the Mix” on page 411](#).

To fine-tune the sound on an input strip:

1. Click the **Solo** button on the input strip that you want to tune.
Only the sound from this input strip can be heard.
2. Move the position indicator to the beginning of the first audio clip on the respective track.
3. On the transport controls, click **Play**.
4. During playback, click the **Solo** button to hear the effect of the track in and out of the mix. Click the **Solo** button again to turn off the effect.
5. As the sequence is played back, drag the fader up or down.



Double-clicking the fader button returns it to the 0 dB position.

6. For mono tracks, you can also activate the pan control if you want to change the routing of the signal. The pan control lets you adjust the balance among the output strips. Moving the pan control determines the distribution of the audio signals among the output strips—see [“Adjusting the Audio Balance” on page 395](#).

7. After you've completed the fine-tuning for this strip, deselect the **Solo** button, and repeat this procedure for all the other input strips.

Adjusting the Mixer Outputs

The results of the adjustments on all the input strips are mixed and passed to the output strips. Output strips let you adjust the output volume of the audio signals. The number of output strips on the mixer depends on the selected mixer configuration. The signal from the output strips is then directed to an external device.



If you're working in an audio container clip, the signals are directed to the parent container clip.

To adjust the volume on the output strip:

1. On the output strip you want to listen to, click the **Solo** button.
This lets you focus on the sounds from this strip alone.
2. Move the position indicator to the beginning of the sequence.
3. On the transport controls, click **Play**.
4. As the sequence is playing, monitor the output levels on the level meter and drag the fader up or down to adjust the volume of this strip.
5. Repeat this procedure for the other output strip(s).
6. After you've fine-tuned each output strip, make sure you deselect any **Solo** buttons to listen to the combined results of the output strips.

Animating the Audio Mix

When you want to adjust the volume or balance at different stages of the sequence, you can use the animation capabilities of the mixer to automate the volume and balance of your audio signals.

You can animate the fader, mute, and pan controls on the input strips before the signal is processed in the mixer. You can also choose the strips that you want to animate.

When you animate the pan control, fader, and mute settings during real-time playback, the adjustments are graphed as function curves. You can easily modify these function curves in the animation graph after the recording is complete.



All animation is track-based. Therefore, if you move the audio clips to a different track, you will lose the associated animation. If you want to keep the associated animation, then drag and drop the previously saved sequence on the timeline. New audio tracks will contain the audio animation.

Animating the Input Strip Controls

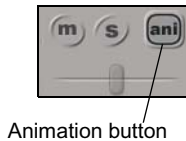
The Animation button lets you record any adjustments you make to the pan, mute, and fader controls on the mixer strip in real time. The Solo button cannot be animated because it's a tool that lets you listen to the sounds of the different tracks.

To activate animation on the strips:

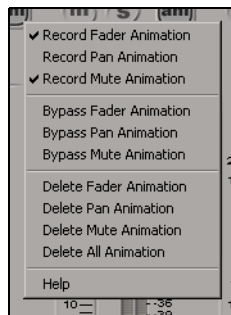
1. On the strip that you want to animate, click the **Animation** button.

By default, all the controls on this strip are animated when you begin the keyframing process. You can, however, select the controls that you want to animate.

2. Right-click the **Animation** button and select a command from the menu.



Animation button



*Pan can only be animated if the pan control is activated. Right-click the pan control and select **Enable Pan**.*

3. Deselect the controls that you do not want to participate in the animation.

To animate the controls:

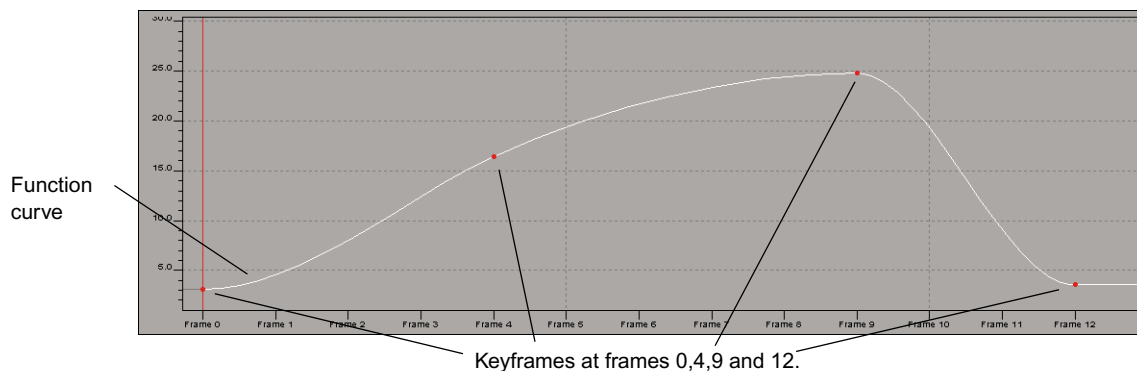
1. Click the **Animation** button on the input strips that will participate in the animation.
2. On the transport controls, click **Play**.
3. Adjust the controls on the input strip as the sequence is playing.
Any actions that you perform with the previously activated controls are automatically recorded.
4. To stop playing the sequence, click **Play** again.
5. Click the **Animation** button on the input strip to deactivate it.



If you leave the Animation button activated, you can record over the animation simply by replaying the sequence and redoing the control movements at the appropriate times. The previous animation's function curve is overwritten until you stop the recording.

6. Go to the beginning of the sequence and click **Play** to see the results of the recorded animation.

If you open the animation editor, you can see your animated movements graphed on the function curve.



The animation editor displays the function curve that you generated.



You can also use the Animation Key button to manually animate your controls. For more information, see “Setting Keyframes Manually” on page 349.

Animation Key button



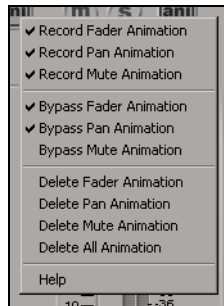
Bypassing the Animation

When you play a sequence that's been animated, all the controls that were animated will automatically play back. If you want to monitor certain sounds, you can bypass the animated movements of some or all of the controls. This lets you fine-tune your audio signal. Any animated controls that are bypassed are still processed and sent to the outputs.

To bypass the animation during playback:

1. On an input strip, right-click the **Animation** button and select a command to bypass from the menu.

A check mark beside the command indicates that it will be bypassed.



2. Select any other items that you want to bypass during playback.

When you replay the sequence, the controls that you selected for bypass do not participate in the animation.

Editing the Animation

All animated movements can be modified by adjusting the keyframes that were set for the animated controls.

**To edit the animation:**

1. Right-click the Animation Key button and select **Animation Editor**.
2. In the animation tree, select the name of the strip on which the animation was created.
3. Click the plus sign (+) to expand the tree, and then select a property or control whose keyframe, values need to be adjusted.

The corresponding function curve is displayed in the animation graph.

4. Adjust the key points on the function curve at the appropriate timecode settings.

For more information, see [“Editing Animation on the Animation Graph” on page 362](#).

Deleting Animation

You can delete all or part of the animation on the mixer input strips.



Animation Key button

To delete all animation on the mixer:

- Right-click the Animation Key button and select **Remove Animation Curves**.

The function curves for the pan, gain, and mute of each input strip in



Animation button

To delete animation on individual strip controls:

- On an input strip, right-click the Animation button and select one of the following:
 - Any of the Delete options from the bottom of the menu.
 - **Delete All Animation** to remove all animation on this input strip.

Audio Media Conversion

You can mix audio clips of different sample rates within a sequence. However, if an audio clip’s sample rate doesn’t match that of the sequence, or if it is not supported by your audio hardware, you will not be able to hear it when you play the sequence. To hear the clip, you need to convert it to the sample rate of your sequence, and/or a sample rate that is supported by your hardware.

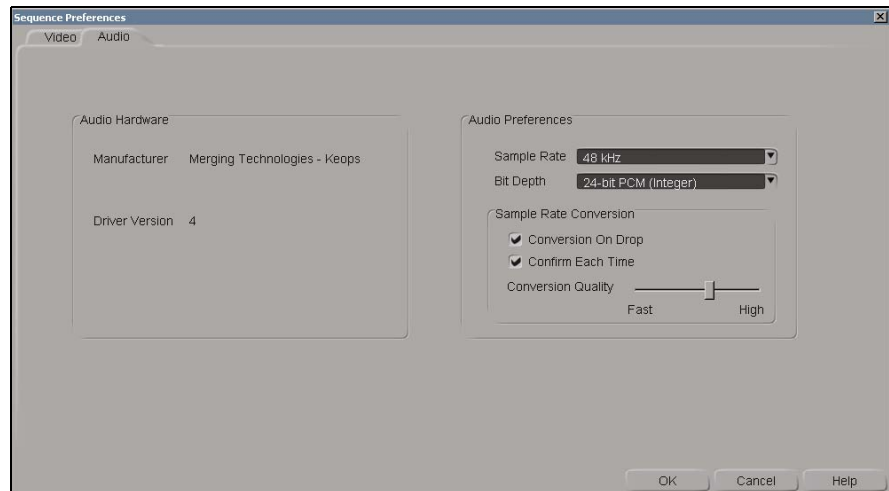
You can also convert audio clips that are already in a sequence to match the sequence video frame rate. For example, if you want to convert a sequence from NTSC to PAL. Any audio clips can be converted so that their sample rate remains the same, except that they will be timed to keep in sync with the sequence's new video frame rate.

Converting the Audio Sample Rate

When you place an audio clip on the timeline, its sample rate is converted according to the settings in the Sequence Preferences dialog box (Audio property page). You can have the sample rate of a clip automatically converted when it is dropped into a sequence of a different frame rate. You can also choose to manually convert it later.

To set up automatic conversion a clip's sample rate:

1. Select **File > Sequence Preferences**.
2. In the Sequence Preferences dialog box, select the **Audio** tab.



3. In the Sample Rate Conversion box, select **Conversion on Drop** to automatically convert the sample rate of all audio clips when a sequence is dropped on the timeline.
4. Use the **Conversion Quality** controls to specify a conversion quality.

For more information, click the **Help** button.

To convert a sequence's sample rate:

1. Open a new sequence and set the new sample rate that you want to use.
2. From the Explorer, drag the former sequence onto the timeline.
3. You will be asked if you want to convert the sample rate of all the clips to the new sequence sample rate.
4. Click Yes.

All audio clips will automatically be converted. A new media file is created for each of these clips.

Converting the Audio Sample Rate Manually

You can place clips on the timeline without having their sample rate automatically converted to match that of the sequence. However, if an audio clip's sample rate doesn't match that of the sequence, you will not be able to hear it when you play the sequence. You can change the sampling rate of clips to conform to the rest of the sequence.



When an audio clip's sample rate does not match the sequence's sample rate, the clip appears red on the timeline.

To manually convert the sample rate of a clip:

- ▶ Right-click a clip on the timeline and select **Convert to Current Sample Rate**.

To manually convert the sample rate of a track:

- ▶ Right-click an audio track and select **Convert to Current Sample Rate**.

To convert the sample rate of an audio container clip:

1. Right-click the track holding the audio container clip, and select **Convert to Current Sample Rate**.
2. Double-click the container clip to open it.
3. Right-click on each track within the container, and select **Convert to Current Sample Rate**.

The red highlight will appear on the timeline ribbon to indicate that the clips need processing.

