



Avid® | DS

USER'S GUIDE





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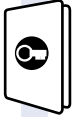
Chapter 1 **Getting Started**



The Avid|DS Learning Roadmap



The Avid®|DS package includes a comprehensive set of learning materials. With this Roadmap, you'll know where to find the information you need to get up and running quickly and effectively.



Start with the **Workstation Setup Guide** to prepare your site for Avid|DS and assemble your workstation. Use the **Installation & Administration Guide** should you need to reinstall and license any of the components, or for tips on the daily maintenance of your system.



Refer to the **Release Notes** for feature limitations and workarounds.



If you're new to Avid|DS, work through the **Tutorial** to learn how to use the features in the context of a basic production. This full-color tutorial gives you step-by-step instructions on how to create a two-minute spot.

Or, if you prefer, get hands-on training by taking the DS-101 course. This course is the classroom version of the standalone Avid|DS Tutorial book.

For details, visit <http://softimage.com/avidds>.



If you're already familiar with Avid|DS, follow the **New Features Tour** online. It briefly describes all the new features in version 5.0 with a set of QuickTime clips that provides visual overviews of some of the features.

The tour is available from the **Drivers CD** or, if it was installed on your system, you can run it from the Help menu in Avid|DS.



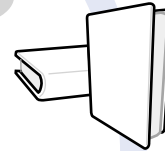
Avid|DS Discussion Group

You can join the worldwide network of Avid|DS users exchanging ideas and techniques by e-mail. To subscribe, send an e-mail to majordomo@softimage.com with the following text in the body of your message: **subscribe ds**.

At **Avid|DS Authorized Training Centers (ATCs)** around the world, you can further your Avid|DS education by attending the DS-201: Essentials and DS-301: Compositing & Graphics courses. These multi-day courses teach you about the interface and workflow while producing short projects. For details, visit <http://avid.com/education>.



The **Drivers CD** contains the New Features Tour and all the Avid|DS documentation in electronic form (PDF format). See next page for how to use the Documentation Library.



The **User's Guide** contains comprehensive information on how to perform basic and advanced post-production tasks.

The **Compositing & Effects Guide** contains information and visual examples on how to use effects in Avid|DS, and shows you how to perform compositing and tracking.



The **New Features Guide** briefly describes the many new features you'll encounter in version 5.

When you see this icon , it means there's a corresponding multimedia demo in the online version of the New Features.



The **online help** contains on-screen reference information on interface elements, commands, and parameters. There are two ways to access it:

- Click the ? icon or Help button in any property editor or dialog box.
- Choose **Help > Contents and Index** from the main menu bar in Avid|DS.

Comments?

We'd appreciate any comments or suggestions you may have about this book or any other piece of our documentation. Just send them to: dsdocs@avid.com.

Shortcuts are available under the Help menu in Avid|DS. Print out the **Shortcut** card and the **Quick Reference Card** and you'll always have these editing tips handy.



Using the Documentation Library

The Documentation Library contains the New Features Tour, as well as all the Avid|DS documentation in PDF format. If it was installed on your system, you can access it from the Help menu in Avid|DS.



You will need Adobe Acrobat Reader installed to view the documentation online. If you do not have it installed, you can download it from <http://apple.com/quicktime/download/>.

To access the Documentation Library

- In Avid|DS, select **Help** > **Documentation Library**.

or

1. Insert the Drivers CD in your CD-ROM drive.
2. From the main menu, select **Avid|DS Documentation**.

Document Conventions

This guide uses the following symbols and conventions:

- Bold** Bold is used for menu commands, dialog box and property editor options, and file/folder names.
- Italics* Italics place emphasis on certain words.
- > The greater than (>) sign indicates menu commands (and subcommands) in the order that you choose them. For example, **File > Import** means to open the File menu and then choose the Import command. This applies to menus from the main menu bar and pop-up menus that appear when you right-click on the interface.



Notes are reminders or contain important information.



Tips are useful bits of information, workarounds, and shortcuts that you may find helpful in a particular situation.



Warnings are used when you can lose or damage information or equipment, such as deleting data or not being able to easily undo an action. Warnings always appear *before* you attempt a task!

Mouse, Pen and Keyboard

In Avid|DS, 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. The following table shows the terms relating to the mouse, pen, and keyboard.

This term	Means this with a mouse	Means this with a pen
Click	Quickly press and release the left mouse button. Always use the left mouse button unless otherwise stated.	Tap the tablet once with the tip of the pen, or touch the pen to the tablet with enough pressure to click.
Double-click	Click the left mouse button twice rapidly.	Quickly tap the tablet twice in the same screen pixel or press the F5 key to go from single to double-click.
Right-click	Quickly press and release the right mouse button.	Press the top portion of the switch on the side of the pen or press the F6 key to go from left to right-click.
Drag	Hold down the left mouse button or the wheel while you move the mouse.	Press the pen to the tablet while moving the pen.
Alt+key, Ctrl+key, Shift+key, etc.	Hold down the first key while you press the second key. For example, "Press Alt+F1" means to hold down the Alt key while you press the F1 key.	

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 WACOM ArtZII documentation provided with your Avid|DS 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 NT or Windows 2000 online help.



Avid|DS Support



Technical support for Avid|DS is provided by your Avid reseller working together with Avid|DS Customer Service. Immediate assistance for any technical issue is available through our hotline, e-mail, and web support services.



Licensing Support



You must contact your reseller to request a license for your Avid|DS system. You can do this through your reseller or through the license request form under **Licensing** at <http://softimage.com/avidds>.

Training Support

If you're interested in Avid|DS training, you'll find a complete overview of courses, education centers, and training programs under **Education** at <http://softimage.com/avidds>.

Hotline Support

Avid resellers provide first line support for Avid|DS according to their specific geographical area and time zone. Working as an extension of Avid|DS Customer Service, these fully trained agents provide the most efficient and effective support possible to all our customers.

Contact information for your Avid reseller is available through the Avid Reseller Locator at <http://avid.com/cgi/locator/index.asp>.

You can reach Avid|DS Customer Service at the following:

Avid|DS Customer Service

North America

tel: 1 800 387-2559

fax: 1 514 845 8252

Worldwide

tel: 1 514 845-2199

fax: 1 514 845 8252

9:00 am to 9:00 pm (Eastern)

2:00 pm to 2:00 am (GMT)

Hotline assistance is also available 24 hours a day, 7 days a week for an additional fee.

Europe

tel: 44 175 365 0670

fax: 44 175 365 8503

9:00 am to 6:00 pm (GMT)

4:00 am to 1:00 pm (Eastern)

E-mail & Web

e-mail: dssupport@avid.com

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You can reach Avid Technology, Inc. at the following addresses:

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Avid|DS Mailing List

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, with 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.

Web Support

The Avid|DS Support and Download sections at <http://softimage.com/avidds> provide 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 your Avid|DS system. Online documentation, tutorials, and Knowledge Base articles ensure you get the most out of your work with Avid|DS. It's like having a dedicated Avid|DS Customer Service engineer sitting at your desk!



Comments?

We'd appreciate any comments or suggestions you may have about this book or any other piece of our documentation. Just send them to:
dsdocs@avid.com.



Logging on to Your Workstation

Avid|DS is designed to make full use of the Windows operating system. This includes setting user preferences on an individual basis.

Before you start Avid|DS, you must log on to your Windows workstation with your user identification. Each user has a unique profile, so as not to conflict with the settings of other users on the same workstation. After you log on, you can start Avid|DS.

To log on to your Windows workstation, you will need a personal identification (user ID). This provides security, as well as individual preference settings.

The user ID gives each user a unique profile, and lets you access an environment associated with your Windows user ID. This includes your customized layouts, key bindings, and preferences.

A user profile contains your user preferences, such as layouts, toolbar contents, and keymaps. Each user has a separate profile that is associated with their user name and automatically stored on a local drive. This profile is used each time you start Avid|DS.

When you set any personal or project preferences while logged on, Avid|DS saves them to your user ID. The next time you log on to that machine, it recalls your previous settings.

To log on to a Windows workstation

- On your Windows workstation, enter your user name and password to access your applications and files.

Starting Avid|DS

You can start Avid|DS by double-clicking its icon on the desktop or by choosing Avid|DS from the Start menu.

To start Avid|DS from the Start menu

- On the Windows desktop, click **Start** and choose **Programs > Avid Products > Avid|DS v5.0 > Avid|DS v5.0**.



If you selected the **Load Last Sequence at Startup** option in the User Preferences dialog box, and would like to bypass this option, press Shift and double-click on the Avid|DS shortcut on the desktop. This starts the application and displays the Project Browser dialog box from which you can choose a different project.



Exiting Avid|DS

After you've completed your work session, save your work, and exit Avid|DS. If you made any changes to the desktop layout or user preferences, you can save them to your user profile and recall them the next time you start Avid|DS.

To exit Avid|DS

Do one of the following:

- From the File menu, choose **Exit**.
- Click the **Close** button at the far right of the title bar.
- Click the Avid|DS icon at the far left of the title bar and choose **Close**.
- Press Alt+F4.



Chapter 2 **Working with Projects**



In This Chapter...

This chapter describes how your project files and media are handled in Avid|DS. Since project organization plays a key part in the editing process, you will learn how to set up a project and use the browser to organize your media into folders. You will also learn how to use your disk space efficiently by purging and archiving media.

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Working with Projects

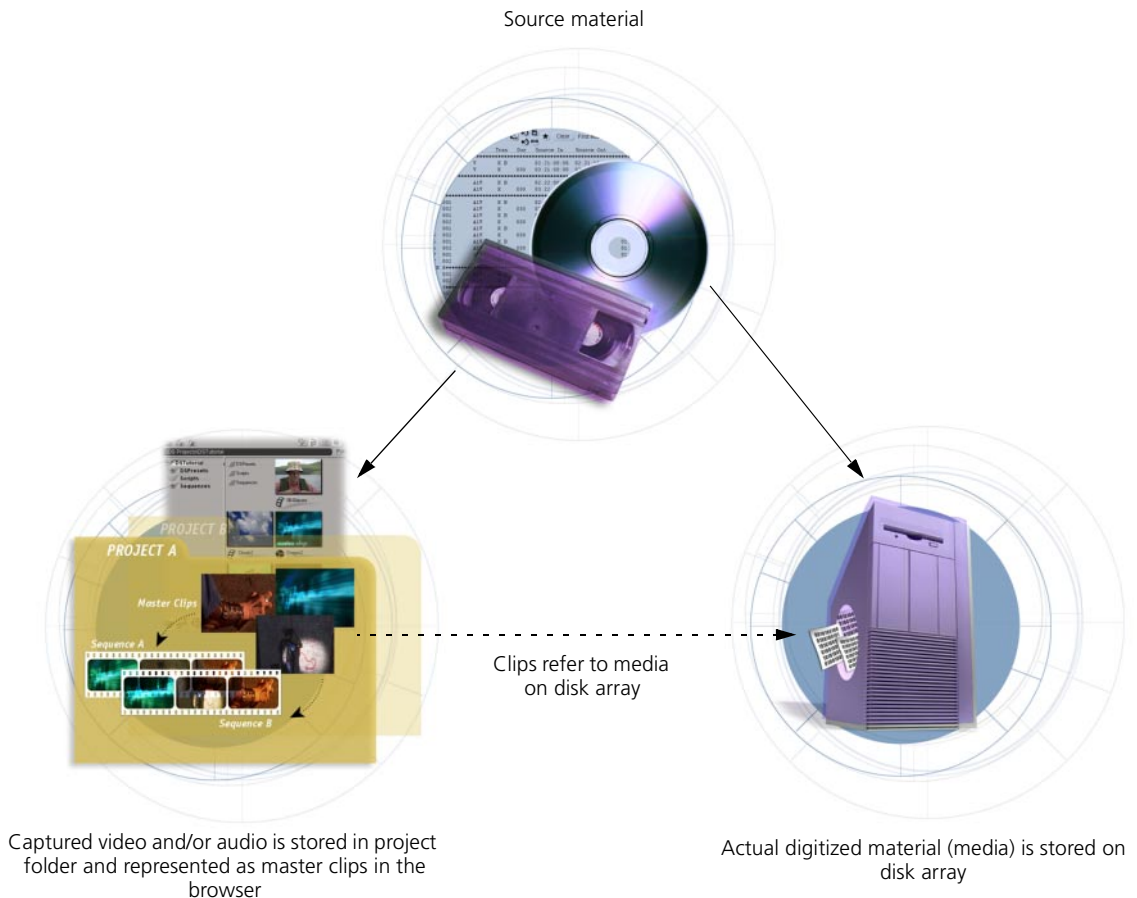
A project is the all encompassing structure for your work, linking and tracking the master clips and sequences with their associated media to make your file management tasks easier.

When working with several digitized video and audio files it is important to understand how Avid|DS handles your data, so that you can work efficiently.

What is Media?

Media is the digitized form of source material after it's been captured and imported from tape or file into Avid|DS. Also, media is created when you apply an effect, transition, or composite in the sequence to the originally captured data (source media) and then process it.

Processed media is called a *cache*; it is stored separately from the source media. When Avid|DS encounters processed effects during playback, it uses the cache instead of the source media.





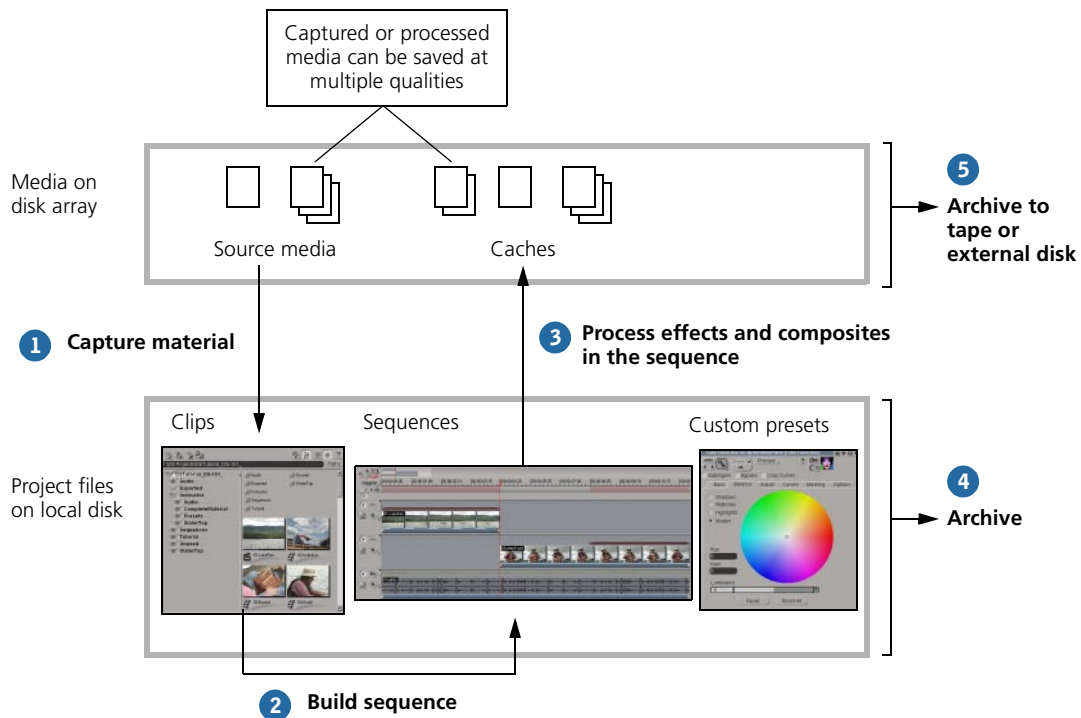
Working with Media and Project Files

When you capture source material, the media is stored on the disk array, and the master files (known as *clips*) representing this media are stored on your workstation's local disk drive. You can see these clips in the Avid|DS browser. Clips in the browser contain information about the location and source timecodes of the corresponding media on the disk array.

As you build sequences on the timeline, the edits that you apply to the clips are kept in a sequence file. Clips, sequences, and presets are all considered project files, which should be stored in the project folder. That way, you can archive, restore, and/or purge them when required.

When you archive your project, a compressed copy of all the project files is saved in another location. With the archived files and source tapes, you can reconstruct everything in your project.