4. Process the clips to generate new media at the current sequence frame rate.

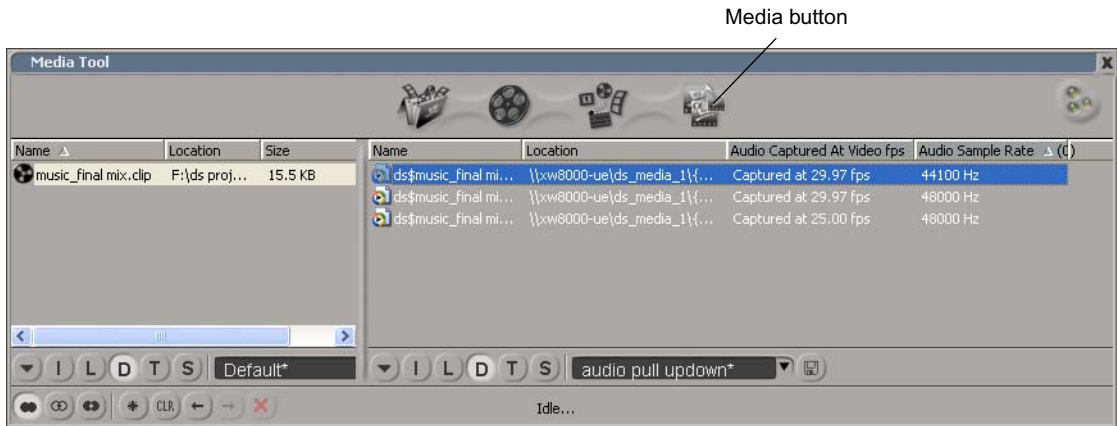
Converting the Reference Frame Rate of Audio Clips

If you are changing the frame rate of a sequence, you will need to adjust the audio clips accordingly, so that they remain in sync with the video. To change the reference frame rate in the audio clips, you can easily do an audio pull up/down using the Media Tool. The sample rate of the audio clips will remain the same but they will now be slightly longer or shorter to remain in sync with the video.

The audio must already be captured from tape or file, and exist as media in Avid DS Nitris. The pull up/down can also be performed on .wav or .mxmf files.

To view the clips in the Media Tool:

1. Select **Data Management > Media Tool**.
2. Drag the audio clip from the Explorer over the Media button in the Media Tool.



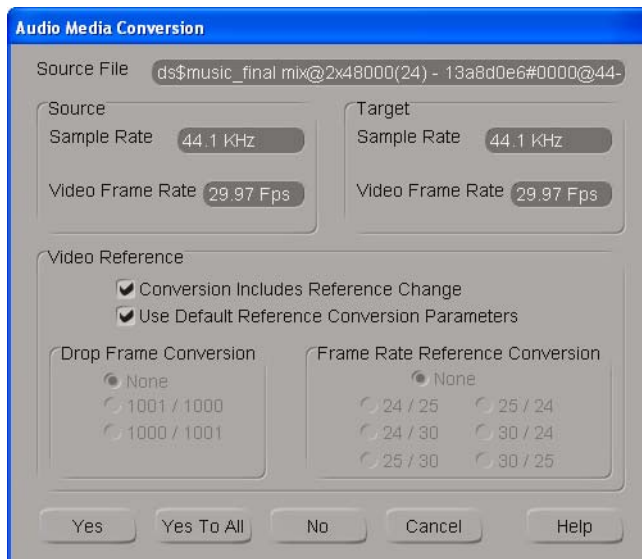
All media that exists for that clip is displayed in the view.

3. Right-click the view and choose **Settings > Add/remove Columns**.
4. Select **Avid DS Audio Captured at Video fps** and **Avid DS Audio Sample Rate**.

This adds two columns to let you view the sample rate and frame rate of the media.

5. Right-click the media file that you want to convert and choose **up/down convert audio**.

The Audio Media Conversion dialog box shows you the frame rate conversion settings.



6. In the Video Reference box, select **Conversion Includes Reference Change**.

Keep the **Use Default Reference Conversion Parameters** option selected. Avid DS Nitris will use the most appropriate drop frame conversion for your media. If you are converting more than one clip (i.e. batch conversion), you must use the default parameters.

7. Click **Yes**, or **Yes to All** (if you are converting more than one clip).

The conversion will take a few seconds to complete.

New media is created for your current sequence frame rate, and displayed in the Media Tool.

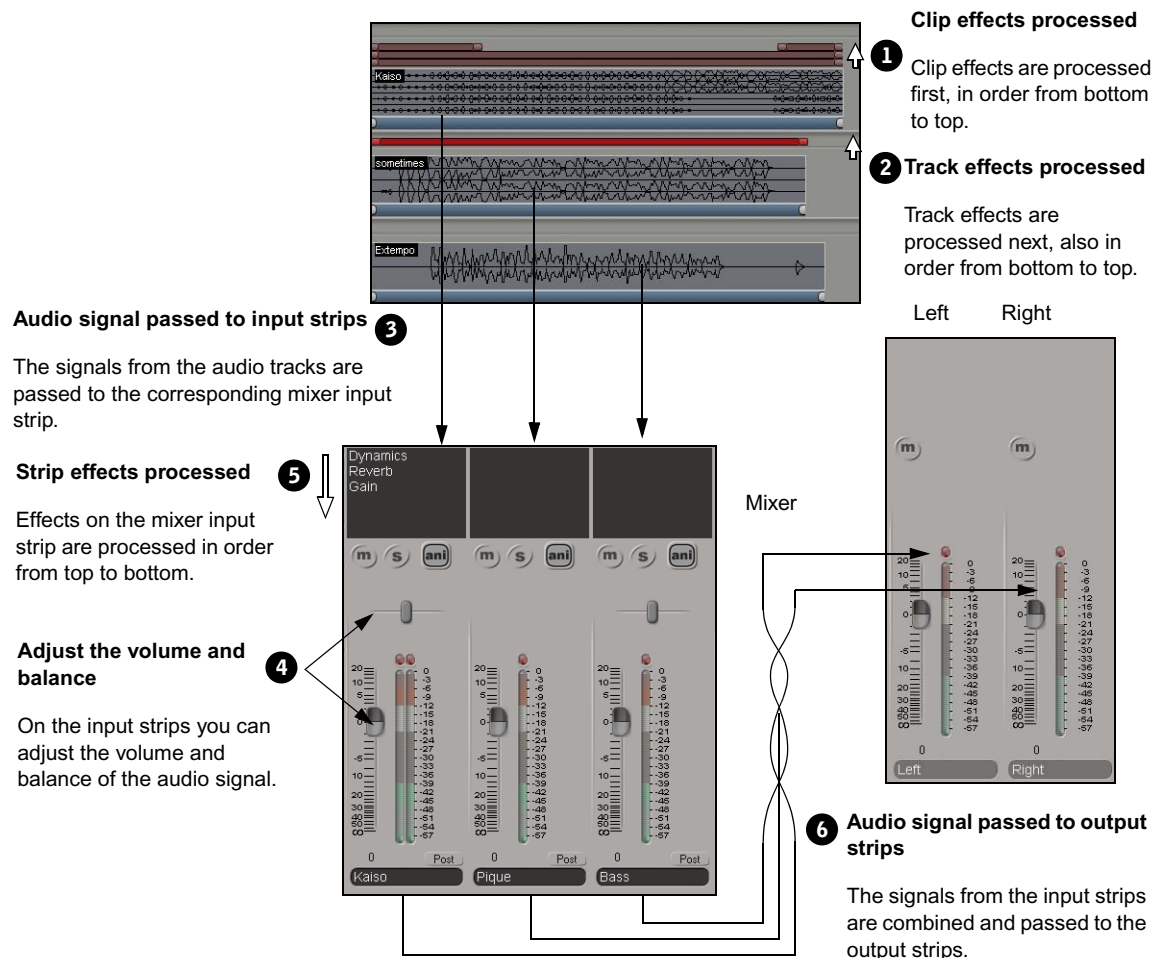
Processing the Mix

Unlike video clips, all audio clip, track, and strip effects (as well as any animation) are processed in real time, so that no caches need to be created. The only exception is when you create audio container clips. These container clips are processed automatically when you close them.



You can process clip-based audio effects to reduce your workstation's memory usage. For more information, see “[Processing Clip-based Audio Effects](#)” on page 425.

The following illustration shows how audio effects are processed from the tracks on the timeline to the strips on the mixer.



Audio clip effects are processed before track effects. If the effects are stacked, then they're processed from bottom to top. The signal from the audio track is then passed to the corresponding mixer input strip, where you can adjust the volume and balance of the incoming signal. If you're still not satisfied with the results, you can add more effects to the strip. These strip effects are processed from top to bottom.

The signals from all the input strips are then mixed together and distributed to the output strips based on the pan levels set on the input strips. On the output strips, you can make the final adjustments to the volume level using the fader.

The resulting signal is recorded on your external device. If you're currently working in a container clip, then the resulting signal is sent to the parent container clip.

When you close an audio container clip, Avid DS Nitris automatically processes the mix and displays a single clip on the parent audio track. While processing, it will indicate the progress. The number of passes that Avid DS Nitris processes are based on the number of nested container clips in the current container clip.

If you haven't made any changes to the clips in the container clip, then processing is not necessary.

Processing Clip-based Audio Effects

All audio clip, track, and strip effects (as well as any animation) are processed in real time. However, you might want to process clip-based audio effects to reduce your workstation's memory usage.

To process a specific audio clip effect on the timeline:

1. Right-click the audio clip and select **Clip Cache**.
2. Apply an audio effect to the audio clip.

The clip area on the timeline changes to yellow, indicating the effect is real-time but can also be processed.

3. Click the **Process** button.
4. In the Processing Options dialog box, select the following options:
 - Selected **Object**
 - Include Real-time Effect to force processing and create a cache on disk for the real-time effects



*You can process several audio clip effects by selecting **Current Timeline** on the Processing Options dialog box.*





Chapter 12

Working with Audio Effects

This chapter describes the audio effects and how to apply them:

- [Understanding Audio Effects](#)
- [Applying Crossfade Effects](#)
- [Applying Dynamics Effects](#)
- [Working with Equalizer \(EQ\) Effects](#)
- [Applying Fade Effects](#)
- [Applying a Gain Effect](#)
- [Applying Reverb Effect](#)
- [Applying a VST Host Effect](#)

Understanding Audio Effects

The audio effects are used to adjust the output signal of your audio clip. You can apply audio effects to clips, tracks, or mixer input strips. For information, see [“Working with Effects and Transitions” on page 297](#).

Since all of the audio effects are real-time effects, except for the Timewarp effect, you can hear the results upon playback without having to first process the effect. For information about Timewarp effects, see [“Applying an Audio Timewarp Effect” on page 328](#).



In some cases, real-time effects may require processing to ensure that no frames are skipped. For more information, see [“Playing Real-Time Effects” on page 291](#).

If you are adjusting parameters in an audio property editor during playback, you may notice a slight time lapse before you hear the results of the change. This will not affect the quality of the final output to tape or file.

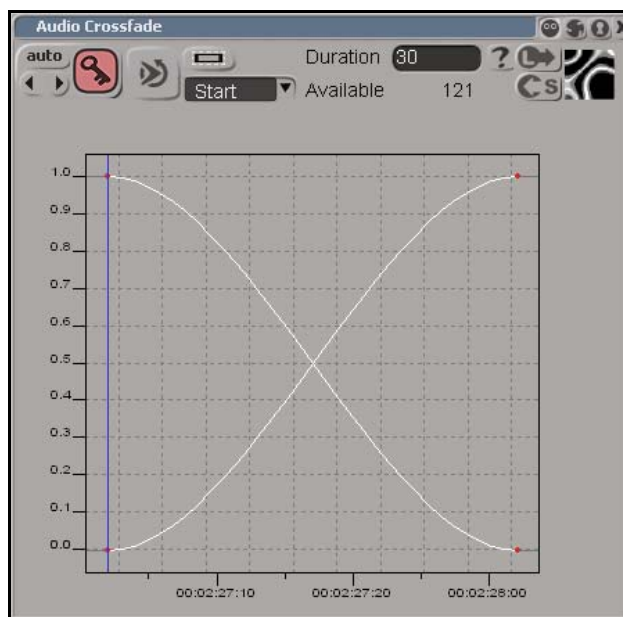
Applying Crossfade Effects

A crossfade is an audio transition between two clips over a specified number of frames. The sound of the outgoing clip gradually becomes less audible as the incoming sound increases to the desired volume.

To create a crossfade between two clips:

1. On the timeline, overlap the clips that you want to work with.
They can be placed on the same or different tracks. Make sure that the clips to receive the crossfade have extra material.
2. Select the edit point between the two audio clips on which you want to apply the crossfade.
3. From the toolbar, click **Transition Effects > Dissolve/Crossfade**.

The transition area is displayed as a gradient on the activeness bar.



4. In the Crossfade property editor, adjust the amount of the crossfade and specify the start point and duration of the transition.



For more information, click the **Help** button.

Applying Dynamics Effects

The Dynamics effects let you control the dynamic range of the audio signal. You can apply audio effects to clips or tracks, or on the mixer input strips.

There are five dynamics processes available in the Dynamics property editor: Gate, Expander, Compressor 1, Compressor 2, and Limiter.

For a list of the Dynamics effects, see “Dynamics Effects” in the Help.

To apply a dynamics effect:

1. Apply a dynamics effect to a clip, track, or mixer input strip.
The Dynamics property editor is displayed.
2. On the General property page, set the **Attack** and **Release** times.
3. On the Threshold property page, set the ratios.
4. Adjust the thresholds for the required processes.



For more information, click the **Help** button.

Working with Equalizer (EQ) Effects

The Equalizer (EQ) effects let you boost or cut the output signal at certain frequencies. You can apply audio effects to clips or tracks, or on the mixer input strips.

Applying the 3 Band Tone Control Effect

The 3 Band Tone Control effect lets you adjust the decibel level of the bass, middle, and treble frequencies, and the overall audio signal. You can boost or cut the signal in a decibel range of -15 dB to +15 dB.

To boost or cut the frequency ranges of the audio signal:

1. Apply the 3 Band Tone Control effect to a clip, track, or mixer input strip.
2. In the 3 Band Tone Control property editor, specify the amount of gain (in decibels) to be added to or cut from each of the frequency ranges.

To boost or cut the overall gain of the input signal:

- ▶ In the Input Gain text box, specify the amount of gain (in decibels) to be added to or cut from the whole signal.



For more information, click the **Help** button.

Applying the 4 Band Parametric EQ Effect

The 4 Band Parametric EQ effect lets you boost or cut the audio signal at four different frequencies. You can boost or cut the signal in a decibel range of -24 dB to +24 dB. You can also boost the overall gain of the audio clip's input signal.

To boost or cut the overall gain of the input signal:

1. Apply the 4 Band Parametric EQ effect to a clip, track, or mixer input strip.

The 4 Band Parametric EQ property editor is displayed.

2. On the Band 1 property page, specify the amount of gain (in decibels) to be added to or cut from the whole signal.

To boost or cut the frequency ranges of the audio signal:

1. In the Frequency text box, enter the frequency at which you want the effect to be applied.
2. In the Gain text box, enter the amount of gain (in decibels) to be added to or cut from the audio signal at the selected frequency.
3. In the Q text box, enter the Q factor (resonance).
4. Specify the curve type: Peaking, LF (low frequency) Shelving, or HF (high frequency) Shelving.



For more information, click the **Help** button.

Applying the 10 Band Graphic EQ Effect

The 10 Band Graphic EQ effect lets you boost or cut the audio signal at preset frequencies ranging from 31 Hz to 16 kHz. The bands are separated by exactly one octave, and each band has a bandwidth of one octave.

You can also boost or cut the overall gain of the audio clip's input signal.

To boost or cut the overall gain of the input signal:

1. Apply the 10 Band Graphic EQ effect to a clip, track, or mixer input strip.
The 10 Band Graphic EQ property editor is displayed.
2. On the Bands 1 - 5 property page, specify the amount of gain (in decibels) to be added to or cut from the whole signal in the **Input Gain** text box.

To boost or cut the frequency ranges of the signal:

- Specify the amount of gain (in decibels) to be added to or cut from each of the frequency ranges.



For more information, click the **Help** button or see “10 Band Graphic EQ Property Editor” in the Help.

Applying Fade Effects

The fade effects let you animate the volume of your audio clip over time. You can apply audio effects to clips or tracks, or on the mixer input strips.

To apply the Fade effect:

- Apply a fade effect to a clip, track, or mixer input strip.

The Fade property editor is displayed. It consists of a single property page which contains a function curve to control the volume of your audio clip. Adjust the curve to set an increase or decrease in volume.



For more information, click the **Help** button.

Applying a Gain Effect

The Gain effect lets you boost or cut the output gain of an audio signal. This is done by increasing or decreasing the decibel level.

You can apply audio effects to clips or tracks, or on the mixer input strips.

To adjust the output gain of an audio clip:

1. Apply the Gain effect to a clip, track, or mixer input strip.
The Gain property editor is displayed.
2. In the Level text box, enter the desired decibel level of the audio clip.

To invert the output signal:

- Select the **Invert phase** option.

To reset the decibel level to the default value (0):

- Click **Unity**.



For more information, click the **Help** button.

Applying Reverb Effect

The Reverb property editor lets you apply a reverberation effect to your clip. The reverberation effect simulates the many reflections of sound that can occur within a room and can be used to add depth to a sound.

You can apply audio effects to clips, tracks, or mixer input strips.

To apply the Reverb effect:

- Apply the Reverb effect to a clip, track, or mixer input strip.
The Reverb property editor is displayed.



For more information, click the **Help** button.

Applying a VST Host Effect

The VST Host effect lets you load and use VST plug-in effects in Avid DS Nitris. You must have VST plug-in effects installed before you can use them in Avid DS Nitris.



Avid DS Nitris implements version 1.0 of the VST Host and works with any VST plug-in effects that support this version of the VST Host.

During the installation of Avid DS Nitris, a \VSTPlugIns folder is created in the Avid DS Nitris installation folder. In a default installation the full path to the folder would be: C:\Program Files\Avid\DS_v7.x\VSTPlugIns.

Avid DS Nitris recognizes any VST plug-ins installed in the \VSTPlugIns folder and any of its subfolders or installed with Cubase VST.

You can apply audio effects to clips or tracks, or on the mixer input strips.



Consult the vendor's documentation on how to install and uninstall a VST plug-in effect.

To apply a VST plug-in effect:

1. Install a VST plug-in effect on your system.
2. Apply the VST Host effect to a clip, track, or mixer input strip.
The VST Host property editor is displayed.
3. From the Effect list, select the plug-in effect you want to use.

To use a VST plug-in effect bank or program:

1. Apply the VST Host effect to a clip, track, or mixer input strip.
The VST Host property editor is displayed.
2. From the Effect list, select the plug-in effect you want to use.
3. Click **Load** and navigate to the folder where the VST effect bank (.fxb files) or program (.fxp files) are installed.

By default, Avid DS Nitris looks in the folder in which the VST plug-in is located.

4. Select the file you want and click **OK**.
5. From the Program list, select the effect preset you want to use.



For more information, click the **Help** button.





Chapter 13

Media Management

This chapter describes how to manage your project files and media in Avid DS Nitris and how to use your disk space efficiently by purging, deleting, and archiving. This chapter includes the following sections:

- [Understanding Media](#)
- [Managing Media](#)
- [Archiving Projects](#)
- [Restoring Projects](#)
- [Moving Projects to Another Workstation](#)
- [Deleting Projects](#)
- [Deleting Clips](#)
- [Viewing Information about Storage Devices](#)

For details on setting up your storage areas, see “[Planning your Storage Locations](#)” in the *Avid DS Nitris Installation and Administration Guide* or the Help.

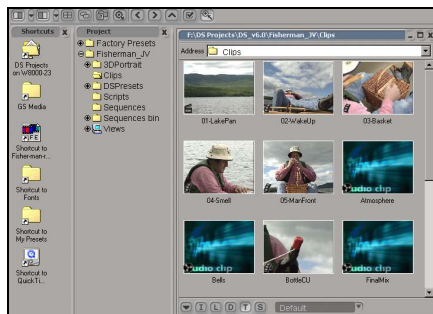
Understanding Media

Media in Avid DS Nitris exists in one of two forms: source media or caches. Media is the digitized form of source material after it has been captured or imported from tape or file into Avid DS Nitris.

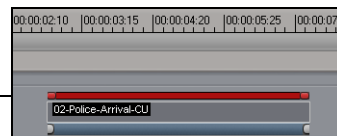
A cache is a media file that is generated when you process an effect, transition, or composite created in your sequence. During playback, Avid DS Nitris refers to this cache file instead of the source media.

Both source media and cache media are stored on high-performance storage devices. The following illustration shows the relationship between source and cache media.

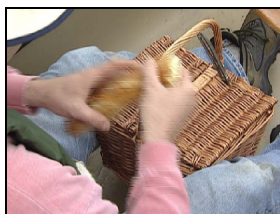
Master clips in the Avid Explorer.



Effect applied to a clip in the timeline.

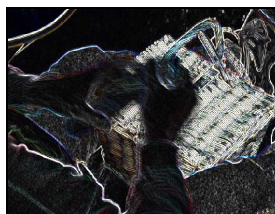


Source media



Source media is the material that you capture from tape or file. It is stored on the storage device and referenced by master clips.

Cache media



Cache media is created when effects and transitions applied to your clips are processed. It is also stored on the storage device. When Avid DS Nitris encounters processed effects during playback, it points to the cache media instead of the original source media.

Storage device



Like captured media, you can process your clips at different resolutions and compression ratios. Each time you change your working qualities (resolution, compression ratio, or bit depth), and process your clips, a separate cache file is created.

To keep track of different media qualities and avoid data redundancy, the time, quality, and channel information is used to store the coordinates of the media.

- **Time:** The source timecode or timeline timecode of your media.
- **Quality:** The quality aspects of an image (resolution, compression, format).
- **Channel:** The number of video and/or audio components in the media file.

To handle caches even more efficiently, the Media Indexer uses information or metadata to create a unique reference for each cache file. If this same clip and effect are reused anywhere else in your sequence or project, then the Media Indexer reuses the same cache. This lets you automatically view the results of an effect as soon as it is placed on the timeline. For this same reason, however, you may notice that purging caches does not necessarily free up storage space. If a cache is used by another part of the sequence or project, it will not be purged.

Changing the duration of the clip, or its properties, or stacking another effect on the clip, will require a new cache. However, the Media Indexer still tries to use any existing caches for the parts of the clip that have not changed.

The Media Indexer also manages the creation of caches at different stages in your sequence to ease the reprocessing and purging of caches. For more information, see [“Creating Caches at Any Level” on page 280](#).