The following illustration shows how project files and media are handled in Avid|DS:

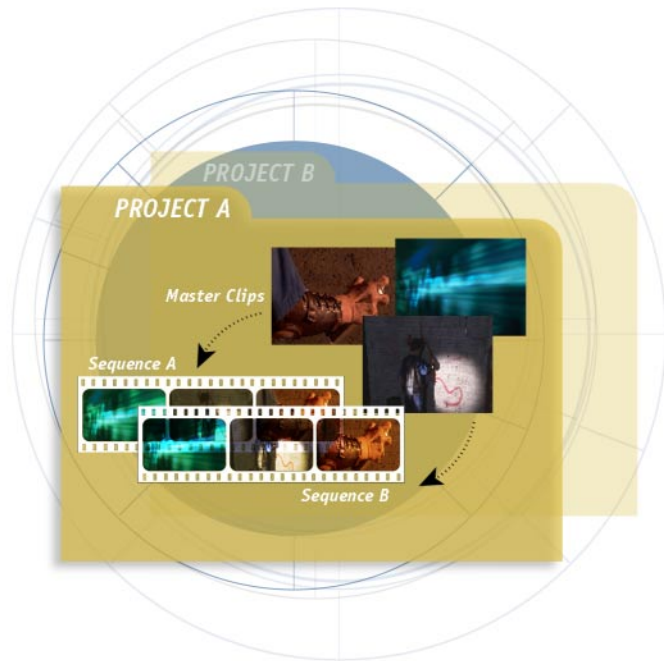




Managing Projects

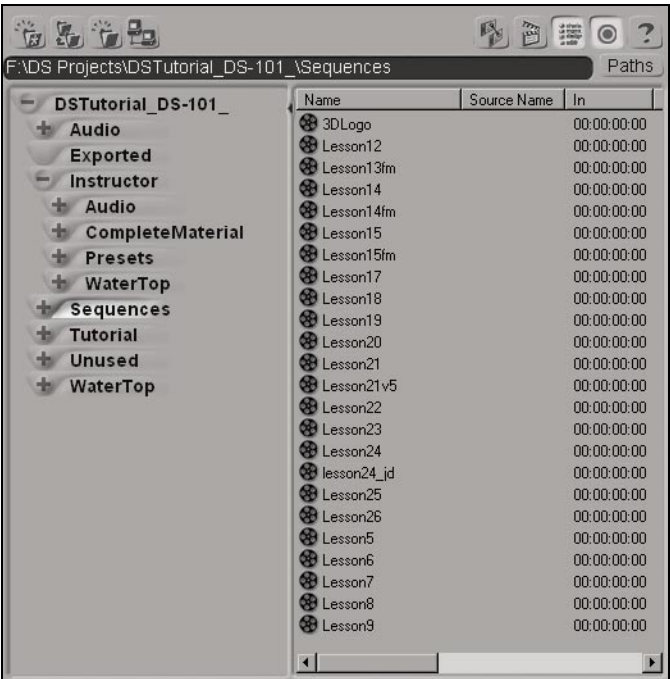
Project management is a key part of the editing process. When working with digitized video and audio, it's easy to consume large amounts of valuable space. For that reason, you must use your storage space efficiently.

Managing a project involves organizing, moving, and copying your project files to subfolders. In addition, you must delete clips, or purge media and cache files that you no longer need. You can also archive projects that have been completed, and restore them only when you need to work with them.





When working on long projects, such as a corporate videos or TV programs, you can perform the numerous editing jobs either within individual sequences or by creating reference clips. For example, if you have several scenes in your project, you can create a separate sequence or reference clip for each scene. By dividing the project into several manageable sequences, you can work more efficiently. This can also reduce the memory load on your system, which speeds up load and save time, and timeline interactivity. For more information, see *Referencing Sequences* on page 266.



A project containing several sequences

Organizing your Project Folder

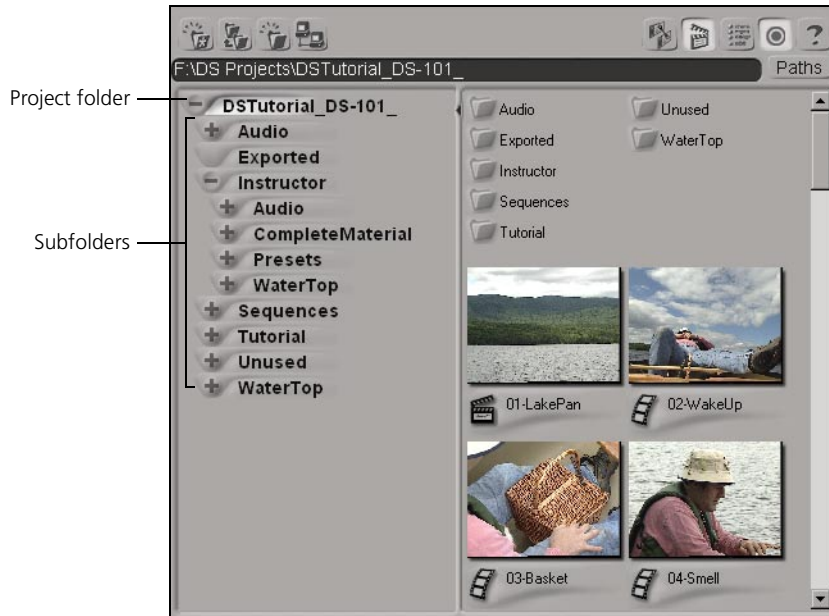
The Avid|DS browser lets you organize your project files and manage your media. You can organize your clips and sequences into smaller more manageable groups by using folders. From the browser, you can also delete project files or media that you no longer need.

 Although the browser displays all the folders on your system, do not use it to move folders that do not belong to Avid|DS.

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

Having all of your project files contained in one master project folder lets you archive this project separately from your other jobs. It also keeps a job secure, while you're working on jobs for other clients.

Here's an example of how you can organize a project.



You can create a shortcut to the folder in which you store your master clips or custom effects. For more information on setting favorite folders, click the Help icon.

To create a folder

1. In the browser tree, select the folder in which you want to create a subfolder.
2. Click the New Folder icon.



The New Folder dialog box is displayed.

3. Enter a name for the folder in the **Name** text box and click **OK**.

If necessary, expand the tree to see the new folder.

To delete a folder

- In the Contents view of the browser, right-click on a folder and choose **Delete** from the menu.



Renaming Project Files

You can rename a master clip, sequence, or folder in your project. When you change a clip name, it does not affect the name of its corresponding clip on the timeline.



You cannot change the name of a sequence while it is open, nor can you change the name of a clip that's being previewed in the dual viewer.

To rename a clip, sequence, or folder

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



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

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

- In the Contents view of the browser, drag a clip to a folder in the browser tree. If your files are displayed in Thumbnails mode, drag the image portion of the thumbnail.



To make a copy of this file in another folder, hold down the Ctrl key when dragging the clip.



The No Entry icon changes to a Move icon when you place the pointer over a folder in the browser tree.



You cannot move clips or sequences between projects, but you can make copies. To copy a clip or sequence from one project to another, right-click on the sequence or clip and choose **Import to Current Sequence** from the menu. For more information, see *Importing Sequences from Another Project* on page 154.

Creating a Standard Folder Structure

If you want Avid|DS to create a standard folder structure for new projects, you can create an .ini file that will specify what folders will appear in the browser 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 user.

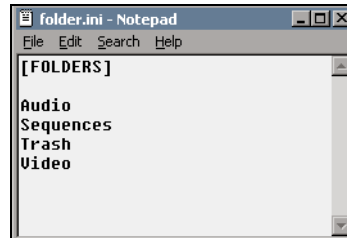
Click on this area of the thumbnail to select the clip





To create a standard folder structure for new projects

1. Open a text file using a text editor.
2. In the first line of the file, type the following in uppercase letters: [FOLDERS].
3. Type in the folders you want to appear in the browser. For example:
 - Audio
 - Sequences
 - Trash
 - Video



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 browser.

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

C:\Program Files\Avid\DS_v5.0\Preferences\(*username*)

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

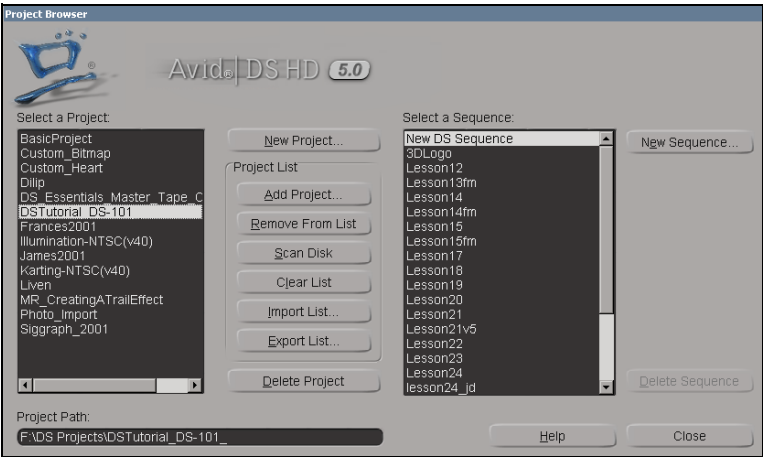


The DSPresets and Scripts folders are created by default.



Opening Projects

Avid|DS lets you create and open projects from a dialog box so that you can view and manage all projects anywhere on the network. Each project in the list has its own list of sequences. When you open a sequence, you automatically open its associated project, so that you access all the master clips and custom presets stored in the project folder.



Project Browser dialog box

By default, all projects created with Avid|DS are stored in 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 on your workstation, new projects will be classified by version, and will be stored in a subfolder of the DS Projects folder. You can use the Scan Disk option to change the project path folder, to display only the projects in a particular version folder.



Creating a New Project

When you first start Avid|DS, 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.

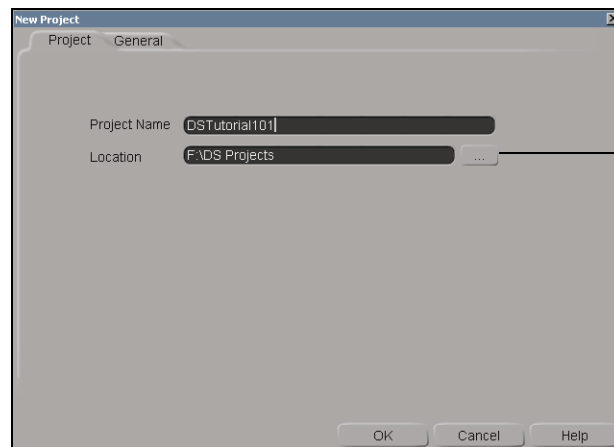
Project preferences define the way your material is captured, processed, and output by Avid|DS. Once you set the project preferences, they become the default settings for the sequences that you create in this project.



By default, the sequence preferences come from the project, but you can still customize the preferences for each sequence. For more information, see *Setting Sequence Preferences* on page 131.

To open a new project

1. Do one of the following:
 - From the Project Browser dialog box, click **New Project**.
 - From the File menu, choose **New > Project**.



New Project dialog box

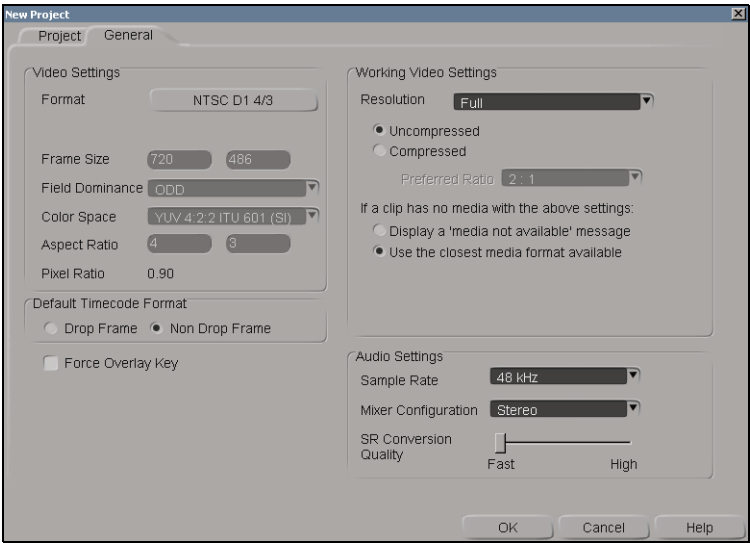
2. In the New Project dialog box, enter a unique name for your project in the **Project Name** text box.
3. In the Location text box, enter the path where you would like the project files to reside.

You can also use the browse (...) button to locate the folder in which you want to save your project.



4. On the **General** property page, set the video and audio settings for your project.

Click **Help** for detailed information on the New Project properties.



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

The Editing layout is displayed for you to start building your sequence, and the browser displays your project as the favorite. For more information on setting favorites in the browser, click **Help**.



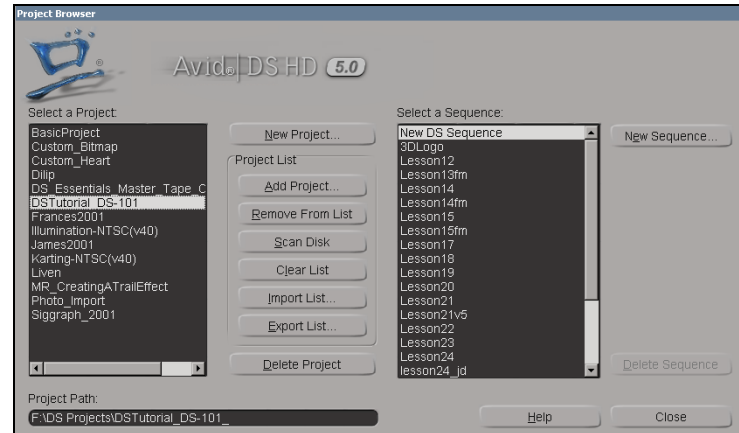
Opening an Existing Project

Once you've created project folders in Avid|DS, they are presented as a list from which you can choose a specific project or sequence.

To open an existing project on your workstation

1. From the File menu, choose **Open > Project**.

The Project Browser dialog box is displayed.



Project Browser dialog box

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 on an existing sequence name or click on the sequence name and then click **Open**.

If you created a new sequence, the New Sequence dialog box is displayed. You must set the sequence preferences and then click **OK**. For more information, see *Setting Sequence Preferences* on page 131.

A new or existing sequence is opened.

To open an existing project on another workstation

1. From the File menu, choose **Open > Project**.

The Project Browser dialog box is displayed.

2. From the Project List box, click **Scan Disk**.

The Scan Subdirectories for Projects dialog box is displayed.



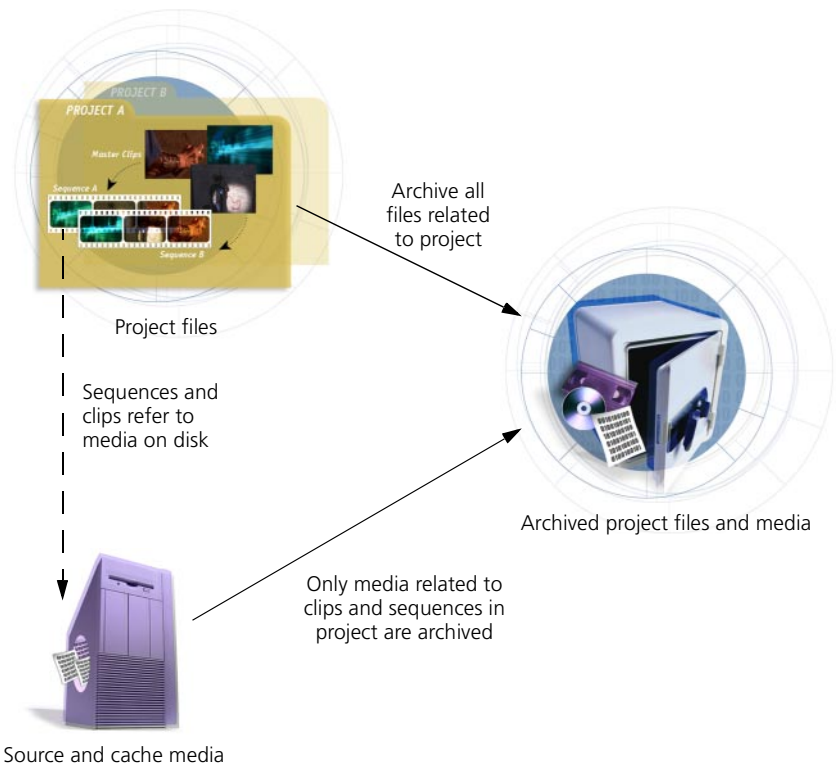
Archiving Projects

3. Locate the DS Projects folder on the network that contains the project you want to open and click **Select**.

Avid|DS searches through the selected folder and creates a project list. You can now open any one of these projects and/or sequences.