Managing Media

When working on big projects, you can easily accumulate large amounts of media captured from different sources in different formats, resolutions, and compression ratios. To organize your work and use disk space efficiently, you need to find, purge, move, and delete media. When you are working with projects and sequences that share media, you need to determine how the media is shared.

Using the Media Tool

The Media Tool lets you view media files and the clips, sequences, or projects with which they are associated. In addition, it provides a comprehensive way of looking at your assets (projects, sequences, clips, and media) and how they relate to each other.

You can use the Media Tool to display your files in a variety of combinations. For example, you can display the media associated with a single clip or the media associated with all clips in a project. You can display all media contained in two projects, display only the media that is shared—and then display only the media that is not shared.

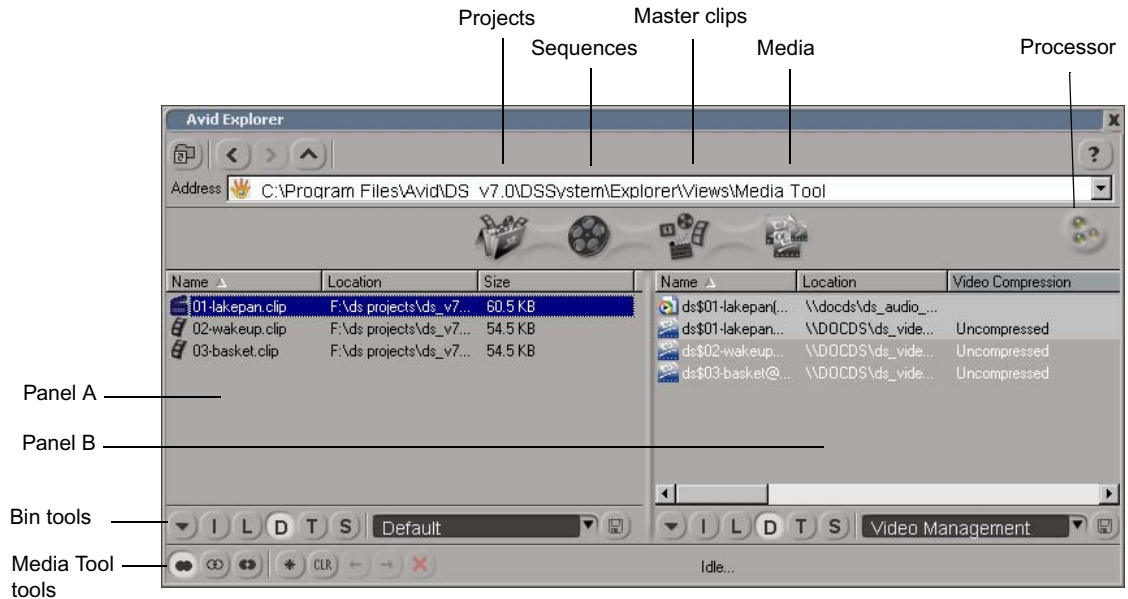
The Media Tool lets you view more than just media files: you can also view associations between projects, sequences, and master clips. You can display all projects in your workgroup, and then all sequences in those projects. Then select two of these sequences and display all master clips in these sequences. And you can perform various media management tasks on the objects that are displayed: recapturing, purging, defragmenting, copying, moving, and deleting.

You can also edit from the Media Tool by opening clips and sequences in a viewer or by dragging them to the timeline.

To access the Media Tool, do one of the following:

- ▶ Select **Data Management > Media Tool**.
The Media Tool opens with two empty panels.
- ▶ Select one or more clips or sequences, right-click, and select **Show Media**.

The Media Tool opens as an Avid Explorer bin view, with the selected objects in the left panel and the associated files in the right panel.



The two panels of the Media Tool represent the association between the items in the panels. For example, if master clips are displayed in the left panel (panel A), all media files for the clips are displayed in the right panel (panel B).

If you select objects in one panel, the related objects in the other panel are also selected. For example, if you select a master clip in panel A, the associated media files are selected in panel B. And if you select a media file in panel B, the associated master clip is selected in panel A.

Using Media Tool Icons to Display Files

The Media Tool icons, at the top of the view, give you any easy way to display project and media files. After the files are displayed, you can rearrange them to display their associations.

To display project and media files by using the Media Tool icons:

- ▶ Drag an icon from the top part of the Media Tool to either one of the panels. The results are described in the following table:

Drag this to a panel	To display
 Projects icon	All projects defined in your project root.
 Sequences icon	All sequences in the current project
 Clips icon	All master clips in the current project.
 Media icon	All media in the current project.



The Processor icon flashes while the Media Tool is processing the display. To stop the processing, click the Cancel button in the Media Tool tools.

Displaying Associations Between Files

There are several ways you can display the associations between projects, sequences, master clips, and media files.

To display associations by dragging to a panel, do one of the following:

- ▶ Drag one or more project folders, sequences, master clips, or media files from an open bin to one of the panels.
- ▶ Drag one or more items from one panel to another.

The results of these actions are described in the following table:

Drag this	To	To display
 Project	Panel A	All sequences in the project in Panel B.
 Sequence	Panel A	All master clips in the sequence in Panel B.
	Panel B	All projects using that sequence in Panel A.
 Master clip	Panel A	Media used by the master clip in Panel B.
	Panel B	All sequences that use the master clip in Panel A.
  Media file	Panel B	All master clips that use the media file in Panel A.

To display associations by dragging within a panel:

- From a list of items, select one or more items and drag them to an empty part of the same panel.

For example, if you drop the Media Tool sequence icon to panel A, all sequences in the current project are displayed. Select a sequence, drag it to an empty part of panel A, and panel B displays all master clips in the selected sequence.

To display associations by dragging to a Media Tool icon:

- Drag an object from one panel to an icon in the top part of the dialog box.

Use this action if you want to “hop” to a different association. For example, if a sequence is listed in panel A, by default its master clips are listed in panel B. To view media for the sequence, drag the sequence from panel A to the Media icon.

Modifying the Media Tool Display

After you have displayed your choice of objects, you can use the Media Tool tools to modify the display. Some of these tools let you show additional associations between project files and media.

To modify the Media Tool display:

- Click one of the following Media Tool tools:

Click this	To
	Union Display all items contained in the contents of Panel A in Panel B (default).
	Intersection Display only the items shared by the contents of Panel A in Panel B
	Intersection Complement Display only the items not shared by the contents of Panel A.
	Include Cache Files Display cache media as well as source media. After you click the button, reprocess the sequence to display the media.
	Clear All Remove objects from both panels.
	History Back Show the previous display in the Media Tool history list.
	History Forward Show the next display in the Media Tool history list.
	Cancel Cancel Media Tool processing.

You can also use the standard bin tools and procedures to modify the display:

- **Bin tools:** Click a bin tool button to change the way the files are displayed—see “Bin Tools (Bottom)” in the Help.
- **Bin views:** Select a bin view to change the information displayed in Details and Script views—see [“Saving or Deleting a Bin View” on page 52](#). The Video Management and Audio Management views are designed especially for media files.

You can edit the bin display and create a customized view by clicking the Fast Menu button and selecting **Settings > Add/Remove Columns**.

- **Sorting:** You can sort by using the information in any column or combination of columns—see [“Sorting Files” on page 53](#). For example, to sort your media files by storage, click the Location column.
- **Sifting:** Select a Custom Sift to display only files that meet specific criteria—see [“Sifting Files” on page 54](#).



***Tip:** If you don't see any files or media in the Media Tool, make sure the **Union** button is selected.*

Viewing Media Files

You can view media files, like other files, as thumbnails, making it easier to identify and locate particular media. You can also step through the media files by changing the frame that is displayed on the thumbnail. This gives you a basic idea of what is included in each media file.

To change the frame displayed on the thumbnail:



1. In the Media Tool or a bin, click the **Thumbnail** button.
2. Right-click a media file and select **View Frame** and one of the following:
 - **First Frame** to display the first frame of the media file.
 - **Middle Frame** to display the middle frame of the media file.
 - **Last Frame** to display the last frame of the media file.
 - **Advanced** to open a dialog box that lets you enter a particular frame number to be displayed.

The thumbnail displays the frame number you choose. The setting is used for all media files in the bin or the Media Tool. This setting does not affect master clips or sequences.

Defragmenting Media

The more you capture, delete, and purge media from your system, the more likely that your media files will become fragmented on your storage device. A certain level of fragmentation is normal, because files need to be spread across multiple drives in order to play efficiently. However, excessively fragmented media may slow down your system or cause playback problems, such as skipped frames. If playback problems become serious, you can use the Windows Disk Defragmenter or other defragmenting application. This can be a very lengthy process. In many cases it is more efficient to defragment individual files.

To defragment media files:

1. In the Media Tool or in a storage folder, select one or more media files that you think might be fragmented.

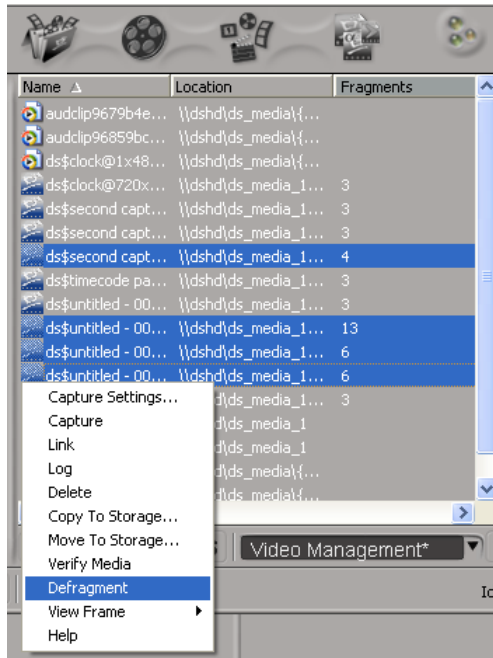
If you select Audio Management or Video Management from the Bin View list, you can view a column headed **Fragments**. This column lists the number of fragments into which the media file is divided.

2. Right-click one of the selected files and select **Defragment**.

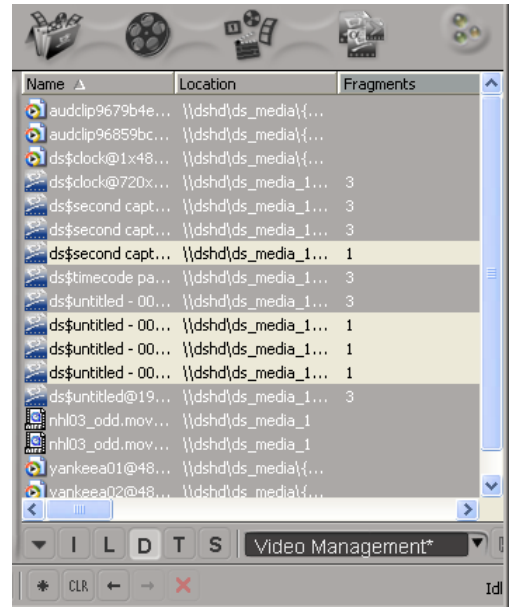
A progress bar appears, and the selected media files are defragmented.

The following illustrations show media files before and after defragmenting.

Media files before defragmenting



Media files after defragmenting



Verifying Media

If you encounter problems while playing back your sequences, there may be corrupted media on your storage device.

To verify your media:

1. In the Media Tool or in a bin, select one or more media files.
2. Right-click one of the selected files and select **Verify Media**.