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.

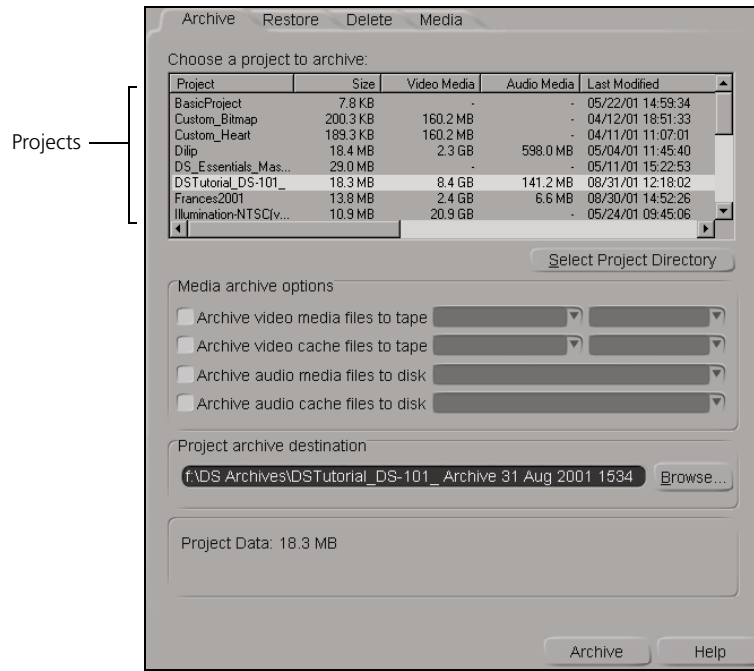
You can archive both the project files and its related media. If you choose to archive only the project files, you can recapture the media easily once the project is restored.



To archive a project



1. From the Media Input/Output layout, click the Project Manager icon. The Project Manager is displayed.
2. Select the **Archive** tab.



- Choose a project to archive by selecting it from the list of displayed projects.



You can archive projects from anywhere on the network. To access other project folders, click **Select Project Directory**, navigate to the desired location, and then click **Select**. The projects in the selected folder appear in the project list.

- 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 and resolution for the media you want to archive. For audio media and audio cache media, you must specify a sample rate.

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 Multiple Archives of the Same Project* on page 38.

Click **Help** for detailed information on the media archive options.



5. 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:
- Enter the path in the **Project Archive Destination** text box.
 - Click **Browse** to search for the appropriate folder.

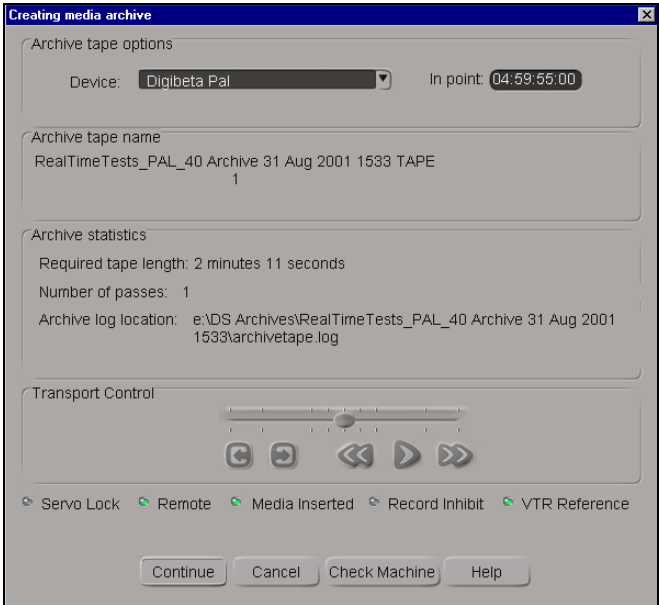


Avid|DS does not let you archive a project at the root of a drive, such as F:\. The archive must be within a folder. For example, F:\DS Archives\ is a valid location for a project archive.

6. Click **Archive** to begin archiving your project.

If your project contains linked clips, a message is displayed, warning you that linked clips cannot be archived as the media does not reside within the current project. You should backup these files separately.

If you are archiving video media to tape, once the archive is opened (and the audio is archived), the Creating Media Archive dialog box is displayed.



7. In the Archive Tape Options box, select a device to which you want to archive the media files.



Before starting the archive, create an external device preset, so that it is available from the Device list when you archive your media to tape. For more information on creating an external device preset, see *Configuring the External Device* on page 74.

Set the Edit Mode to Assemble in your preset to avoid having to stripe the entire tape before archiving your media to tape. Even with Assemble mode, you must stripe the first few seconds of the tape.

8. In the Archive Tape Options box, enter 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.
9. Click **Continue**.

Your media files are archived to tape.



If you're currently previewing clips in the viewer, you cannot archive your project. This may not be obvious if you're using the dual viewer. To close the dual viewer, click **Done** in the preview controls.

Click **Help** for detailed information on the media archive properties.

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 version number, so you know which version you were using when the archive was created.

Once the archive is complete and the log file has been checked, you can delete your project to make space on your disk. For more information, see *Deleting Projects* on page 45.



If you want to archive a project that is larger than the PAL or NTSC broadcast standard, 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, Jaz, 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.



Creating Multiple Archives of the Same Project

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 two separate archives of the same project, each one containing different types of media, such as:

Archive	Contents
1	Project data, audio media, audio cache, and video media
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.



Be sure to keep track of which projects were archived using the multiple archive method as Avid|DS 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. From the Project Manager, select the **Archive** tab.
2. Choose a project to archive by selecting it from the list of displayed projects.
3. Select the following media archive options:
 - **Archive video media files to tape**
 - **Archive audio media files to disk**
 - **Archive audio cache media to disk**
4. For the video media, select a compression rate and resolution of the media you want archived. For the audio media and audio cache media, select a sample rate.
5. Enter a path in the **Project Archive Destination** text box where you want the archive to reside.
6. Click **Archive** 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.
7. In the Archive Tape Options box, select the device to which you want to archive the media files.
8. Enter 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.



9. Click **Continue**.

Avid|DS archives your video media to tape.

10. Without making any changes to your project folder, choose the same project to archive by selecting it from the list of displayed projects.

11. From the Media Archive Options box, select the **Archive video cache files to tape** option.

12. Select the compression rate and resolution of the media you want to archive.

13. Click **Archive** to begin archiving the cache media.

The project data is archived to disk again and the Creating Media Archive dialog box is displayed.

14. From the Archive Tape Options box, select the device to which you want to archive the media files.

15. Enter 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.

16. Click **Continue**.

Avid|DS archives your cache media to tape. You now have two archives of the same project on two separate tapes.



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.



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 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.

If you only want to work on a small portion of an archived project, you can choose which parts of the project you want to restore.



Additional 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.

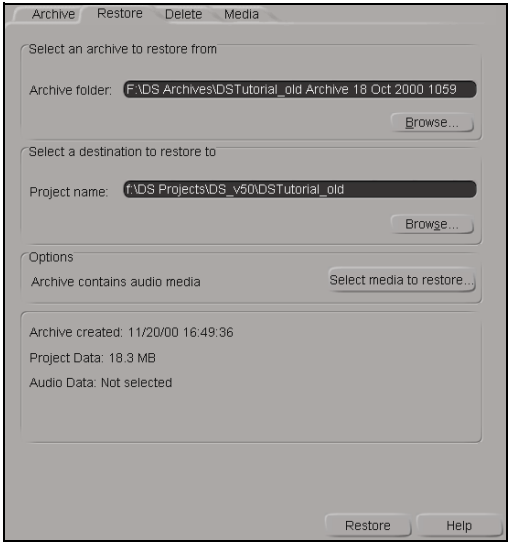
Restoring a Complete Project

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 44.

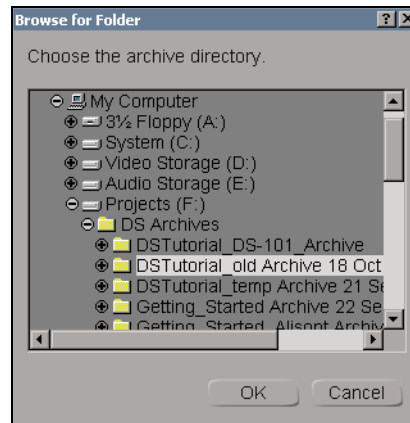
To restore a complete project



1. From the view switcher, click the Project Manager icon.
2. From the Project Manager, select the **Restore** tab.



3. In the **Archive Folder** text box, enter the location of the archived project file that you want to restore, or click **Browse** to search for the file.

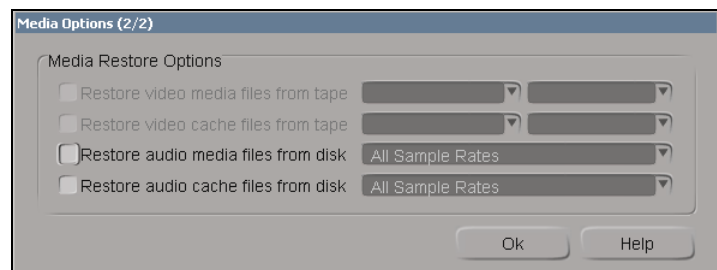


Searching for an archived file in the default DS Archives folder

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, ignore this dialog box and click **OK**. The Media Options (2/2) dialog box is displayed.



7. Select the type of media you want to restore with the corresponding compression ratio and resolution, 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 material on disk, it will automatically be restored from your archive.



8. Click **Restore**.

If you're restoring material from videotape, Avid|DS controls the deck, searches for the appropriate footage on the tape, and then digitizes 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 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 the all media is captured in one pass. This feature, known as *streaming capture*, greatly reduces the time to restore an archive.



If the restore is not entirely successful, that is, some clips were not restored, click **Restore** to recapture the missing clips.

You can only restore NTSC media while an NTSC sequence is open. If you restore a project that contains both PAL and NTSC media, you must restore the NTSC media in an NTSC sequence, and then restore the PAL media in a PAL sequence.

Once a project is restored, you can open the project from the Project Manager and work with 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 lets you choose which project files and associated media files to restore.

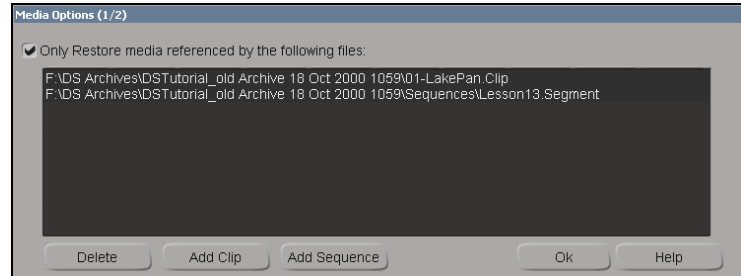
To restore parts of a project archive

1. From the Project Manager, select the **Restore** tab.
2. In the **Archive Folder** text box, enter the location of the archived project file that you want to restore, or click **Browse** to search for the file.
3. In the **Project Name** text box, specify the folder in which you want to place the restored files.



4. 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.



5. Select the **Only Restore media referenced by the following files** option to activate the selective restore function.
6. 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.

A browser is displayed.

7. Select the clips or sequences for which you want media to be restored and click **OK**.

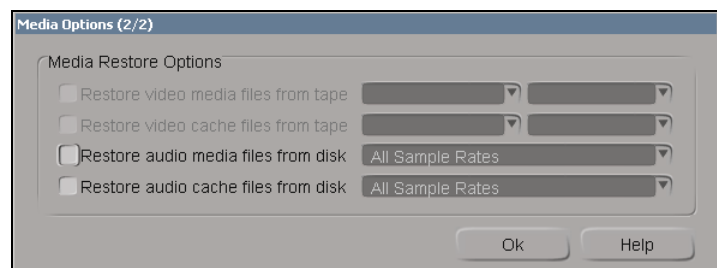
The selected clips or sequences are displayed in the Media Options (1/2) dialog box.



To remove items from the list, select the items and click **Delete**.

8. When you have all the clips and/or sequences you want, click **OK**.

The Media Options (2/2) dialog box is displayed.





9. Select the type of media you want to restore with the corresponding compression ratio and resolution, and click **OK**.

If you have video material archived on tape, you are prompted to insert the tape into the deck. If you have material on disk, it is automatically restored from your archive.

10. Click **Restore**.

If you're restoring material from videotape, Avid|DS 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.

To restore a project archived on multiple tapes

1. From the Project Manager, select the **Restore** tab.
2. In the **Archive Folder** text box, enter the location of the archived project file that you want to restore, or click **Browse** to search for the file.
3. In the **Project Name** text box, specify the folder in which you want to place the restored files.
4. 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.

5. 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.

6. Select the audio media and audio cache file options, and then click **OK**.
7. Click **Restore**.
8. Once the project data and audio media files are restored, you can begin restoring the video and cache files.

9. Repeat steps 1 to 7, but this time restore your video media files. When Avid|DS 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 workstation. Simply archive your files with or without the associated media, copy them to a folder on the new workstation, configure the storages so that they match those of the machine on which the project was archived, and then restore the project.

To move a project to another workstation

1. Archive your project to a location on the network—see *Archiving Projects* on page 34.



Make a note of your current storage paths, so that you can easily configure the storages of the new workstation.

2. On the new workstation, close Avid|DS and run the Avid|DS Storage Utility by clicking the **Start** button and choosing **Programs > Avid Products > Avid|DS v5.0 > Storage Utility**.
3. In the Storage Utility, make sure that you've set up the same storage devices as the machine on which you archived your project—see *Configuring Media Storage* on page 70.
4. Restore your project from the network location—see *Restoring Projects* on page 40.

Deleting Projects

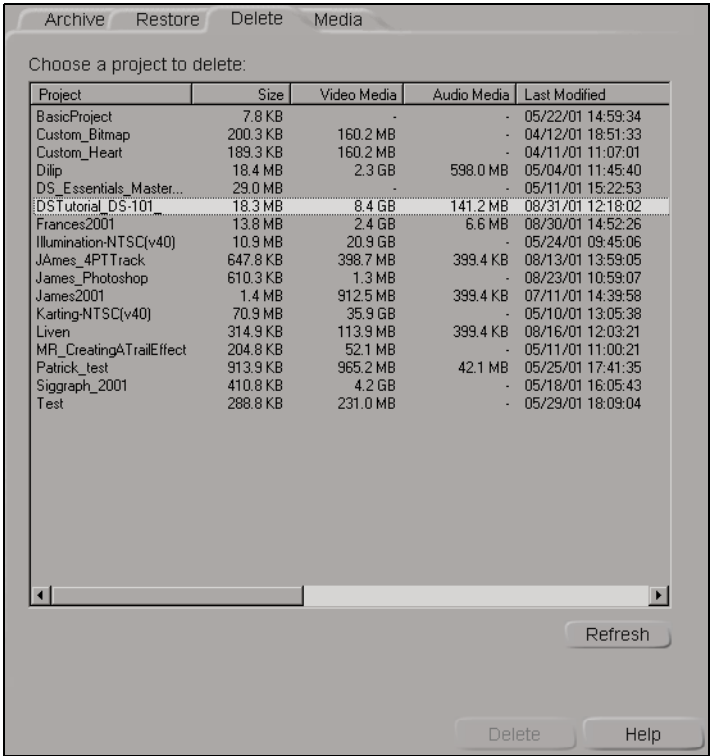
When you no longer need a project, archive it first and then delete it from your system.

When you delete a project, the project folder, project files, and all media associated with the project are deleted. You can also delete individual files within a project, such as clips and sequences. You can delete project files and their corresponding media from the browser or clip tray.



To delete a project

1. Close the project that you want to delete.
2. From the Project Manager, select the **Delete** tab.



3. Choose a project to delete by selecting it from the list of displayed projects.
4. Click **Delete**.

You are prompted to confirm your decision.

5. Click **Yes** to delete the project and its media.

Click **Help** for detailed information on the Project Manager dialog box.



Deleting a Clip

When you first capture media into Avid|DS, a clip is created in the browser to represent the digitized media on your storage device. This is the master clip. You can delete master clips and any clip on the timeline.

When deleting master clips, you have two options:

- You can check that no other clips are using its media before the clip is deleted. If the media is being used by another clip, then Avid|DS deletes only the clip and not the media.
- You can quickly get rid of clips and their media without verifying if the media is being used by another clip. Although this is quicker, it can be risky. You should only do this when you are absolutely sure that you don't need the media associated with this clip.

Since project files 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 56.

You can also delete clips on the timeline. Since the clip on the timeline is usually just a copy of the master clip in the browser, the clip is removed only from the sequence. The master clip in the browser and the media on the disk array remain intact.



If you created clips on the timeline from an EDL or OMF® file without creating logs in the browser, 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 clip it will remain on your disk array, but you will not have access to it because it is no longer associated with any clip. The media will remain on your disk array until it is deleted when you purge unreferenced media.

To delete a clip in the browser

1. In the Contents view of the browser, select the clip(s) that you want to delete.



Select multiple clips by holding down the Ctrl key while selecting clips.

2. Right-click on a selected clip, and choose one of the following from the menu:
 - **Delete** to delete your clip and its associated media file after having verified that neither are being used by another sequence.
 - **Total Delete** to quickly delete your clip and its media file without verifying if it is used elsewhere.

You are asked to confirm your decision.



3. Click **Yes**.

A progress bar appears to show that the delete is in progress. You can click the **Cancel** button to stop the delete process.



If you are having difficulty deleting a clip, it may have been corrupted. Use the Media Manager to locate the clip so that you can then and delete it. For more information, see *Managing Media* on page 50.

Deleting a Sequence

A sequence is an arrangement of clips, effects, edit points, and transitions. Like master clips, sequences do not contain any media. They simply refer to the media that is stored on your disk array. So when you delete a sequence, the master clips and their media remain intact.



When you delete a sequence, you also delete any processed media (caches) for this sequence, unless they're used by other sequences.

To delete a sequence

1. In the Contents view of the browser, select the sequence(s) that you want to delete.



Select multiple sequences by holding down the **Ctrl** key while selecting sequences.

2. Right-click on the selected sequence, and choose one of the following from the menu:
 - **Delete** to delete your clip and its associated media file after having verified that neither are being used by another sequence.
 - **Total Delete** to quickly delete your clip and its media file without verifying if it is used elsewhere.

You are asked to confirm your decision.

3. Click **Yes**.

A progress bar appears to show that the delete is in progress. You can click the **Cancel** button to stop the delete process.



Example: Purge, Delete, and Total Delete

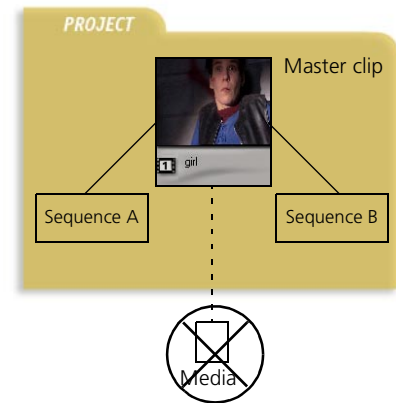
Purge master clip from sequence A.

Result: If the Keep Media Used in Other Sequences option is *not* selected, then the media file is removed.

When you play back either of your sequences, 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 browser or timeline.

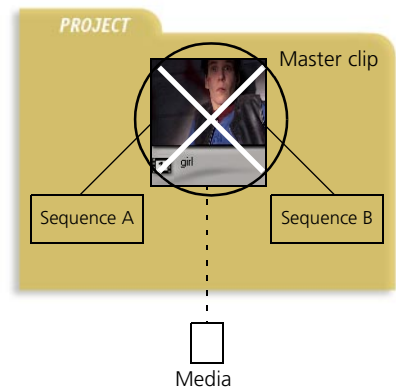
If the Keep Media Used in Other Sequences option *is* selected, then neither the media nor the master clip are removed.



Delete master clip from sequence A.

Result: Only the master clip is deleted because Avid|DS checks to see if the media file is used elsewhere. Since it is being used by sequence B, the file is not removed.

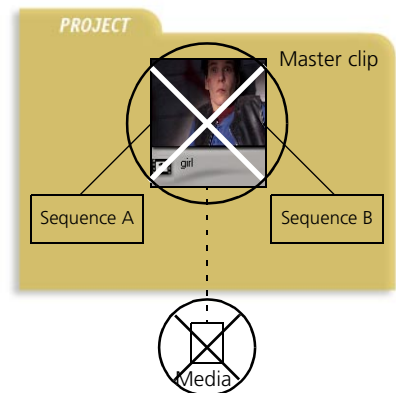
Although the master clip is deleted, the clips on the timeline in sequence A and B still refer to the original media file.



Total Delete master clip from sequence A.

Result: Master clip and associated media file are removed. No verification is done, so both sequence A and sequence B lose the master clip and media file.

When you play back either of your sequences, the “Media Not Available” message is displayed in the viewer whenever it encounters this clip.





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. It is essential that you learn to manage your source and cache media so that you can efficiently sort, search through, find, purge, move, and delete media. For more information, refer to *Cache Management in Avid|DS* on page 152 of the *Avid|DS Compositing & Effects Guide*.

You can manage the media files within your current project effectively using the tools in the Media Manager. You can group files by properties, such as project, storage, format, quality, and source. The Media Manager also lets you move, delete, or defragment media files, as well as determine the media files to which clips and sequences are associated.



Media associated with linked clips does not appear in the Media Manager because the media does not actually reside on your disk array. For more information, see *Linking to a Clip* on page 97.

To access the Media Manager

- Do one of the following:
 - From the View menu, choose **Views > Media Manager**.
 - From the Data Management menu, choose **Media Manager**.
 - From the view switcher, click the Media Manager icon.



When you open the Media Manager for the first time, either from the View menu or view switcher, you must click **Refresh** to display its contents.

Sorting Media

You can view media by project, storage, quality, or source using the media tree in the Media Manager. You can also sort the media into sub-areas by setting the sort order of properties in the media tree. For example, you can group media by storage to determine how much media exists on each storage, and then perform a secondary sort by quality to view the media according to the different resolution or compression at which they were captured.

These are the properties that you can sort:

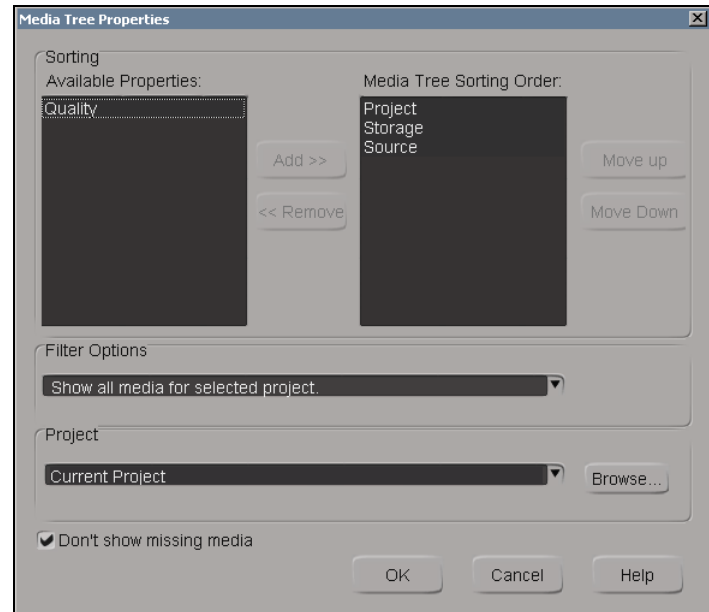
Field	Description
Quality	The resolution and/or compression of the media.
Project	The name of your project.
Source	The material from which this media originated—tape, CD, imported from file, or a file processed within Avid DS.
Storage	A partitioned area on the disk array for storing your media.



To sort your media

1. From the Media Manager, click **Options**.

In the Media Tree Properties dialog box, the Media Tree Sorting Order list determines what is displayed in the media tree of the Media Manager.



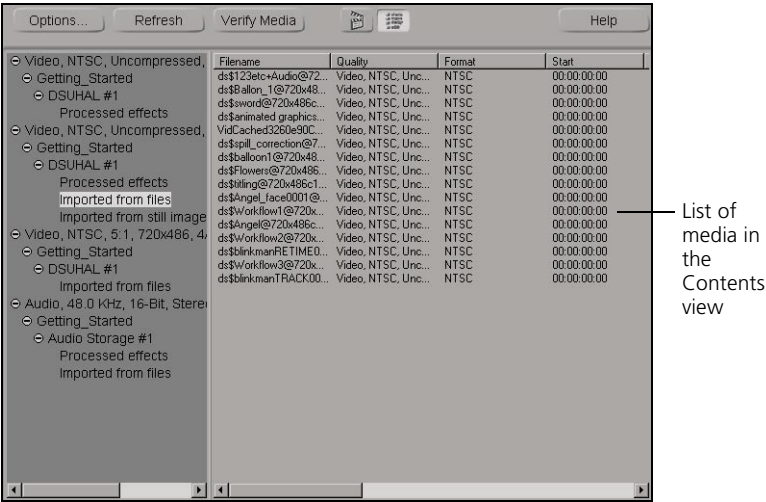
2. Move the properties between the **Available Properties** list and the **Media Tree Sorting Order** list by clicking an item in either list and using the **Add >>** or **<< Remove** buttons to set the properties you want to view.



You can also move an item from one list to another by double-clicking it.

3. Create the media tree hierarchy by selecting a property in the **Media Tree Sorting Order** list, and clicking **Move Up** or **Move Down** to set the sorting order for the properties.
4. Click **OK** to save your changes.

The media tree displays the properties you selected for the sort and the Contents view displays the associated media files.



 You can also quickly reorder columns in the Contents view by clicking a column heading and dragging it right or left until it is positioned correctly.

Click **Help** for detailed information on the Media Tree Properties dialog box.

Finding Media Using Filters

You can find media easily using various filtering options, which let you perform both broad and narrow searches for media. You can, for example, look for all the media in the current project (broad search) or look for the media file that corresponds to a clip selected in the clip tray or browser (narrow search).

To find a media file using filters

1. From the Media Manager, click **Options**.
 2. In the Media Tree Properties dialog box, select a filter from the **Filter Options** list.
 3. From the **Project** list, select a project.

Avid|DS limits its search to the project you chose. The current project is selected by default.
 4. Click **OK**.
- The media files for the selected filter option are displayed in the Contents view of the Media Manager.

Click **Help** for detailed information on the Media Tree Properties dialog box.



Viewing Media

You can view each media or cache file as a thumbnail, making it easier to identify and locate particular media files. You can also step through the media files by changing the frame that is displayed in the thumbnail. This gives you a basic idea of what is included in each media file.

To view media files in Thumbnails mode

1. From the Media Manager, select a group of media in the media tree.

The media for that group is displayed in the Contents view.

2. Click the Thumbnails icon.



Each media or cache file is represented as a thumbnail.

Click **Help** for detailed information on the Media Manager.

To change the frame displayed in the thumbnail

1. Display the media for a group in Thumbnails mode.
2. Right-click on a media file and choose **View Frame** and one of the following from the menu:
 - **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 find the clip information and the total number of frames contained in this clip. It also lets you enter a particular frame number to be displayed.

The thumbnail displays the frame number you chose.

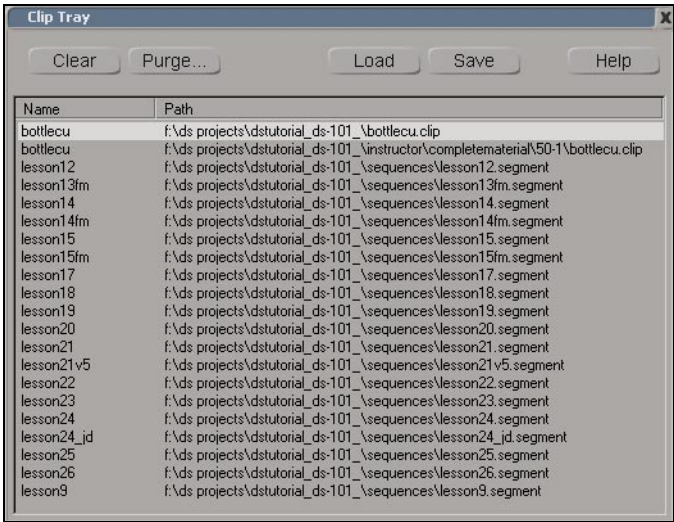
Searching for Media

You can search for clips and sequences that reference a specific media file.

To search for a clip or sequence using a media file

- In the Contents view of the Media Manager, right-click on a media file and choose **Find Clips** from the menu.

Avid|DS searches through your project and lists any clips or sequences in which this media file is used. These clips and sequences are listed in the clip tray.



You can now drag these clips and sequences to the viewer or timeline for previewing or editing.

Click **Help** for detailed information on the clip tray.



If you access the clip tray from the Editing layout, it is displayed in combination with the Clip Search view. If you access it from any other layout, it is displayed by itself as a floating window.

Defragmenting Media

The more you capture, delete, and purge media from your system, the higher the probability that your media files are fragmented on your disk array. Fragmented media may slow down your system or cause playback problems, such as skipped frames. It makes sense to defragment your disk array regularly. This, however, can be a lengthy process.

If you're short on time and only want to defragment one or two clips that are causing playback problems, you can defragment them in the Media Manager.

To defragment media files

1. From the Media Manager, select one or several media files that you think might be fragmented.
2. Right-click on one of the selected files and choose **Defragment** from the menu.

All fragmented media files are defragmented.



Verifying Media

If you encounter problems while playing back your sequences, there may be corrupted media on your disk array. You can check to see if your media is corrupt by using the Media Manager.

To verify your media

- From the Media Manager, click **Verify Media**.

If you have any corrupted files, the Media Manager prompts you to delete them. Media that you delete will have to be recaptured or reprocessed.

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 easily move media files between storage areas using the Media Manager. You can move one file at a time, a selection of files, or an entire folder of media files.

To move a media file

1. In the Contents view of the Media Manager, right-click on a media file and choose **Move** from the menu.



To move more than one file, hold down the Ctrl key and click the necessary files, and then right-click on one of the selected files to display the menu.



2. From the Move Media dialog box, select the video and audio storage area to which you want to move your media.

To move a media folder

1. From the media tree, select the parent folder of the folder that you want to move.
2. In the Contents view of the Media Manager, right-click on the media folder that you want to move, and choose **Move** from the menu.
3. From the Move Media dialog box, specify the video and/or audio storage area to which you want to move your media.



Sharing Media

You can share media across two or more different projects on the same machine or between different Avid|DS systems on a network. The media needs to be stored on any storage device that has been shared both within Avid|DS and at the Windows NT level. Once the media is captured, other users can link to the media from within their own respective projects. The originator of the media, however, retains ownership of the media and is the only person who can delete or purge it.

The limitation with sharing media between projects is that the storage device may not have sufficient bandwidth to provide real-time access to the media for more than one user at a time. However, if the storage device has sufficient bandwidth, real-time playback is possible.

For more information on importing media from another project, see *Importing Sequences from Another Project* on page 154.

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.

To delete media files

1. In the Contents view of the Media Manager, right-click on a media file and choose **Delete** from the menu.

You are prompted to confirm your decision.

2. Click **Yes** to delete the media.



If you are sharing media with another project, the originator or owner of that media is the only person who can delete it. To delete shared media, the owner must delete it from within the project where it was captured or created.

Purging Media

Media files often contain large amounts of information that can quickly use up your system storage space. It is good practice to delete unused media.