If you have any corrupted files, you are prompted to delete them. Media that you delete will have to be recaptured or reprocessed.

Copying Media

You can copy media from one storage area to another. You can copy one file at a time, a selection of files, or an entire folder of media files.



Do not copy or move media files by dragging and dropping. Use the “Copy to Storage” and “Move to Storage” commands instead.

To copy a media file:

1. In the Media Tool or in a bin, right-click a media file and select **Copy to Storage**.
To copy more than one file, hold down the Ctrl key while selecting files, and then right-click one of the selected files to select the Copy option.
2. In the Copy Media dialog box, select the video and audio storage area to which you want to copy your media.

Any projects using this media are automatically linked to your local drive. This is because, by default, the Media Indexer is configured to look at your local storage area first. You can verify this by opening the Media Indexer and verifying that your local storage is the first one in your list. For more information, see [“Maintaining your Storage Locations”](#) in the *Avid DS Nitris Installation and Administration Guide*.

Moving Media

If you add or remove a storage device from your system, you may have to move some media files from one storage area to another. You can move one file at a time, a selection of files, or an entire folder of media files.



Do not copy or move media files by dragging and dropping. Use the “Copy to Storage” and “Move to Storage” commands instead.

To move a media file:

1. In the Media Tool or in a bin, right-click a media file and select **Move to Storage**.
To move more than one file, hold down the Ctrl key and click the necessary files, and then right-click one of the selected files to display the menu.



2. In the Move Media dialog box, select the video and audio storage area to which you want to move your media.

Deleting Media

If you're sure that you no longer need certain media files, you can manually delete them from your storage area. When media is deleted, the clips that refer to that media are maintained, but indicate that no media is attached to them. Since the master clips are not deleted, it is possible to recapture this media later.



The Purge dialog box provides additional features that make it easier to determine which media files to delete. For more information, see “Purging Media” on page 448.

To delete media files:

1. In the Media Tool or in a bin, right-click a media file and select **Delete**.
You are prompted to confirm your decision.
2. Click **Yes** to delete the media.

To delete entire projects and their associated media files, see “[Deleting Projects](#)” on page 470 and “[Viewing Information about Storage Devices](#)” on page 473. See also “[Deleting Clips](#)” on page 472.

Purging Media

Media files often contain large amounts of information that can quickly use up your system storage space. It is good practice to purge unused media, especially if you have captured different qualities of media from the same source.

There are two types of media generated in Avid DS Nitris:

- Source media is created when you capture or import files.
- Processed media (cache) is generated when you process effects, graphics, or composites in your sequence.

You can purge your source media and cache files without losing vital information about the edits you made. Since a clip is a representation of the digitized media stored on your storage device, you can delete your media without deleting the clip and sequence files. This is called *purging your media*. You can later use the clip or sequence files to recapture the source material or reprocess the effects. Purging source media requires you to recapture the original media, while purging caches requires you to reprocess the sequence before it can be played back in real time.

When a clip's source media is deleted, the clip icon in the Avid Explorer turns red. When caches are purged, the icon does not change color, but areas of the timeline that rely on this processed media are highlighted in red.



*To check what type of media is associated with a clip, right-click the clip and select **Properties**. For more information, see “[Displaying File Properties](#)” on page 48.*

It is possible to purge only the video or audio portion of a clip. In this case, the icon in the Avid Explorer does not turn red, as there is still media associated with the clip. You can only purge media from the current project. If you want to purge media in another project, you must open that project and then purge the media.

There are several ways to purge source media or cache files in Avid DS Nitris.

Purge from	To do this
Avid Explorer bin	Delete media of selected clips and sequences.
Cache bar menu	Delete the caches associated with the cache bar, the cache files below the cache bar, or both.
Toolbar	Delete all cache files from the current sequence, all interactive memory caches, or a cache file associated with a particular clip, effect, or area on the timeline.
Purge dialog box	Delete source and cache media of specific clips, sequences, or projects. This option gives you more control over what types of media are deleted and from what source they will be deleted.

Purging Source Media

Source media is the digitized form of source material after it has been captured and imported from tape or file into Avid DS Nitris. You can select the type of media you want to delete.

You can purge media at the clip, sequence, or folder level:

- Purging a clip deletes media that was captured for that clip.
- Purging a sequence deletes media for all clips in the sequence.
- Purging a folder deletes media of the master clips contained in that folder.

To purge a file or folder from the Avid Explorer:

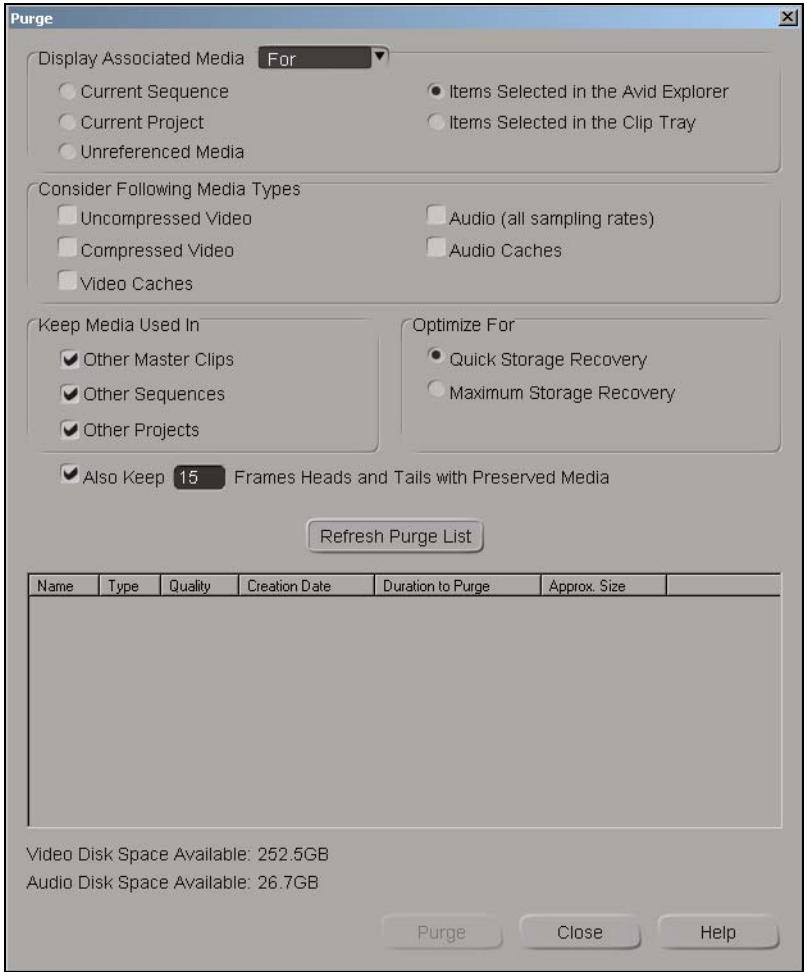
1. In the Avid Explorer, right-click a clip, sequence, or folder, and select **Purge Media**.

The Purge dialog box is displayed.

The media for your selection will be purged unless you change the option under the Display Associated Media For list.



*To purge everything but the clips selected in the Avid Explorer, select the **Except For** option in the Display Associated Media list.*



2. Select the other options as necessary.

Click the **Help** button for detailed information on the options in the Purge dialog box.



*To remove the largest number of unused media files and gain storage space, select the **Unreferenced Media** option and the **Optimize For Maximum Storage Space Recovery** option. Note that this is a time-consuming process.*

You should keep media used in other project files unless you are absolutely sure that they are not required.

You can delete cache media and reprocess it later. For more information, see “Purging Caches” on page 451.

3. Click the **Refresh Purge List** button.

A list of media that meets all the criteria that you selected is displayed in the Purge list. By default, all the files in the list are selected, but you can select any number of media files from the list to purge.

4. Click the **Purge** button to begin deleting the media.

After you purge source media and it is deleted from your storage device, the clips that reference this media have a red icon beside them in the Avid Explorer. Clips on the timeline that have no associated media, display the “Media Not Available” message in the viewer when you play back the sequence.

Purging Caches

When you process effects, graphics, or a composite in your sequence, a cache file is generated on your storage device, so that you can play back the newly-created media.

If you need storage space, you can delete this cache media and reprocess it at a later time. When you delete a sequence’s caches, the Process button on the timeline turns red, and the unprocessed regions are highlighted on the timeline ribbon.

If you’re using cache bars to generate caches, you can purge the caches at the different levels at which they were created. The cache bar’s color indicates if playable media exists for the entire region covered by the cache bar. If any part under the cache bar is unprocessed, the cache bar will be yellow. If the entire region has been processed and playable media exists, the cache bar is green. For more information, see [“Understanding Processing” on page 265](#).

To purge the cache of selected objects on the timeline:

1. Select one or more clips, effect bars, container clips, or tracks.
2. From the NLE Tools toolbar, select **Purge > Purge Cache**.

To purge caches for all objects on the current timeline:

- From the NLE Tools toolbar, select **Purge > Purge All Caches**.

To purge caches generated with cache bars:

- ▶ Right-click a cache bar and select one of the following:
 - **Purge Selected** to purge only the cache media associated with the selected cache bar.
 - **Purge Below** to purge any unnecessary cache media that lies below the cache bar, while keeping the cache real time playable. (This option is useful if you processed using the Complete option and no longer need the caches at each level anymore.)
 - **Purge** to purge the cache media associated with the cache bar, as well as any cache media that lies below it.

Example: Purging versus Deleting Media

Purge master clip from sequence A.

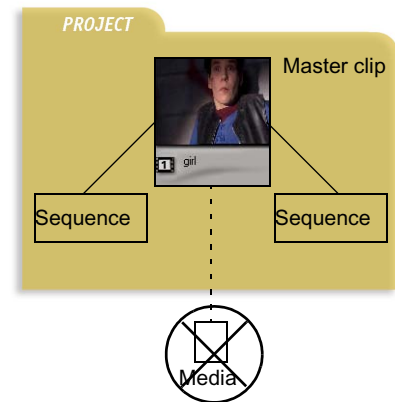
Result: The master clip is never deleted.

If the Keep Media Used in Other Sequences option is selected, and the master clip is used in another sequence, then the media is not deleted.

If the Keep Media Used in Other Sequences option is not selected, then the media is deleted.

Once the media is deleted, when you play back a sequence that uses this master clip, the “Media Not Available” message is displayed in the viewer whenever it encounters this clip.

Because the master clip was not removed, it's easy to recapture the media from the Avid Explorer or timeline.

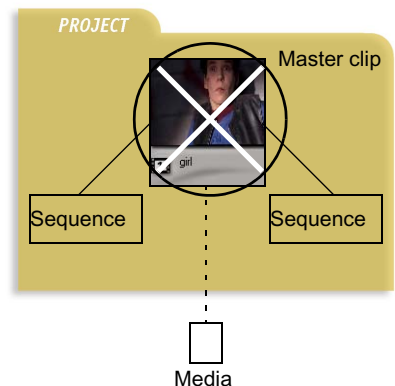


Delete Clip and Unused Media for master clip from sequence A.

Result: Deletes the master clip in the Avid Explorer.

Avid DS Nitris checks to see if this clip's media is used elsewhere. If it is, then the media is not removed.

Although the master clip is deleted, the clips remain on the timeline in sequence A and B, and still refer to the original media.



Delete Clip and All Media for master clip from sequence A.