There are two types of media generated in Avid|DS:

- 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 disk array, 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.



If you're sharing media with another project, the originator or owner of that media is the only person who can purge it. To purge shared media, the owner must purge it from within the project where it was captured or created.

When a clip's source media is deleted, the clip icon in the browser 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. 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.

It is possible to purge only the video or audio portion of a clip. In this case, the icon in the browser does not turn red, as there is still media associated with the clip.



To check what type of media is associated with a clip, right-click on the clip and choose **Properties** from the menu. For more information on clip properties, refer to *Displaying File Properties* in the online help.

There are several ways to purge source media or cache files in Avid|DS.

Purge from	To do this
Browser	Delete media of selected clips and sequences.
Clip tray	Delete media and cache files 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.
Processing 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.



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.



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. You can select the type of media you want to delete.

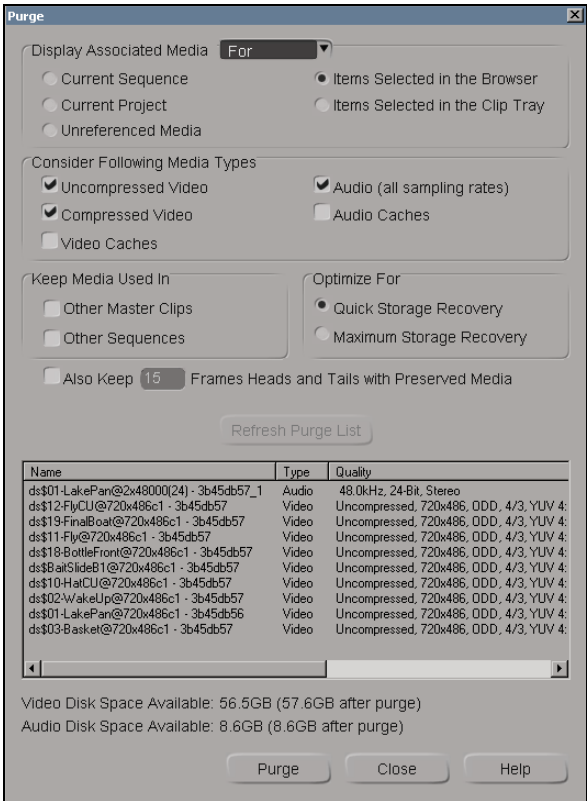
You can purge media at the clip, sequence, or folder level:

- 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 browser

1. In the Contents view of the browser, right-click on a clip, sequence, or folder, and choose **Purge Media** from the menu.

The Purge dialog box is displayed with the Items Selected in the Browser option selected in the Display Associated Media For list.





To purge everything but the clips selected in the browser, select the **Except For** option in the Display Associated Media list.

2. From the Consider Following Media Types box, select one or more of the following options:
 - **Uncompressed Video** to purge all associated uncompressed video media files.
 - **Compressed Video** to purge all associated compressed video media files.
 - **Video Caches** to purge all associated video cache files.
 - **Audio (all sampling rates)** to purge all associated audio media files.
 - **Audio Caches** to purge all associated audio cache files.
3. To keep a certain number of frames at the beginning and end of the clips you are preserving, select the **Also Keep 15 Frames Heads and Tails with Preserved Media** option. You can change the number of frames by increasing or decreasing the number in the text box.
4. Click **Refresh Purge List**.

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 choose any number of media files from the list to purge.
5. Click **Purge** to begin deleting the media.

Click **Help** for detailed information on the Purge dialog box.

After you purge source media and it is deleted from your disk array, the clips that reference this media have a red icon beside them in the browser. Clips on the timeline that have no associated media, display the “Media Not Available” message in the viewer when you play back the sequence.

To purge all media except that used in the current sequence

1. From the Data Management menu, choose **Purge Media**.
2. In the Purge dialog box, select the **Current Sequence** option from the Display Associated Media box.
3. Since you want to purge everything outside the current sequence, choose the **Except for** option in the Display Associated Media list.
4. From the Consider Following Media Types box, select one or more of the following options:
 - **Uncompressed Video** to purge all associated uncompressed video media files.
 - **Compressed Video** to purge all associated compressed video media files.
 - **Video Caches** to purge all associated video cache files.



- **Audio (all sampling rates)** to purge all associated audio media files.
 - **Audio Caches** to purge all associated audio cache files.
5. From the **Keep Media Used In** box, deselect the **Other Master Clips** and **Other Sequences** options. By deselecting these options, you are deleting media that is used elsewhere.
 6. In the **Optimize For** box, select one of the following:
 - **Quick Space Recovery** to do a high-level surface pass that deletes only the media that is not referenced by any of the selected clips or sequences. This option is fast, but does not maximize disk space by removing portions of clips that are not used.
 - **Maximum Storage Space Recovery** to do a deep, low-level pass that splits up media files and keeps only the portions of media being used. This option maximizes disk space, but may be time consuming.
 7. To keep a certain number of frames at the beginning and end of the clips you are preserving, select the **Also Keep 15 Frames Heads and Tails with Preserved Media** option. You can change the number of frames by increasing or decreasing the number in the text box.
 8. Click **Refresh Purge List**.
A list of all media that is not currently referenced by clips in the timeline is displayed in the Purge list.
 9. Click **Purge** to begin deleting the media.
All video, audio, and cache media files, except those referenced by clips in the timeline, will be deleted.

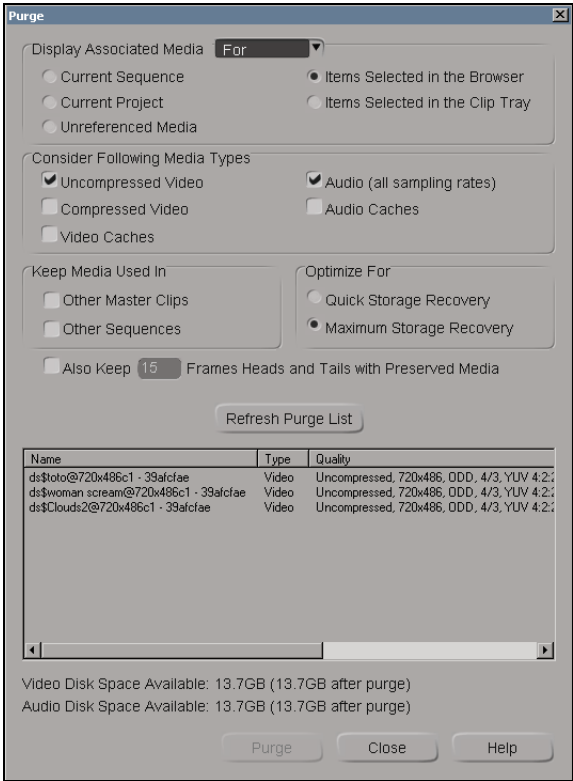
Click **Help** for detailed information on the Purge dialog box.



To purge media from a sequence

1. Select the sequence(s) in the browser, right-click and choose **Purge Media** from the menu.

The Purge dialog box is displayed.



2. From the Consider Following Media Types box, select one or more of the following options:
 - **Uncompressed Video** to purge all associated uncompressed video media files.
 - **Compressed Video** to purge all associated compressed video media files.
 - **Video Caches** to purge all associated video cache files.
 - **Audio (all sampling rates)** to purge all associated audio media files.
 - **Audio Caches** to purge all associated audio cache files.
3. In the Keep Media Used In box, select one of the following options:
 - **Other Master Clips** to keep media that is used by other master clips in the current project
 - **Other Sequences** to keep media that is used by other sequences in the current project.



4. In the Optimize For box, select one of the following options:
 - **Quick Space Recovery** to perform a high-level surface pass that deletes only the media that is not used by the sequences you have selected. This option is fast, but does not maximize disk space by removing portions of clips that are not used.
 - **Maximum Storage Space Recovery** to perform a deep, low-level pass that splits up media files and keeps only the portions of media being used. This option maximizes disk space, but may be time consuming.
5. To keep a certain number of frames at the beginning and end of the clips you are preserving, select the **Also Keep 15 Frames Heads and Tails with Preserved Media** option. You can change the number of frames by increasing or decreasing the number in the text box.
6. Click **Refresh Purge List**.

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 choose any number of media files from the list to purge.
7. Click **Purge** to begin deleting the media.

Click **Help** for detailed information on the Purge dialog box.

Purging Caches

When you process effects, graphics, and/or a composite in your sequence, a cache file is generated on your disk array. This lets you play the sequence in real time.

You can delete this cache media and reprocess it at a later time if you need space on your storage device. When you delete a sequence's caches, the Process indicator on the timeline turns red, and the unprocessed region is highlighted on the marker 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.



You should clean up your system on a regular basis using the Purge dialog box to get rid of unwanted caches.



To purge all cache files for the current project

1. From the Data Management menu, choose **Purge Media**.
2. In the Purge dialog box, select the **Current Project** option from the Display Associated Media For box.
3. From the Consider Following Media Types box, select **Video Caches** and/or **Audio Caches**.
4. Click **Refresh Purge List**.

The cache files associated with the current project are displayed in the purge list.

5. Click **Purge** to begin deleting the media.

The cache media is purged. To play the current sequence, you must process it again.

To purge the caches of the current sequence

1. From the Processing toolbar, click **Purge All Caches**.
A confirmation dialog box is displayed.
2. Click **OK**.

The cache files are purged.

Alternatively, you can do the following:

1. From the Data Management menu, choose **Purge Media**.
2. In the Purge dialog box, select the **Current Sequence** option from the Display Associated Media For box.
3. From the Consider Following Media Types box, select the **Video Cache** and **Audio Caches** options.
4. Click **Refresh Purge List**.

All the video and audio cache files are displayed in the purge list.

5. Click **Purge** to begin deleting the cache files.

The media caches are purged. To play the sequence, you must reprocess the effects, graphics, and composites in your sequence.



When you purge caches or media files from the current sequence, they are not actually purged from your system until you close the project or close Avid|DS.



To purge the cache of selected objects on the timeline

1. On the timeline, select one or more clips, effect bars, container clips, or tracks. You can also highlight a region by dragging on the timeline.
2. From the Processing toolbar, click **Purge Cache**.
You are prompted to confirm your decision to purge the media from the timeline.
3. Click OK.
The cache files of the selected objects or area are deleted from your disk array.

To purge caches generated using cache bars

1. Right-click on a cache bar and choose 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 when 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
The selected cache files are purged from your project.

Purging Unreferenced Media

While working on a project, it is possible to accumulate media files that do not refer to any clip or sequence. These files are known as *unreferenced media files*. You can delete these files manually from your system through the Purge dialog box.



You can also activate the **Purge on Exit** option from the Data Management property page (User Preferences dialog box). This option searches for and removes unreferenced media each time you close Avid|DS. For more information, see *Data Management User Preferences* in the online help.



To purge unreferenced media files

1. From the Data Management menu, choose **Purge Media**.
The Purge dialog box is displayed.
2. In the Purge dialog box, select the **Unreferenced Media** option from the Display Associated Media box.
3. In the Optimize For box, select one of the following:
 - **Quick Space Recovery** to perform a high level surface pass that deletes only the media that is not referenced by any of the clips or sequences selected. This option is fast, but does not maximize disk space by removing portions of clips that are not used.
 - **Maximum Storage Space Recovery** to perform a a deep, low-level pass that splits up media files and keeps only the portions of media being used. This option maximizes disk space, but may be time consuming.
4. Click **Refresh Purge List**.
A list of all media that is not currently referenced by clips in the current project are displayed in the Purge List.
5. Click **Purge** to begin deleting the media.
All video, audio, and cache media files, found in the purge list are deleted.
Click **Help** for detailed information on the Purge dialog box.





Chapter 3 **Capturing Material**



In This Chapter...

This chapter describes how to configure your media storage, prepare to capture material, specify the capture quality, and capture and log material so that you can edit it in Avid|DS.

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Configuring Media Storage.....	70
Preparing to Capture Material	74
Logging and Capturing Material	83



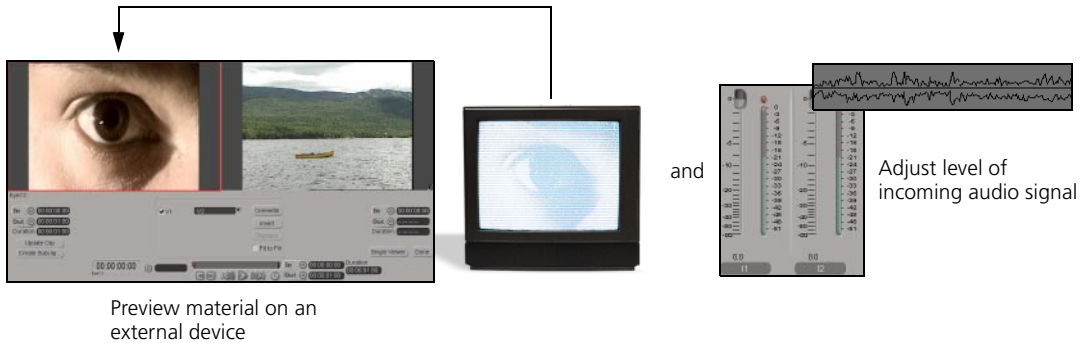
Workflow: Capturing Material

You can capture material for your project from different sources, such as tape or file. The following illustration shows you the process of capturing material:

1 Configure inputs

- Configure video and audio input settings
- Configure audio/video quality and storage
- Configure external devices, such as VTR or audio controller

2 Preview material

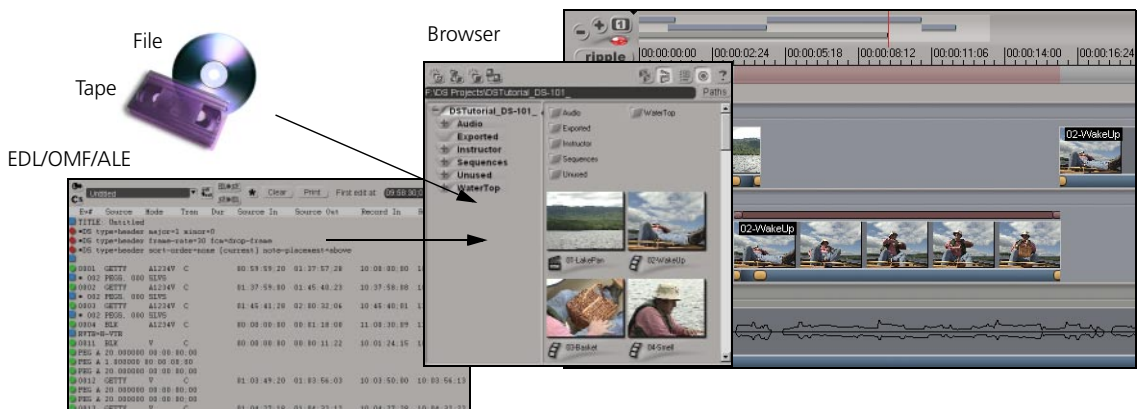


3 Log and capture material

Log or capture from...

Then recapture from...

Timeline





Configuring Media Storage

Storage devices hold the media upon which all your work is based, so it is important to set up your storage devices properly. During installation, Avid|DS configures the disk array on your workstation to be the main storage area for your media. You can change this storage area by creating additional storage devices or setting up different folder locations on these devices for your audio or video media.

You can manage your storage devices using the Avid|DS Storage Utility. The Avid|DS Storage Utility is a standalone application and is automatically installed during setup. It displays all video and audio storages that are currently defined for your workstation, and allows you to add new storages, and modify or delete existing ones. Each storage is identified by its hardware device and the name that you gave it during installation.

All video or audio storage areas must be configured through the Avid|DS Storage Utility before they can be recognized by the Avid|DS application.

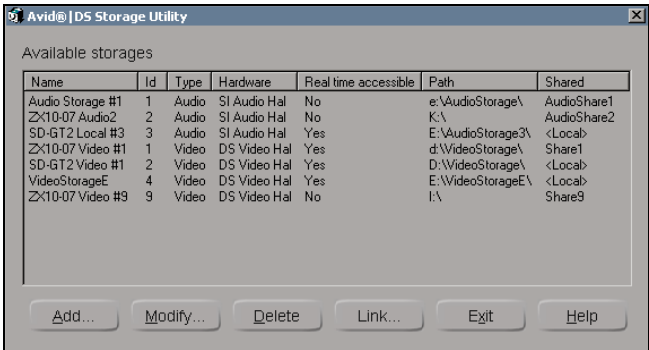
The Storage Utility also lets you specify whether the storage devices are to be shared or not. If you work in a workgroup environment, you'll want to share some of your storage devices to take advantage of remote processing, and the easy access of media across the network.

For more information on sharing storages and setting up your workgroup environment, refer to the Avid|DS Remote Processing Guide.

To access the Storage Utility

1. Close Avid|DS if it's open.
2. Click the Start button and choose **Programs > Avid Products> Avid|DS v5.0 > Storage Utility**.

The Storage Utility window displays all video and audio storage areas that are currently defined for your workstation, and lets you add new storage areas, or modify/delete existing storages. Each storage area is identified by its hardware device and the name that you gave it during installation.





Adding Storage



When you uninstall Avid|DS or the Storage Utility, the storage device names and locations remain in the system's registry. When you reinstall Avid|DS, this information is detected and the storage areas are automatically recreated.

Click **Help** for detailed information on the Storage Utility.

If you acquire additional storages or want to access a storage device that is located elsewhere on the network, you'll have to add the new storage device to your workstation configuration. Before you add another storage, make sure that you've installed the storage device according to the vendor's specifications. Then use the New Storage dialog box to configure the appropriate parameters for storage.



Shared storage areas must be shared at both the Windows NT level and within the Avid|DS Storage Utility.

To add a storage

1. In the Storage Utility window, click **Add**.

2. In the **Name** text box, enter a unique name for the storage device.
This name is displayed when you select a storage area when capturing, processing, or outputting material.
3. In the **Path** text box, enter the drive and folder name where your media will be stored, or use the **Browse** button to find it. If you do not enter a folder name, the Storage Utility automatically creates a folder based on the media type that you specify in the **Type** list.



You can define a maximum of nine storage devices per media type. That is, nine for video and another nine for audio. Each storage must have a unique name and path. You cannot define a storage inside another one.

4. In the **Id** list, assign a number to your storage area.
5. From the **Type** list, select either audio or video media.
6. Select the **Shared** option if you want to share the storage area between several machines in your workgroup environment.
7. Type in a name for the shared storage area.
8. If you have real-time access to media on the storage area you're adding, then you should activate the **Real time accessible** option. This determines whether Avid|DS treats the media coming from this storage area as real time playable or as media that requires processing.



If you set the Real time accessible option incorrectly, you can go back and change it at any time.

9. Click **OK**.

The new storage is displayed in the Storage Utility window.



You must add the shared storage area to the Available Storages list for each workstation that will access the shared storage area. Make sure that the storage ID and the share name for the storage area are the same on all machines. If one is different, Avid|DS will not recognize the storage area as shared storage.

Modifying Storages

You can change the name or physical location of your storage area at any time. When you change a storage area, you will not be able to play clips or sequences that refer to that storage area.

To modify a storage area

1. In the Storage Utility window, select a storage name.
2. Click **Modify**.
3. In the Modify Storage dialog box, change the settings of the storage area, and click **OK**.



Deleting Storages

If you no longer need access to a storage area, you can easily remove it from the system's registry. Although the media is not deleted, you will not be able to access it on this storage device.

To delete a storage area

1. In the Storage Utility window, select a storage area to delete.
2. Click **Delete**.
3. Click **OK** to remove the storage from the system registry.

The storage area is disconnected from Avid|DS, but the media remains on the storage device.

Click **Help** for detailed information on the Storage Utility.



Preparing to Capture Material

Before you capture media, you must configure your workstation settings. This includes specifying the audio and video input signals coming from the external device, as well as indicating the capture quality and storage location for the captured media.



You can map all commands on the Input panel of the Media Input/Output layout to a keyboard shortcut or place them in a toolbar. By using shortcuts and toolbar buttons, you can set up the capture setting and start capturing without switching to the Media Input/Output layout. For more information, see *Customizing the Command Map* in the online help.

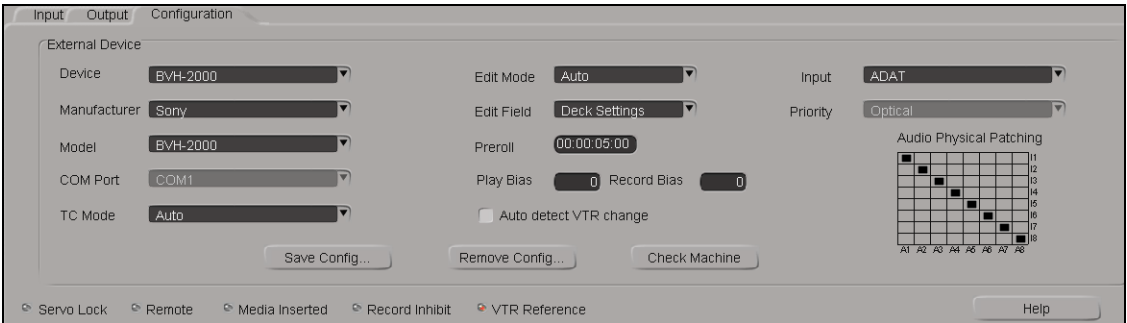
Configuring the External Device

You can specify the manufacturer and model of the external device connected to your workstation. You can also select the audio input format that you want to capture and/or output, as well as assign how the physical audio outputs from the external device are connected to your audio inputs on your workstation. You can do all this on the Configuration panel of the Media Input/Output layout. Avid|DS lets you set certain parameters that are important to the capture and output process, and it lets you save all these settings as a preset, so that you don't have to reconfigure your external devices every time you want to capture or output. You can remove your presets from the list at any time.

To configure the external device



1. From the Media Input/Output layout, select the **Configuration** panel.



2. From the **External Device** box, make a selection from the **Input** and **Priority** lists.

The input you select will depend on the audio hardware connected to your system.



The Input, Priority, and Audio Physical Patching settings are all saved with the device preset.



3. Use the **Audio Physical Patching** matrix to assign the audio outputs from from the external device to the audio inputs on your workstation.



If the material you want to capture has more audio tracks than the number of physical inputs on your workstation, you can capture the audio tracks in different passes. For each pass, you can re-assign the audio physical patching to capture the tracks you need.

For example, assume you only have two physical inputs (I1 and I2), but have four tracks of audio to capture (A1, A2, A3, and A4). On the first pass, you can capture tracks A1 and A2.

Audio Physical Patching

■									I1
	■								I2
									I3
									I4
									I5
									I6
									I7
									I8
A1	A2	A3	A4	A5	A6	A7	A8		

On the second pass, you can change the audio physical patching to A3 and A4, which lets you capture audio tracks 3 and 4.

You can also use the patching to:

- Rearrange the track destination
- Import specific tracks from a device
- Remove unwanted tracks

Audio Physical Patching

		■							I1
			■						I2
									I3
									I4
									I5
									I6
									I7
									I8
A1	A2	A3	A4	A5	A6	A7	A8		

Since the Audio Physical Patching is saved with the device preset, each device can have its own specific audio patching.

4. Select the name of the external device from the **Manufacturer** list.
5. From the **Model** list, select the model number.
6. From the **COM Port** list, select the COM port that connects the external device to your system.

The external device is connected to either COM1 or COM2.

7. From the **TC Mode** list, select one of the following:
 - **Auto** to let the external device decide which timecode to read.
 - **LTC** to set the external device to read only LTC (Longitudinal Timecode). Your device may experience some difficulty reading LTC when the tape is not moving or moving very slowly.
 - **VITC** to set the external device to read only VITC (Vertical Interval Timecode). Unlike LTC, your device can read VITC when the tape is moving very slowly or not moving at all.



If your external device cannot find a timecode when previewing material, your TC Mode setting may be incorrect.



8. When outputting to tape, you must specify the edit mode by selecting one of the following from the **Edit Mode** list:

- **Auto** to add material on a certain track to the existing material on the tape. Auto mode requires that the control track be present on the tape. If there is no control track, you will not be able to record. This option is commonly referred to as *insert editing*. This option also deactivates all channels during capture to prevent any interruption of signal between the deck and your system.
- **Assemble** to erase all tracks, so that they are clean and then record over them. The tape can be blank, but must have at least a few seconds of stripe at the beginning.



Due to the nature of assemble mode editing, a small portion of the tape is erased beyond the end of your sequence, creating a series of garbage frames. To work around this inherent limitation, you can set an in marker at the beginning of your sequence, an out marker ten frames after the end of your sequence, and then output from in to out. This records a series of black frames between the end of your sequence and the garbage frames.

9. From the **Edit Field** list, select one of the following:

- **Deck Settings** to use the settings on the external device.
- **F1** to have the output start on field 1.
- **F2** to have the output start on field 2.
- **F1/F2** to have the output start with the same material on field 1 and 2.

10. In the **Preroll** text box, enter the amount of time that you want the external device to play before Avid|DS starts to capture or output.

11. If you're experiencing an offset between the external device and your system, you can compensate by adding or subtracting frames in the **Play Bias** and **Record Bias** text boxes. The **Play Bias** option offsets the timeline whereas the **Record Bias** option offsets the VCR timecode entry point.



When you first connect the external device to your system, you should perform several capture and output tests to verify that the timecodes are accurate.

12. Select the **Auto detect VTR change** option if you want to receive a notification during a recapture from browser or timeline. If the external device preset you have selected is different than the external device connected to your machine, you have the option to change it.



After changing any of the settings in the **Configuration** tab, you must either click **Check Machine** or save your settings as a preset. If you don't, the changes will not be recognized.

Click **Help** for detailed information on the **Configuration** panel.

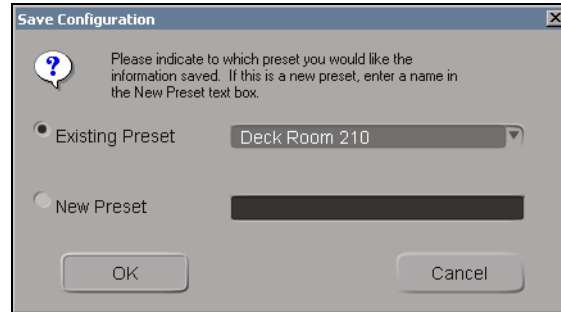


Saving External Device Settings

You can save the settings for your external device as a preset, so that you don't have to reconfigure the device each time you use it for capture or output.

To save the external device settings as a preset

1. From the Configuration panel, configure the external device and click **Save Config**.



2. In the Save Configuration dialog box, select one of the following options:
 - **Existing Preset** if you want to save the changes you made to an existing preset. Choose the name of the preset from the **Existing Preset** list.
 - **New Preset** if you want to create a new preset. Enter a name in the **New Preset** text box.
3. Click **OK**.

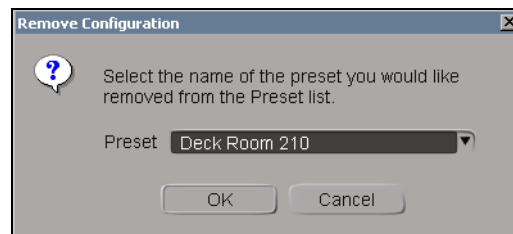
The preset name is added to the Device list.



Every time you make a change to the external device configuration, you should resave the preset, so that you can keep your changes for the next capture or output session. If you don't, the changes will not be recognized.

To remove a preset from the device list

1. From the Configuration panel, click **Remove Config** in the External Device box.





2. In the Remove Configuration dialog box, select the preset that you want removed from the **Preset** list.
3. Click **OK**.

The preset is removed from the Device list.

To check the status of the external device

- From the Configuration panel, click **Check Machine**.

If the communication between the external device and your system is operating properly, nothing happens. If there is a problem, a message box appears stating the possible cause of the problem.



You can also verify that the external device is operating within normal parameters by checking the five items in the External Device Status area.

Specifying the Capture Quality

The video and audio capture quality are set when you created your project or sequence. You can keep these default settings or adjust them for the material you are going to capture or recapture.

For your video material, you can change the compression, resolution and storage device. For your audio material, you can change the sample rate, bit depth, and storage device.



To see if a clip has more than one capture quality, right-click on the clip in the Contents view of the browser and choose **Properties** from the menu. In the Property dialog box, select the **Media** property page.

Specifying the Video Capture Quality

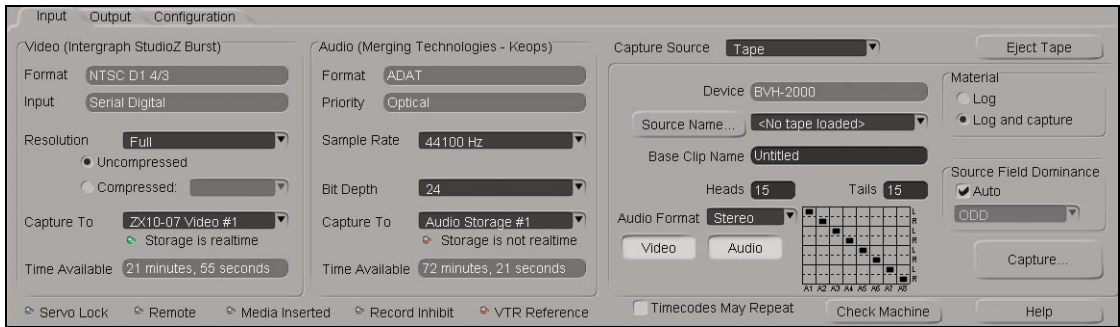
Video capture settings let you define the compression ratio and resolution at which images are captured.

You can save space on your disk array by capturing video material in compressed format. Typically, compressed material is used for a rough cut, where you capture large amounts of material at a lower quality. After that, you can recapture the edited material uncompressed before proceeding with a more detailed edit.



To define video capture settings

1. From the Media Input/Output layout, select the **Input** panel.



2. In the Video box, select a resolution from the **Resolution** list.
3. Select one of the following options:
 - **Uncompressed** to work with media that is not compressed.
 - **Compressed** to compress your media. From the corresponding list, select a ratio.



You can capture uncompressed and compressed files into the same project folder, but you cannot use them simultaneously in a sequence.

4. From the **Capture To** list, select the storage device on which your video media will be stored.

The status of the storage device you select is displayed. If the storage device is accessible in real time, the status marker is green. If the storage device is not accessible in real time the status marker is red.

The Time Available box indicates how much video material you can successfully capture based on your quality settings. If you have insufficient storage space, consider deleting any unused media on your disk array. For more information, see *Purging Media* on page 56 [Purging Media](#).

Click **Help** for detailed information on the Input panel.

Specifying the Audio Capture Quality

The capture settings let you define the quality at which your audio material is captured. These settings depend on the audio hardware connected to your workstation.

When you're capturing material from a digital input, the audio input sample rate and protocol settings are set according to the input signal detected by your hardware.



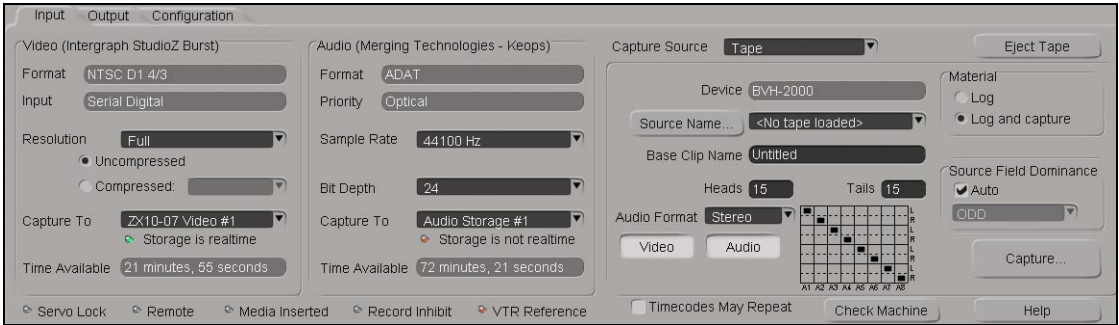
With digital input, such as AES/EBU or S/PDIF, the sample rate is determined and set by the external device (CD player, DAT, etc.). If the digital input cannot be detected (for example, the external device is turned off), the default sampling rate is set to 48 kHz.