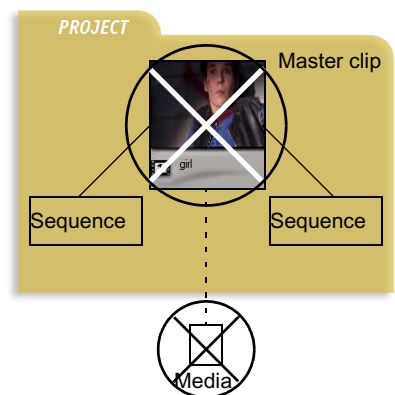
Result: Deletes the master clip in the Avid Explorer, as well as its associated media regardless of whether this clip is used in another sequence.

Although the master clip is deleted, the clips on sequence A and B remain on the timeline. When you play back either of your sequences, the “Media Not Available” message is displayed in the viewer whenever it encounters this clip in your sequence.

General Note

Purge always keeps the master clip; it removes the media depending on the setting.

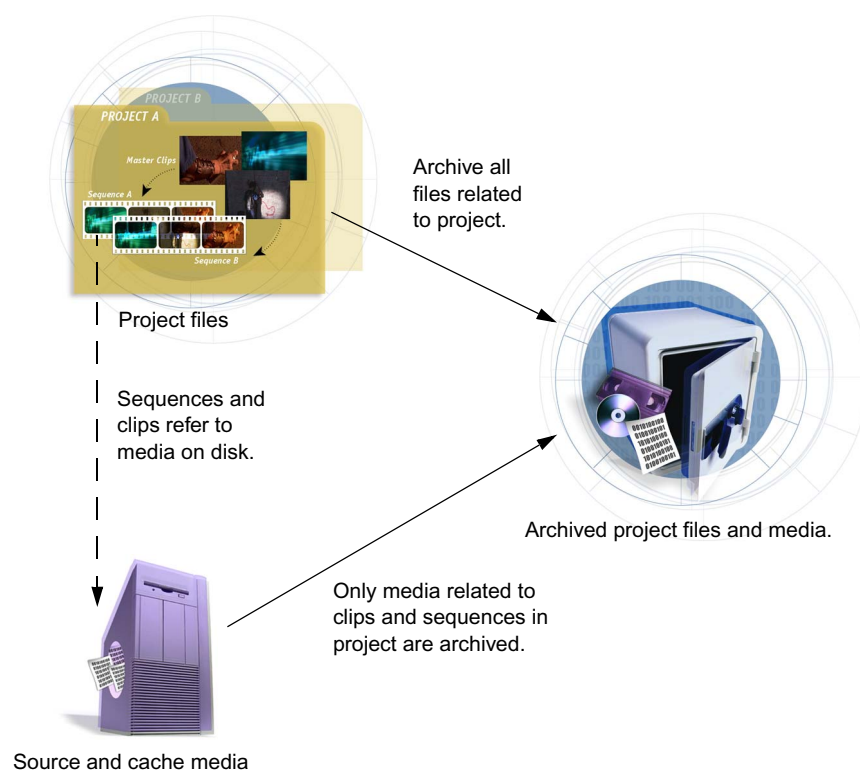
Delete always *removes* the master clip; it removes the media depending on the command selected.



Archiving Projects

Archiving is a way to create backups of your project, move a project to another workstation, or free up space on your local disk. You can restore archived projects later, if necessary. You might need to archive and restore a project when you upgrade to a new version of Avid DS Nitris; check the release notes for more information.

You can archive both the project files and their related media. If you choose to archive only the project files, you can recapture the media easily once the project is restored.



You can archive or restore media only if its format (frame rate, resolution, or quality) is compatible with the current sequence format. For example, you cannot restore an NTSC archive while you are working in a PAL sequence. Similarly, you cannot restore an HD archive in an NTSC sequence.

A complete Avid DS Nitris archive consists of two parts:

- The project archive: a single folder that is created on a disk. This folder contains complete information about recreating a product (bins, clips, sequences, presets, and so on). It includes any folders and files are stored in the project root, such as source images for linked files or documents with notes about the project. The archive also includes audio media and audio caches, if you decide to include them (currently, audio media can only be archived to disk, not to tape).
- Media archive: a videotape on which video media and video caches are recorded. You can save video media on a single tape or, if necessary, on multiple tapes.



A video archive is limited to one tape for video media and one tape for video caches, unless you are archiving more than one video compression or resolution. For more information, see “[Creating a Complete Archive on Multiple Tapes](#)” on page 460.

Archiving caches is optional, because you can reprocess them after you restore the project. Also, you might need to reprocess caches after restoring a project in an upgraded version of Avid DS Nitris. Check the release notes for the upgrade.

The following sections describe how to create these parts of an archive.

Creating a Project Archive Only

The following procedure describes how to archive the project information only. If you need to, you can restore the project and then recapture the media.

To create a project archive:

1. Select **Data Management > Project Manager**.
2. Select the **Archive** tab.
3. Select a project to archive by selecting it from the list of displayed projects.

You can archive projects from anywhere on the network. Click the **Refresh** button to get an up-to-date list of the projects you can access.

4. By default, all projects are archived in the \DS Archives folder. You can select a different destination folder for the project files by doing one of the following:

- ▶ Type the path in the **Project Archive Destination** text box.
- ▶ Click the **Browse** button to search for the appropriate folder.



Avid DS Nitris does not let you archive a project at the root of a drive, such as F:\. The archive must be within a folder. For example, F:\DS Archives\ is a valid location for a project archive.

5. Click the **Archive** button.



After you've archived your project, make sure that there is an archivetape.log file in the archive folder. Without this log file, you cannot restore your media.

Creating a Device Preset Before Archiving

If you are going to archive media to tape, create an external device preset, so that it is available from the Device list when you start to create the archive.

To create a device preset:

1. Connect the external device to your Avid DS Nitris system.
2. Select **View > Multi-Instance Views > Deck Configuration**.
3. Set the **Edit Mode** to **Assemble** in your preset to avoid having to stripe the entire tape before archiving your media to tape.

Even when outputting in Assemble mode, you must stripe the first few seconds of the tape.

For more information on creating an external device preset, see [“Configuring the External Device”](#) in the Help.



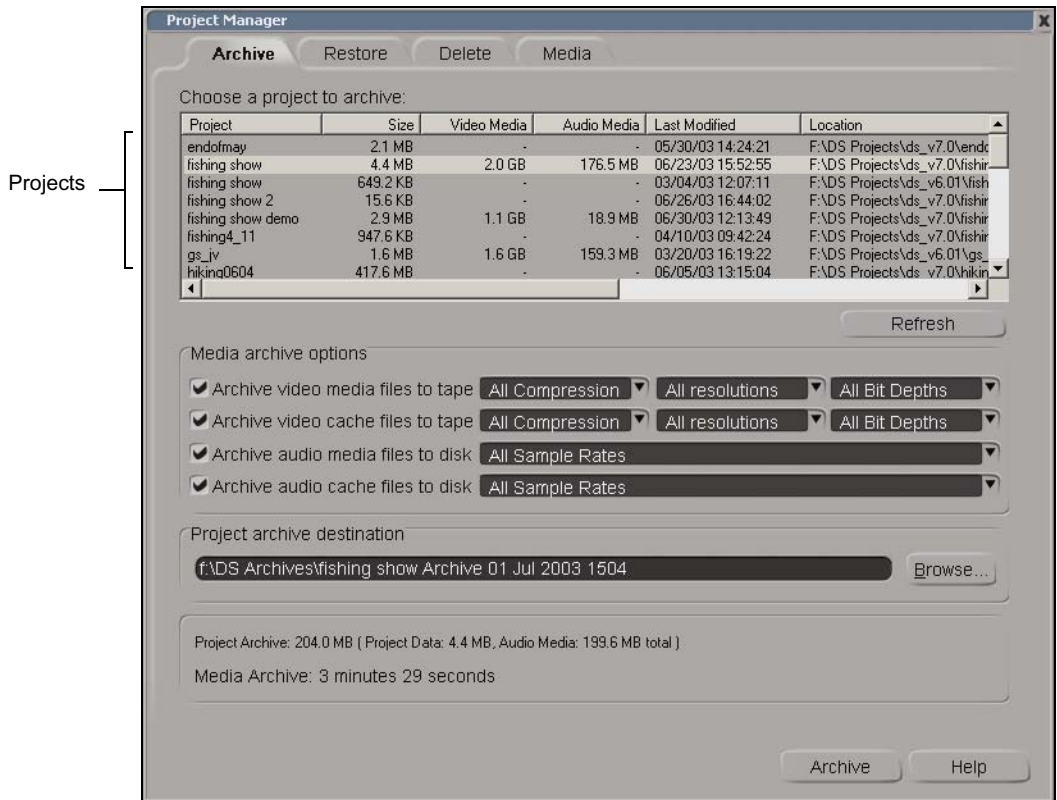
Tip: *Test the external device by outputting a segment of a sequence before creating an archive.*

Creating a Complete Archive for a Project

The following procedure describes how to archive a project and all its media to a single tape. If your project is too large to fit on a single tape, see [“Creating a Complete Archive on Multiple Tapes”](#) on page 460.

To archive a project:

1. Check the device that you want to use to create the archive—see [“Creating a Device Preset Before Archiving”](#) on page 456.
2. Select **Data Management > Project Manager**.
3. Select the **Archive** tab.



4. Select a project to archive by selecting it from the list of displayed projects.

You can archive projects from anywhere on the network. Click the **Refresh** button to get an up-to-date list of the projects you can access.

5. If you want to archive the media associated with your project, select the type of media you want to archive from the **Media Archive Options** box.

For video media and video cache media, you must specify a compression rate, resolution, and bit depth for the media you want to archive. For audio media and audio cache media, you must specify a sample rate.



If you want to archive cache media, you must also archive the master media. You cannot archive only cache media.



If you archive a project with media that is shared between projects, the media will be archived with both projects. When it is restored, Avid DS Nitris checks to see if the media is still in its original location. If it is, the link is recreated. If not, the media is restored to its original location.

Video is always archived to tape, and audio is always archived to the specified media location on disk.

The status area displays the amount of time required on tape to archive your video media. It also displays the amount of disk space that the project files, including the audio media (if any) will consume. If the media archive is longer than the length of your tape, you need to split the media onto two tapes. For more information, see [“Creating a Complete Archive on Multiple Tapes” on page 460](#).

6. By default, all projects are archived in the \DS Archives folder. You can select a different destination folder for the project files by doing one of the following:
 - ▶ Type the path in the **Project Archive Destination** text box.
 - ▶ Click the **Browse** button to search for the appropriate folder.

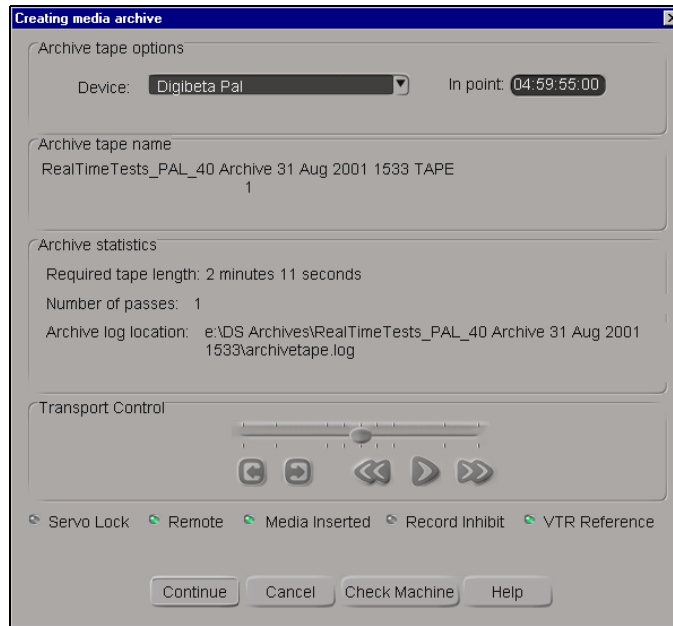


Avid DS Nitris does not let you archive a project at the root of a drive, such as F:\. The archive must be within a folder. For example, F:\DS Archives\ is a valid location for a project archive.

7. Click the **Archive** button to begin archiving your project.

If your project contains linked clips that are not stored in the project folder, a message is displayed, warning you that linked clips cannot be archived as the media does not reside within the current project. You should back up these files separately.

If you are archiving video media to tape, after the project archive is created (and the audio is archived), the Creating Media Archive dialog box opens.



8. In the Archive Tape Options box, select a device to which you want to archive the media files.
9. In the Archive Tape Options box, type a value in the In-point timecode box to set the starting timecode of the archive on the tape. By default, the in-point timecode is set to 00:00:00:00.
10. Click the **Continue** button.

Your media files are archived to tape.

Click the **Help** button for detailed information on the Creating Media Archive dialog box.

After you've archived your project, make sure that there is an archivetape.log file in the archive folder. Without this log file, you cannot restore your media. It is also a good idea to compare the timecodes in the archivetape.log file with those on the archive tape. If they're the same, you shouldn't have any problems restoring your project. If they're different, however, archive the project again.



The archive.log file contains the Avid DS Nitris version number, so you know which version you were using when the archive was created.

Once the archive is complete and you have checked the log file, you can delete your project to make space on your disk. For more information, see [“Deleting Projects” on page 470](#).



If you want to archive a project with a non-standard video format, you can create an archive of the project files only (do not include the media), and then back up the folder that contains the media for your project on another medium, such as CD-ROM or DLT. When restoring this project, all you have to do is make sure you copy the folder containing the media files back to its original location. All the media will be linked back to the original master clips inside the project. See [“Archiving on Other Media” on page 462](#).

Creating a Complete Archive on Multiple Tapes

If you archive a large project and its media, you may find that one tape is not enough to hold all your media.

You can create an archive with two tapes, with each one containing different types of media, such as:

Archive	Contents
Project	Project data, audio media, audio cache
Tape 1	Project data and video media
Tape 2	Project data and video cache

It’s very important that the project data for both archives are identical for you to be able to restore the project accurately at a later date. It’s also important that you archive video caches on tape 2. Then when you restore the project, make sure to restore tape 1 before tape 2, so that the video caches link to the master clips.

If you want to archive video media at more than one compression or resolution, you can create additional tapes for the media and its caches. However, for a single media type, an archive is limited to one tape for video media and one tape for video caches.



Be sure to keep track of which projects were archived using the multiple archive method as Avid DS Nitris does not remind you when it comes time to restore the project. It is also important to name your tapes appropriately, so that you can easily distinguish the media on the tapes.

To create multiple archives of the same project:

1. Check the device that you want to use to create the archive—see [“Creating a Device Preset Before Archiving” on page 456](#).
2. Select **Data Management > Project Manager**.
3. From the Project Manager, select the **Archive** tab.
4. Select a project to archive.
5. Select the following media archive options:
 - Archive video media files to tape
 - Archive audio media files to disk
 - Archive audio cache media to disk
6. For the video media, select a compression rate, resolution, and bit depth of the media you want archived. For the audio media and audio cache media, select a sample rate.
7. Type a path in the **Project Archive Destination** text box where you want the project archive to reside.
8. Click the **Archive** button to begin archiving the first part of your project.
The project files and audio media are archived to disk and the Creating Media Archive dialog box is displayed before it starts to archive any video media.
9. In the **Archive Tape Options** box, select the device to which you want to archive the media files.
10. Type a value in the **In point timecode** box to set the starting timecode of the archive on the tape. By default, the in-point timecode is set to 00:00:00:00.
11. Click the **Continue** button.
Avid DS Nitris archives your video media to tape.
12. Without making any changes to your project folder, select the same project to archive by selecting it from the list of displayed projects.
13. From the Media Archive Options box, select the **Archive video cache files to tape** option.

14. Select the compression rate, resolution, and bit depth of the media you want to archive.
15. Click the **Archive** button to begin archiving the cache media.

The project data is archived to disk again and the Creating Media Archive dialog box is displayed.
16. From the Archive Tape Options box, select the device to which you want to archive the media files.
17. Type a value in the **In point timecode** box to set the starting timecode of the archive on the tape. By default, the in-point timecode is set to 00:00:00:00.
18. Click the **Continue** button.

Avid DS Nitris archives your cache media to tape.

After you've archived your project, make sure that there is an archivetape.log file in the archive folder. Without this log file, you cannot restore your media. It's also a good idea to compare the timecodes in the archivetape.log file with those on the archive tape.

Archiving on Other Media

You cannot create archives directly on removable media (aside from videotape). However, you can back up an archive and its media in the following ways:

- Compress a project archive and copy it to another medium. For example, create a Zip archive and copy it to a CD-ROM, CD-RW, or DLT.
- Directly copy media files from a media files folder to a folder on another medium. When restoring this project, make sure you copy the folder containing the media files back to its original location. All the media will be linked back to the original master clips inside the project. Refer to the archive.log file in the archive folder for the alphanumerical folder name and path in which to restore the project media location.

For information about restoring projects, see the next section.



Restoring Projects

Projects are archived when a job is completed, to create backups of your project files, or to move a project to another workstation. If you need to work on the project again, you simply have to restore it. You can restore the project files, as well as any video and/or audio media that was archived with it.

If you only want to work on a small portion of an archived project, you can select the parts of the project you want to restore.

Information about archived files can be found in text files in the project's archive folder. The archive.log file records the dates of all archive and restore operations for a selected archive, and the archivetape.log file keeps a list of all its archived media files. You can use this file to determine the compression ratios and resolutions at which the media was archived.

Note the following:

- You can restore media only if its frame rate and video format are compatible with the current sequence format. For example, you cannot restore an NTSC archive while you are working in a PAL sequence. Similarly, you cannot restore an HD archive in an NTSC sequence.
- Avid DS Nitris restores video media in the first video storage that is defined in the Installed Media Storages list, and restores audio media in the first audio storage defined. If there is not enough room on the first storage, Avid DS Nitris restores the remaining media on the next appropriate storage (video or audio). If you want the media created in a particular storage, use the Move Up button to move the storage to the top of the list. For more information, see [“Maintaining your Storage Locations”](#) in the Help.
- If you restore a project that contains third-party plug-in effects onto a machine that does not have the plug-ins installed, the effects will appear over the clips they were applied to, but they will be empty. They will be editable after you install the plug-ins.
- Video and audio cache files cannot be restored from archives created in a version earlier than Avid|DS 6.0. When restoring this type of archive, a message is displayed, and the options for restoring cache files are dimmed.

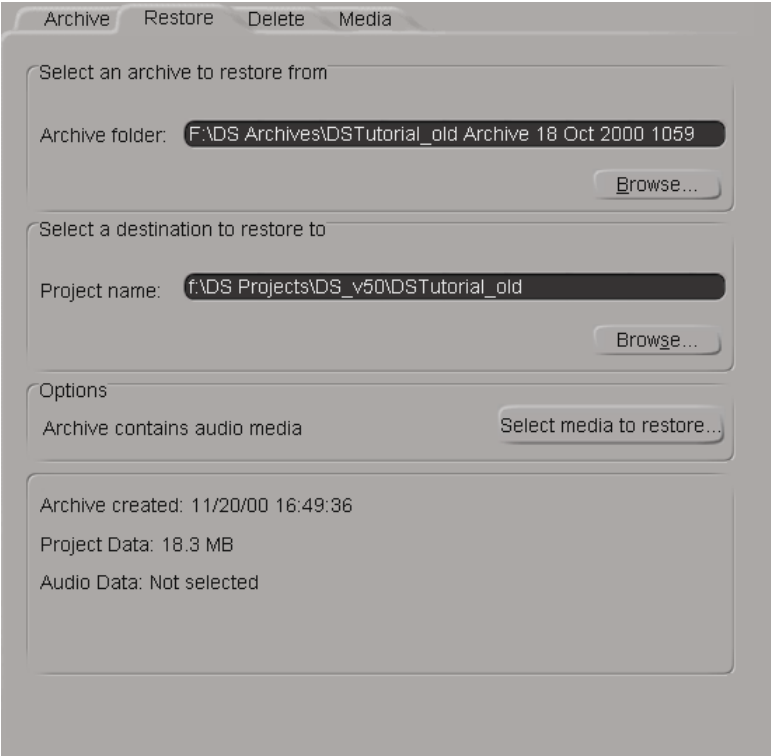
- If you are restoring from an archive in which one or more video compressions (codecs) are no longer supported, a dialog box is displayed. Use this dialog box to substitute a supported codec.
- You can restore an archive only from a drive or device that supports both read and write operations. For example, you cannot restore an archive directly from a read-only CD-ROM. To restore from a CD-ROM, copy the archive to a local drive and clear the read-only option on the main folder and all subfolders.
- When restoring a project and opening sequences of that project, missing Graphics titling fonts are logged in the Avid Event Log. By checking the log, you'll see exactly which fonts are missing on your system.

Restoring a Complete Project

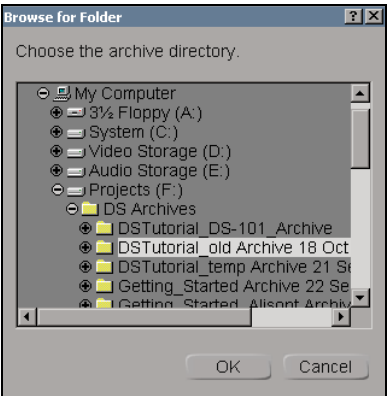
From the Project Manager, you can restore the project files and corresponding media. If you're restoring a project whose media was archived on more than one tape, see [“Restoring a Project Archived on Multiple Tapes” on page 469](#).

To restore a complete project:

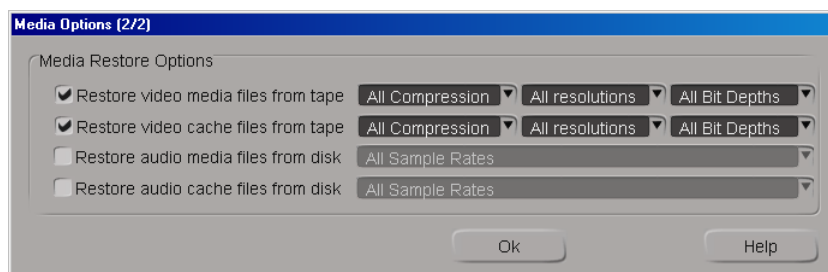
1. Select **Data Management > Project Manager**.
2. Select the **Restore** tab.



3. In the Archive Folder text box, type the location of the archived project file that you want to restore, or click the **Browse** button to search for the file.



4. In the Project Name text box, specify the folder in which you want to place the restored files.
5. If you want to restore the project's media, select the **Select media to restore** option from the Options box.
The Media Options (1/2) dialog box lets you select specific clips or sequences for which you want the media to be restored.
6. Since you want to restore the complete project, leave this dialog box inactive and click **OK**. The Media Options (2/2) dialog box is displayed.