To define audio capture settings

1. From the Input panel, select a sample rate from the **Sample Rate** list. The higher the sample rate, the more accurate the capture process will be.
2. From the **Bit Depth** list, select a bit depth. The higher the value, the more precise the audio will be.
3. From the **Capture To** list, select the disk array on which your audio material will be stored.

The status of the storage device you select is displayed. If the storage device is accessible in real time, the status marker is green. If the storage device is not accessible in real time the status marker is red.

The Time Available box indicates how much audio material you can successfully capture based on your quality settings. If you have insufficient storage space, consider deleting any unused media on your disk array. For more information, see *Purging Media* on page 56 [Purging Media](#).



Click **Help** for detailed information on the Input panel.

Previewing Material

Before capturing video or audio material from a tape or live capture session, you can preview it to decide how much pre-roll or post-roll to add, or to monitor the audio levels. When you preview audio material, you can use the input monitor to set incoming audio levels.

To preview video or audio material from tape or live

1. From the Input panel, select **Tape** or **Live** from the **Capture Source** list.
2. To preview the source material on tape, click the viewer, and then click the Play button on the transport controls.



If you capture material in YUV color space, you should use a vectorscope to verify that the colors fall within the RGB color space. Avid|DS always creates processed media or cache files in RGB color space, regardless of the color space you set for the current sequence. If the colors of the captured material fall outside valid RGB color space, you may notice flickering or color changes when using non-real-time effects.

Monitoring Audio Levels

Each input strip in the input monitor corresponds to channels that are recorded from the source device. You can use the fader on the input strip to lower the incoming signal. Once you set the audio levels on the input monitor, they're saved with the audio clip. For more information, refer to *The Mixer View* and *The Input Monitor* in the online help.

When you later recapture this material from the browser, Avid|DS, by default, uses the same levels that you set when you originally captured the material.



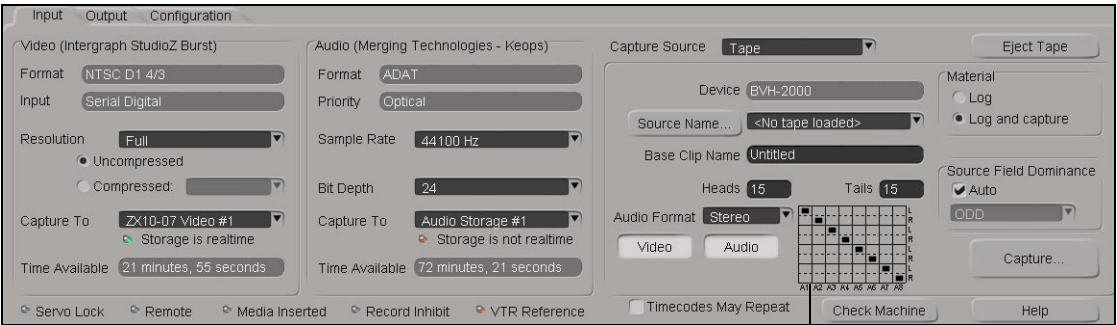
The available input and output channels in the Media Input/Output layout reflect the number of channels supported by your installed audio hardware and the particular configuration to which it is set.

To adjust the audio input levels

1. From the Input panel, select **Tape**, **Live**, or **On-the-fly** from the **Capture Source** list.
2. From the Audio Format list, select one of the following:
 - **Mono** to create separate streams for each audio input.
 - **Stereo** to combine the left and right audio inputs to create stereo pairs.
 - **Quad** to combine the left, right, left rear, and right rear audio inputs to create quadraphonic master clips.
 - **LCRS** to combine the left, center, right, and surround audio inputs to create LCRS master clips.
 - **4 Stream** to combine four generic audio inputs to create four stream master clips.
 - **5.1** to combine the left, right, center, LFE, left surround, and right surround audio inputs to create 5.1 master clips.
 - **6.1** to combine the left, right, center, LFE, surround center, left surround, and right surround audio inputs to create 6.1 master clips.
 - **7.1** to combine the left, right, center, LFE, left surround, right surround, left center, and right center audio inputs to create 7.1 master clips.
 - **8 Stream** to combine eight generic audio channels to create eight stream master clips.



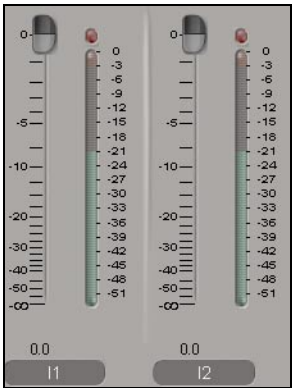
3. Assign the incoming audio tracks to the desired audio channels of your clip using the audio channel routing matrix.



Audio track 1 is assigned to the right (R) channel and audio track 2 is assigned to the left (L) channel, and so on.



4. From the view switcher, click the Input Monitor icon.



Two mono tracks on the input monitor

5. On the transport controls, click Play.
6. If necessary, drag the fader controls to adjust the gain while the audio is playing.



Logging and Capturing Material

If you're capturing material from a tape or file, you can log the clips needed for your sequence before batch capturing them later. Logging lets you specify the in and out-points for material on tape without actually capturing the material.



You can also create logs from the following sources:

- EDLs (Edit Decision Lists)
- OMFs (Open Media Framework®)
- ALEs (Avid Log Exchange)

For more information on conforming an EDL, OMF, or ALE to a Avid|DS sequence, see *Workflow: Conforming* on page 161.

Depending on the source from which you are capturing material, you can:

- Preview the material before capturing it.
- Log the material and batch capture it later.
- Log and capture the material at the same time.
- Log a clip that is linked to material that exists anywhere on your network.

After logging and/or capturing your material, they appear as master clips in the browser. These clips contain information about the original media on tape or file, as well as the source in and source out timecodes.



The source timecodes are not available for material that was recorded from file.

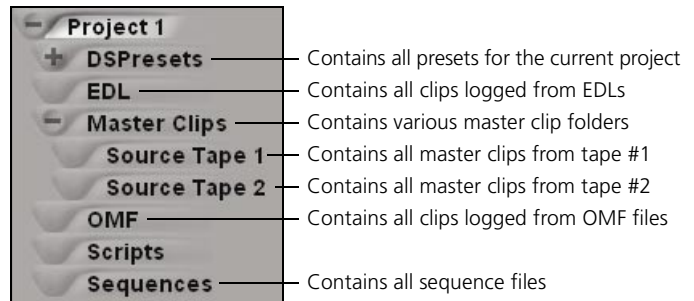
Selecting a Folder for Captured Media

When you capture source material, Avid|DS creates master clips to represent its media. These master clips appear in the browser, where you can access and use them to build sequences.

Before you capture any material, select a subfolder (within the current project folder) in which to save your clips. This organizes your project.



There are ways to set up your folders that make tasks, such as recapturing, much easier. Each project will require a different setup, but there are general rules that you should follow. Here is an example of a simple but effective folder setup:





To select a folder for the master clips

1. From the view switcher, click the Browser icon.
2. In the browser tree, select a folder.

When you click the plus (+) sign, the folder opens to display its contents.



If you want to create a new folder, click the New Folder icon at the top of the browser, and specify the location and name.

Click the Help button for detailed information on the browser.

Logging and Capturing Clips from Tape

When capturing material from tape, you can digitize the media between selected in and out-points or log them as empty master clips in the browser. The digitized clips are displayed in the browser. Audio and video clips without media are marked in red, either with a red dot in the Details view or a red icon in the Thumbnails view. Logged video clips also display the Avid|DS clipboard in the Thumbnails view. You can still place these clips on the timeline to create a sequence and then edit them like any other master clip.



In the Thumbnails view of the browser, video and audio clips without media are displayed with red icons.

In the Details view of the browser, video and audio clips without media are displayed with a red dot.

Name	
	Atmosphere
	BaitSlideA1
	Man

Logged clips without media in the browser

On the timeline, the clips are displayed with the message “Media Not Available”, so you can easily recognize clips that do not have media at the quality that you set for your sequence preferences. You can capture clips without media at a later time either from the browser or the timeline.



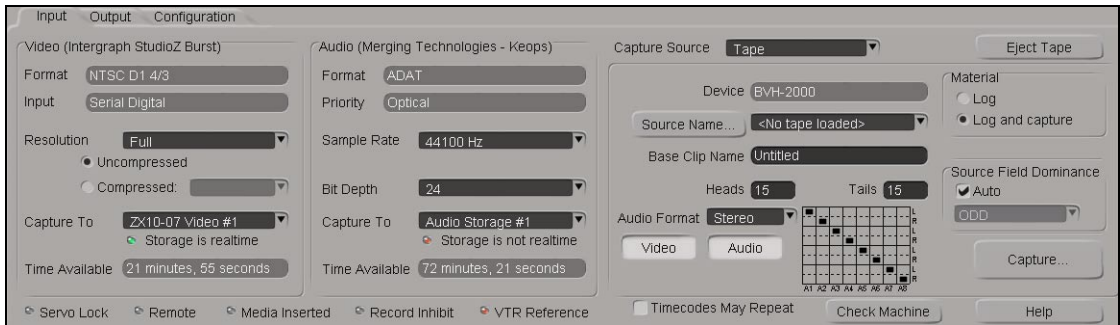
If Avid|DS cannot find any media for a clip, the “Media Not Found” message is displayed.



To log and capture clips from a tape

1. From the Media Input/Output layout, select the **Input** panel.
2. From the Capture Source list, select **Tape**.

The Input panel changes to display the properties for capturing clips from a tape.



3. From the **Source Name** list, select the tape's name. If the tape is new, click **Source Name** and enter a name for the tape.



It's important to assign a unique name to every tape because Avid|DS uses this same name to identify the captured media.

4. In the **Base Clip Name** text box, enter a name to prefix all captured clips.
5. To record additional material before the in-point and after the out-point, enter the appropriate number of frames in the **Heads** and **Tails** text boxes.
6. Select the **Video** option to capture the video channel of the material.
7. Select the **Audio** option to capture the audio channel(s) of the material.
8. From the Audio Format list, select one of the following:
 - **Mono** to create separate streams for each audio input.
 - **Stereo** to combine the left and right audio inputs to create stereo pairs.
 - **Quad** to combine the left, right, left rear, and right rear audio inputs to create quadraphonic master clips.
 - **LCRS** to combine the left, center, right, and surround audio inputs to create LCRS master clips.
 - **4 Stream** to combine four generic audio inputs to create four stream master clips.
 - **5.1** to combine the left, right, center, LFE, left surround, and right surround audio inputs to create 5.1 master clips.
 - **6.1** to combine the left, right, center, LFE, surround center, left surround, and right surround audio inputs to create 6.1 master clips.



- 7.1 to combine the left, right, center, LFE, left surround, right surround, left center, and right center audio inputs to create 7.1 master clips.
 - 8 Stream to combine eight generic audio channels to create eight stream master clips.
9. Assign the incoming audio tracks to the desired audio channels of your clip using the audio channel routing matrix. To do so, click in the square that will assign the audio track to the appropriate audio channel. You should know, in advance, to which tracks the audio has been recorded on the tape.



If you click on a square in the matrix and an unfilled circle appears, that particular assignment is not available due to limitations of the audio hardware.

For example, if you are working with S/PDIF audio hardware in Stereo format, your audio channel routing matrix will look like this:



Old assignment

To switch the settings for track A1 and A2 so that track A1 is assigned to Right (R) and track A2 is assigned to Left (L), click the R square in column A1 and the L square in column A2. Notice that you can have only one track assigned to one audio channel.



New assignment



The number of audio channels available depends on the audio hardware and format you're using.

10. Select the **Timecodes May Repeat** option to flag your tape as having multiple occurrences of the same timecode. When recapturing, Avid|DS detects the flag and deactivates the streaming capture capabilities, which lets you manually cue the tape before capturing each clip.



If you have flagged a tape with the Timecodes May Repeat option during capture, don't deactivate it during recapture because it may cause recapture errors.

11. On the transport controls, click Play to play the source material.

12. While the clip is playing, click **In** at the point where you want to start the capture.

The timecode of the in-point you selected is displayed in the In timecode box.



13. Play or shuttle the tape to advance to the point where you want to end the capture and click **Out**.

The out-point is displayed in the Out timecode box. The Duration timecode box displays the length of material to be captured.



If you already know the in and out timecodes, you can enter them directly in the In or Out timecode boxes. You can also directly enter a value for the duration and Avid|DS will automatically calculate the out-point.

14. From the Material box, select the **Log** or **Log and capture** option.

15. From the Field Dominance box, select one of the following:

- **Auto** to use the sequence's setting.
- **Odd** to flag the incoming media as interlaced or field-based, and that the media begins with the odd-numbered field.
- **Even** to flag the incoming media as interlaced or field-based, and that the media begins with the even-numbered field.
- **None** to flag the incoming media as progressive or frame-based, which means that the odd and even fields are the same.



If the field dominance of a clip does not match the field dominance of the sequence, you will need to process it before playing it back on the timeline.

16. Depending on whether you chose the **Log** or **Log and capture** option, click one of the following:

- **Capture** to begin the recording.
- **Log** to log the clips in the browser.

As the material is logged and/or captured, clips appear in the browser according to the in and out times that you specified.



If Avid|DS is unable to capture the material on the first attempt, it will attempt the capture a second time. If it fails again, Avid|DS will attempt the capture a third time with an additional pre-roll of five seconds. If the capture fails again, an error message is displayed with a possible explanation for the problem.

If you encounter problems capturing material from tape, you should disable the viewer using the Viewer button in the status bar and try capturing again. When capturing full resolution HD material at 29.97 and 30 frames per second, the viewer is automatically disabled.

Logged video clips appear with an image of the Avid|DS clapboard, since they do not have any media. Both video and audio clip icons are also red to show that no media has been captured. You can later capture these clips in one batch directly from the browser.



If any frames are skipped during the capture, the capture stops, and an error message is displayed. Clips are created for the material that was captured up to the point where frames were dropped.

If Avid|DS detects any problems during capture, the Capture Error Log is displayed. The Capture Error Log dialog box displays the clip that could not be captured, including tape source name, in, and out-point. It also gives you a brief description of the type of error that occurred.

17. To save this log as an .html file, click **Save As**.
18. In the Save As dialog box, navigate to an appropriate folder, enter a name for the log and click **Save**.

The log is saved as an .html file and can be viewed in any browser.

Click **Help** for detailed information on the Input panel.



Avid|DS stops a capture session if it detects any timecode breaks on the source tape. It creates a master clip from the in-point to the timecode break. The capture session may stop a frame or two after the actual timecode break. If this happens, you may have to cut or trim some of the unusable frames from your clip.

To resume capture, enter new in and out-points in the **In/Out** timecode boxes, and click **Capture**.

If there is insufficient material for the deck to pre-roll before capturing, you will not be able to capture the material. In this case, use the **Live** capture option to capture the material.



Importing Material from File

When importing material from file, you can do any one of the following:

- Import media for selected files,
- Log the selection as clips without importing the media, or
- Create linked clips, which act as a pointer to source media located on a local disk or anywhere on the network.

When you import material from a file, it's important to select the correct media conversion mode, pixel ratio, and premultiplication setting. The media conversion modes let you determine how media of differing formats are converted when imported into Avid|DS. Files coming from different formats, such as NTSC, PAL, and computer graphics, all have different file pixel ratios. If the pixel ratio of the source file is different than that of the current sequence, then the file's pixels are scaled to match those of the current sequence. When you select the correct premultiplication setting, you can avoid incorrect compositing results.

If you're importing still images, you can specify their duration on the Editing property page of the User Preferences dialog box. By default, the duration of captured still images is set to 30 frames.