7. Select the type of media you want to restore and its corresponding compression ratio, resolution, bit depth, or sample rate, and click **OK**.

If you have video material archived on tape, you will be prompted to insert the tape into the deck. If you have audio material on disk, it will automatically be restored from your archive.

8. Click the **Restore** button.

If you're restoring material from videotape, Avid DS Nitris controls the deck, searches for the appropriate footage on the tape, and then captures it.



If you encounter problems restoring material from tape, you should disable the viewer using the Viewer button in the status bar and try capturing again. When restoring full resolution HD material at 29.97 and 30 frames per second, the viewer is automatically disabled.

Avid DS Nitris usually stops the deck, rewinds, and then pre-rolls before capturing material. With an archive, however, the media should be stored on tape one right after the other. As a result, the pre-roll is skipped and all the media is captured in one pass. This feature, known as *streaming capture*, greatly reduces the time to restore an archive.



*If the restoration is not entirely successful, that is, some clips were not restored, click **Restore** to recapture the missing clips.*

9. After a project is restored, open the project through the Open Project dialog box or by selecting **File > Open Project**.
10. To complete the restore, save the project and its sequences.

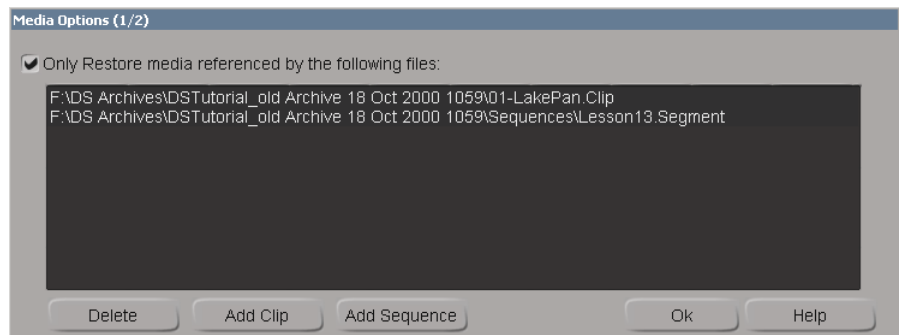
Restoring Parts of a Project Archive

At times, you may only want to restore part of a project, some of its clips, or one particular sequence. Avid DS Nitris lets you select the project files and associated media files to restore.

To restore parts of a project archive:

1. Select **Data Management > Project Manager**.
2. Select the **Restore** tab.
3. In the Archive Folder text box, type the location of the archived project file that you want to restore, or click the **Browse** button to search for the file.
4. In the Project Name text box, specify the folder in which you want to place the restored files.
5. To restore the media of a selected part of your project archive, click **Select Media to Restore** from the Options box.

The Media Options (1/2) dialog box lets you select specific clips or sequences for which you want the media to be restored.

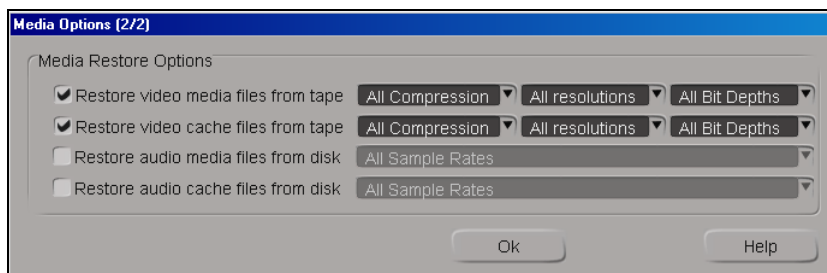


6. Select the **Only Restore media referenced by the following files** option to activate the selective restore function.
7. Click one of the following:
 - ▶ **Add Clip** to select individual clips for which you want the media to be restored.
 - ▶ **Add Sequence** to select individual clips for which you want the media to be restored.
8. In the Avid Explorer, select the clips or sequences for which you want media to be restored and click **OK**.
The selected clips or sequences are displayed in the Media Options (1/2) dialog box.



*To remove items from the list, select the items and click **Delete**.*

9. When you have all the clips and/or sequences you want, click **OK**.
The Media Options (2/2) dialog box is displayed.



10. Select the type of media you want to restore and its corresponding compression ratio, resolution, bit depth, or sample rate, and click **OK**.
If you have video material archived on tape, you are prompted to insert the tape into the deck. If you have audio material on disk, it is automatically restored from your archive.
11. Click **Restore**.
If you're restoring material from videotape, Avid DS Nitris controls the deck, searches for the appropriate footage on the tape, and then digitizes it.

Restoring a Project Archived on Multiple Tapes

You can restore a project whose media was archived on multiple tapes. As the project files are archived with each tape, you must be careful not to overwrite your project files.



In order for cache media to be recognized, master clip media must be present. Thus, to make sure the video caches link properly, restore tape 1 (master clip media) before you restore tape 2 (video caches). For information about archiving a project on multiple tapes, see “Creating a Complete Archive on Multiple Tapes” on page 460.

To restore a project archived on multiple tapes:

1. Select **Data Management > Project Manager**.
2. Select the **Restore** tab.
3. In the Archive Folder text box, type the location of the archived project file that you want to restore, or click **Browse** to search for the file.
4. In the Project Name text box, specify the folder in which you want to place the restored files.
5. From the Options box, select the **Select media to restore** option to restore the audio media files.

The Media Options (1/2) dialog box is displayed.

6. Since you want to restore the complete project, leave this dialog box inactive and click **OK**.

The Media Options (2/2) dialog box is displayed.

7. Select the audio media and audio cache file options, and then click **OK**.
8. Click the **Restore** button.

After the project data and audio media files are restored, you can begin restoring the video and cache files.

9. Repeat steps 2 to 8, but this time restore your video media files. When Avid DS Nitris asks you if you would like to skip the restoration of the project information, click **Yes**.

By choosing Yes, you are only restoring the video media files and not overwriting the project data.

10. Repeat steps 1 to 7 again, but this time restore the video cache files.

Your entire project with media and cache files are now restored. You can open the project from the Project Manager and work with your sequences.

Moving Projects to Another Workstation

You can easily move your project files to another Avid DS Nitris workstation. Simply archive your files with or without the associated media, copy them to a folder on the new workstation, configure the media storages so that they match those of the machine on which the project was archived, and then restore the project.

You cannot restore a project if it already exists in an Avid DS Nitris workgroup. You restore the project only on a system that belongs to a different workgroup or if the original project was deleted after archiving.



If you want to move individual media files, see “Moving Media” on page 446.

To move a project to another workstation:

1. Archive your project to a location on the network—see “[Archiving Projects](#)” on page 454.



Make a note of your current storage paths, so that you can easily configure the storages on the new workstation where you will be restoring your project.

2. On the new workstation, make sure that you’ve configured the same storage areas as the machine on which you archived your project—see the “[Maintaining your Storage Locations](#)” of the *Avid DS Nitris Installation and Administration Guide*.
3. Restore your project from the network location—see “[Restoring Projects](#)” on page 463.

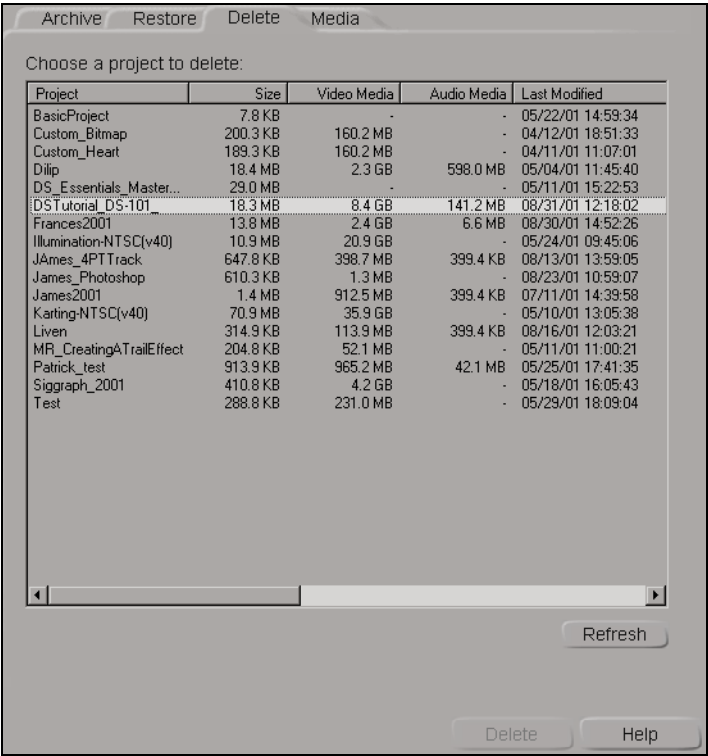
Deleting Projects

When you no longer need a project, archive it first and then delete it from your system. For more information, see “[Archiving Projects](#)” on page 454.

When you delete a project, the project folder, project files, and all media associated with the project are deleted.

To delete a project:

- 1. Close the project that you want to delete.
- 2. Select **Data Management > Project Manager**.
- 3. From the Project Manager, select the **Delete** tab.



- 4. Select a project to delete by selecting it from the list of displayed projects.
- 5. Click **Delete**.
You are prompted to confirm your decision.
- 6. Click **Yes** to delete the project and its media.

Deleting Clips

When you first capture media into Avid DS Nitris, a master clip is created in a bin in the Avid Explorer to represent the digitized media on your storage device. If you no longer require the master clip, you can delete the clip from the project.

Be careful when you delete a master clip, because deleting a clip can also delete its associated media, depending on the option that you choose.

Since master clips and their media are stored separately, you can delete the media, but keep the clip so that you can later recapture the media. For more information, see [“Purging Media” on page 448](#). For a comparison of deleting and purging, see [“Example: Purging versus Deleting Media” on page 453](#).

You delete subclips the same way you delete master clips.



For information on deleting a sequence, see [“Deleting Sequences” on page 95](#).

To delete a clip from a bin:

1. In an Avid Explorer bin, select the clip or clips that you want to delete.
You cannot delete a clip while it is displayed in the Source viewer
2. Right-click a selected clip, and select one of the following:
 - ▶ **Delete Clip & Unused Media:** Deletes the clip. Also deletes the media for the clip if the media is not used in a sequence or in another master clip in the current project. If the media is being used, then only the clip is deleted and not the media.
 - ▶ **Delete Clip & All Media:** Deletes the clip and associated media even if this clip or its media is used elsewhere. Although this is a quick way to create more disk space on your drive, it can be risky. You should only do this when you’re absolutely sure that you no longer need the media associated with this clip.

A dialog box asks you to confirm the deletion. Click **Yes**.



Selecting the Delete option under the Windows section of the menu or pressing the Delete key deletes the selected master clips, but does not delete the associated media.



A progress bar is displayed, showing that the delete is in progress. You can click Cancel to stop the delete process.



You can also delete clips by using the Media Tool—see “Using the Media Tool” on page 438.

Viewing Information about Storage Devices

The Media property page of the Project Manager gives you detailed information on your storage devices. You can find out the exact location and size of your storage, the free disk space available, and the percentage that is full. It provides information on which projects have associated media on the device and lets you delete media folders.

To view information about storage devices:

1. Select **Data Management > Project Manager**.
2. From the Project Manager, select the **Media** tab.



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