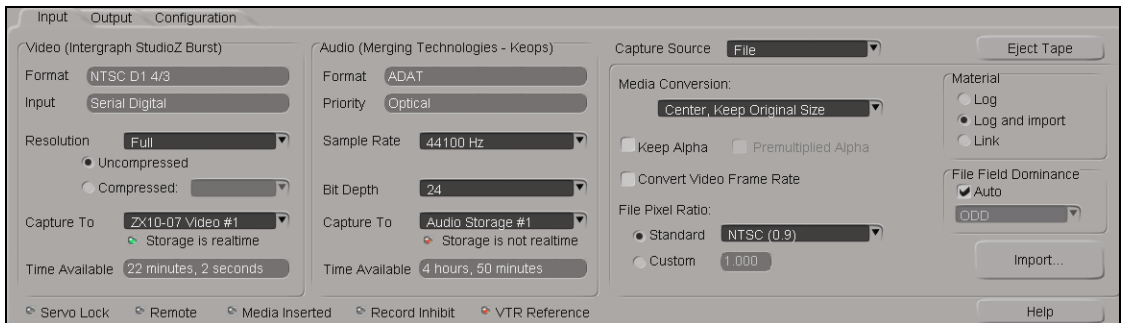


You can import a single file or a series of files at the same time.

To log and import clips from a file

1. From the Media Input/Output layout, select the **Input** panel.
2. From the Capture Source list, select **File**.

The Input panel changes to display the properties for importing clips from a file.



3. From the Media Conversion list, select one of the following modes:

- **Center, Keep Original Size** to center the media in the viewer along both the X and Y axes. Any portion of the image falling outside the viewer is cropped. This option does not modify the original size of the media.



- **Scale to Fit** to scale the media in both the X and Y axes to fit the sequence settings.



The Scale to Fit option may reduce image clarity.

- **Scale, Keep Aspect Ratio** to scale the media in both the X and Y axes to fit the image settings, but retain the ratio between width and height. Avid|DS takes the larger axis of the image and scales it to fit in the viewer. Then it centers the image on the other axis, creating black bands on both sides. An example of this conversion mode would be the letterbox format, which converts film to video.
- **Keep Original Size and Position** to display the media in the viewer without modifying its original size or position.



Keep Original Size and Position



Center, Keep Original Size



Scale, Keep Aspect Ratio



Scale to Fit

A 540×304 image imported using various media conversion modes

4. If the source image contains an alpha channel that you want to import with the clip, select the **Keep Alpha** option. Only image formats that support alpha channels are applicable. For example, .bmp images do not support alpha channels.



5. Do one of the following:

- Select the **Premultiplied Alpha** option if your source file was premultiplied.
- Deselect the **Premultiplied Alpha** option if your source file was not premultiplied.

Premultiplication is a mathematical process whereby the RGB channels of an image are multiplied by their corresponding alpha channels.

When compositing two or more images, Avid|DS automatically premultiplies your images unless they are already set as premultiplied when you imported them. If the premultiplication setting is incorrect, undesirable results, such as a halo or black outline, may appear in your image.

If you know how an image was created using an external graphics application, you should set the state accordingly. In general, rendered 3D images are already premultiplied. However, other computer-generated images may not be. For example, in Adobe Photoshop the alpha channel is created as a separate layer and is not premultiplied with the RGB channels. Therefore, when you import a Photoshop image into Avid|DS, do *not* select the Premultiplied Alpha option. For more information, refer to *Working with Premultiplied Images* on page 117 of the Avid|DS Compositing & Effects Guide.

6. If you want to convert the frame rate of the file you are importing to the same frame rate used by the sequence, select the **Convert Video Frame Rate** option.



This option does not apply to still images or audio files.

When you import an audio file with a different sample rate than what is currently set in the Audio quality box, a message box is displayed asking you if you want to convert the audio file to the selected rate.

7. To set the File Pixel Ratio, select one of the following options:

- **Standard** to import a file that has a standard file pixel ratio. You can choose from one of the following standard settings:
 - **Computer Graphics (Square)** to import files created with square pixels. Most computer graphic applications create images with square pixels.
 - **NTSC (0.9)** to import files which originated in NTSC format.
 - **PAL (1.07)** to import files which originated in PAL format.
 - **NTSC 16×9 (1.2)** to import files which originated in NTSC 16:9 format.
 - **PAL 16×9 (1.42)** to import files which originated in PAL 16:9 format.
- **Custom** to import a file that has a non-standard file pixel ratio



8. From the Material box, select the **Log** or **Log and import** option.

You can import video, audio, and image files into Avid|DS. When you import files, do one of the following:

- Create a quick log and then recapture them from the browser later, or
- Log and capture them at the same time.

The log and capture option takes substantially longer because the media must be digitized.

You can import the following file formats:

File format	File extension	Supports alpha	Supports compression
AIFF (uncompressed)	.aif, .aiff, .aifc	-	-
Alias	.als	No	No
AVI	.avi	Yes	Yes
Avid DS (Video Hal)	.gen,.omf	No	No
Bitmap (Windows)	.bmp	No	Yes
CINEON	.fido	No	Yes
JFIF (JPEG)	.jpeg, .jfif, .jpg	No	No
MAP	.map	No	No
Meridien™	.gen,.omf	No	No
Microsoft Windows Paintbrush	.pcx	No	No
PGM	.pgm	No	Yes
Photoshop	.psd	Yes	Yes
PICT	.pict, .pct	Yes	Yes
PPM	.ppm	No	Yes
QuickTime	.mov, .qt	Yes	Yes
SGI	.sgi, .rgb	Yes	Yes
SOFTIMAGE® (3D & XSI™)	.pic	Yes	Yes
TIFF	.tif,.tiff	Yes	Yes
Targa	.tga	Yes	Yes
WAV	.wav	-	-
Wavefront	.rla	Yes	No
YUV	.yuv	No	Yes



9. From the Field Dominance box, select one of the following:
 - **Auto** to use the sequence's setting.
 - **Odd** to flag the incoming media as interlaced or field based, and that the media begins with the odd field.
 - **Even** to flag the incoming media as interlaced or field based, and that the media begins with the even field.
 - **None** to flag the incoming media as progressive or frame based, which means that the odd and even fields are the same.
10. Click **Log** or **Import**.
11. Locate the folder containing the file to be captured, and then select the files for import.

The Import File(s) dialog box is displayed.

To select more than one file, hold down Ctrl key and click each file name. To select a series of files, enter the following in the **File name** text box:

prefix.[first..last;padding].extension

Property	Description
Prefix	The name of your file. The prefix can also include the name of your folder.
First	The first frame of the sequence you want to import. First is assumed to be a positive integer and smaller than Last.
Last	The last frame of the sequence you want to import. Last is assumed to be a positive integer and larger than First.
Padding	The number of digits contained in the Last number. For example, if your first number is 23 and your last number is 1000, your padding should be 4 because 1000 has a total of four digits.
Extension	The file name extension.

For example, if you wanted to capture the sequence of files Alpha.001.pic to Alpha.100.pic, you would enter the following in the **File name** text box:

Alpha.[1..100;3].pic



If you select an sequential list of files to capture, Avid|DS prompts you to combine the files into one master clip. If you choose to keep the files separate, they appear in the browser as a folder with the name "*clipname* [X...Y].Clip".



12. Click **Open**.

As the material is logged and/or imported, clips appear in the browser.

Logged clips appear with the message “Media Not Available” when they are placed in the viewer or timeline. You can later capture these clips in one batch directly from the browser.



You can cancel the capture session at any time by clicking **Cancel** in the progress bar. A message box is displayed asking you if you want to keep the material that was captured so far. If you click **Yes**, clips are created for the material that was captured until you clicked **Cancel**.

Click **Help** for detailed information on the Input panel.

Importing Layered Adobe Photoshop Files

There are two ways to import Adobe Photoshop files into Avid|DS:

- Set the Capture Source to File in the Media Input/Output layout and choose .psd as the file type.
- Use the **Import Photoshop** command on the Image Tools toolbar.

The first option imports only the flattened photoshop image as a still. If you want to preserve all the layer information, you should use the second option.

When you import a layered Photoshop image into Avid|DS using the Import Photoshop command, a targa image file is created for each Photoshop layer. A sequence file with one graphics container clip is created in a new folder in the browser along with a master clip for each layer. These master clips are linked to the targa files. Each layer in the Photoshop file is recreated in the graphics container clip as a layer and corresponding clip on a composite track. Each layer is composited in the same order as the original Photoshop file.

DVEs are applied to each clip to position them appropriately, and the opacity of each layer is adjusted to match the opacity levels in the original Photoshop file. An additional folder is created called *Linked layers*, which contains the source targa files to which the master clips are linked. Having access to these source files makes it easier for you to delete them, if needed.

The Photoshop images must be 8 bit RGBA, or grayscale files. Only normal blending information is supported, and text and shape information are rasterized when imported.



Every time you import a layered Photoshop file, a new folder is created in the browser. The folder is named after the Photoshop file you imported. The sequence, master clips, and Linked layers folder are all stored in this new folder. The master clips are named after the layer they represent followed by the name of the Photoshop file in parenthesis.

For example, if you import a Photoshop file called Poster.psd that contains the following layers:

- Sky
- Sea
- Boat

A new folder called Poster is created in the browser. Within that folder, a new sequence called Poster is created, a folder called Linked layers is created, as well as the following master clips:

- Sky (Poster)
- Sea (Poster)
- Boat (Poster)

The Linked layers folder will contain the following files:

- Sky (Poster).tga
- Sea (Poster).tga
- Boat (Poster).tga

To import layered Photoshop files

1. Select a folder in the browser where you want the new folder to be created.
2. In the Editing layout, click **Import Photoshop** in the Image Tools toolbar.

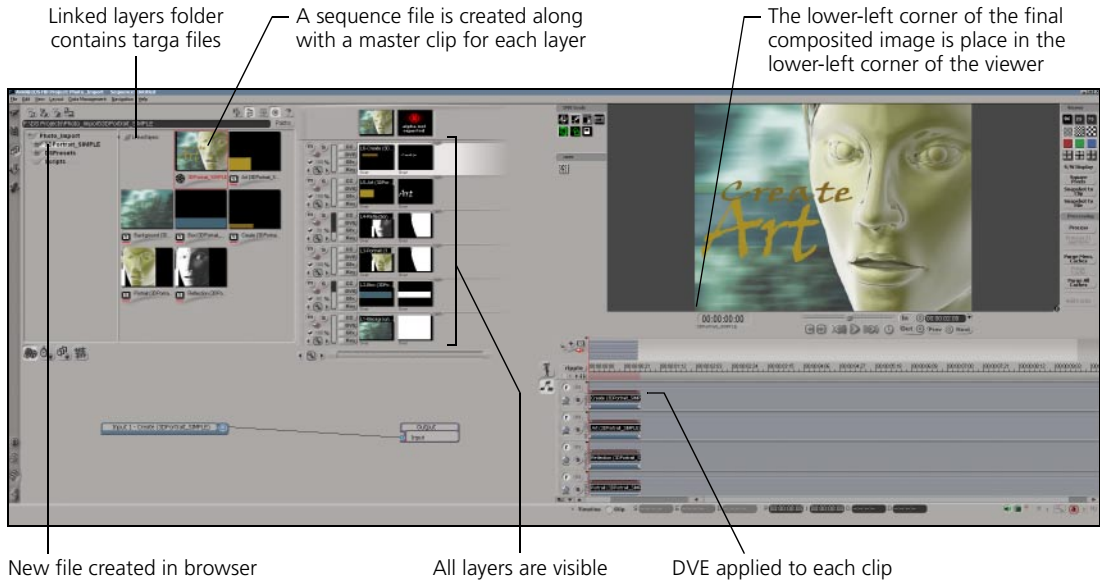
The Import Adobe Photoshop dialog box is displayed.

3. Select the Photoshop file and click **OK**.

A message is displayed telling you that the clip was successfully saved.

4. Click **OK**.

A new folder is created in the browser and named after the Photoshop file. Within that folder, a folder called Linked layers is created that contains the source targa files. A sequence file with one graphics container clip is also created, along with a master clip for each layer. In the graphics container clip, each layer in the Photoshop file is recreated as a layer and corresponding clip on a composite track. The lower-left corner of the final composited image is placed in the lower-left corner of the viewer.



Since the master clips are linked to the targa files, the images maintain their original size. To view images that are larger than the sequence resolution, right-click in the result area of the layer view to turn off the Output Frame Size option.

For more information, refer to *Working with Layered Photoshop Images* on page 114 of the Avid|DS Compositing & Effects guide.

Importing Encapsulated PostScript (EPS) Files

You can import EPS files into Avid|DS, but they are treated differently than other file imports. EPS files are imported from within the Graphics layout and no master clips are created for the EPS file. Instead, the EPS information is imported directly into your current graphics session. The color information in the EPS files is retained and each shape in the EPS file is a separate stroke in Avid|DS.



You can import solid colors, but not gradients.

Avid|DS can import files created with Adobe Illustrator 8.0 or earlier versions. To work with Illustrator 9.0 files, save it as a version 8.0 file.

Avid|DS only supports Microsoft Windows EPS files. If you have Macintosh EPS files, open them with a Windows version of Adobe Illustrator and resave them.

You can also import EPS files as brush strokes. For more information, see *Creating Custom Brushes* on page 296.



Linking to a Clip

To import an EPS file

1. With the play cursor over a clip in the timeline, switch to the Graphics layout.
2. From the GFX Creation toolbar, click **Import EPS**.

The Open dialog box is displayed.

3. Select an EPS file and click **Open**.

The EPS file is imported into your graphics session.

You can create links to media files that are not stored on your disk array, which lets you work with media files without having to import them to your disk. These files, called *linked clips*, can reside on a local disk or anywhere on the network until you're ready to output your sequence.

Some projects may require you to work with images at varying resolutions. If you capture these files, you must convert the material to the working resolution of the current sequence. By linking to the material instead, you can keep the material at its original resolution regardless of the sequence's frame size. Once you've completed your edits, you can process the linked material, which creates a cache file of the image area that is visible in the viewer.

Linking clips can also be useful when more than one person needs access to the same file. You can import the file as a linked clip, and continue to use it as a reference while another person continues to work on the source media file. Changes made to the original file automatically appear in the linked clip, both in the browser and on the timeline.

Once you're ready to output the sequence, you can either capture the source file or simply process the clip on the timeline. If you process the material, a cache file is created. Once a cache is created, Avid|DS no longer refers to the source media file, but uses this cache file during playback. Any further changes to the source file do not appear in the linked clip on the timeline. Like any other cache however, the cache for the linked clip can be purged which relinks the clip to the source file. For more information on caches, refer to *Cache Management in Avid|DS* on page 152 of the Avid|DS Compositing & Effects Guide.



Linked clips appear in the browser as regular clips, but their file type icons are underlined in red, indicating that no actual media has been imported. As a result, you cannot play them back in real time until you have processed them.

If the "Media Not Found" message appears in the viewer when using linked clips, it's possible that Avid|DS has lost the connection to the linked file. All you have to do is re-establish the link.



If another person tries to modify a file that's linked to a clip in an open project, they will not be able to save that file due to a sharing violation. You must close the project that contains the linked clip for them to be able to save the original file.



To link to a clip

1. From the Media Input/Output layout, select the **Input** panel.
2. From the Capture Source list, select **File**.

The Input panel changes to display the properties for logging clips from a file.



Since linked files are brought into Avid|DS 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 available when the Link option is selected.

3. If the source image contains an alpha channel that you want to import with the clip, select the **Keep Alpha** option. Only image formats that support alpha channels are applicable. For example, .bmp images do not support alpha channels.
4. When importing images from file, you must set the correct premultiplication state to inform Avid|DS how it should treat the material. Do one of the following:
 - Select the **Premultiplied Alpha** option if your source file was premultiplied.
 - Deselect the **Premultiplied Alpha** option if your source file was not premultiplied.
5. If you want to convert the frame rate of the file you are importing to the same frame rate used by the sequence, select the **Convert Video Frame Rate** option.
6. To set the File Pixel Ratio, select one of the following options:
 - **Standard** to import a file that has a standard file pixel ratio. You can choose from one of the following standard settings:
 - **Computer Graphics (Square)** to import files created with square pixels. Most computer graphic applications create images with square pixels.
 - **NTSC (0.9)** to import files which originated in NTSC format.
 - **PAL (1.07)** to import files which originated in PAL format.
 - **NTSC 16×9 (1.2)** to import files which originated in NTSC 16:9 format.
 - **PAL 16×9 (1.42)** to import files which originated in PAL 16:9 format.
 - **Custom** to import a file that has a non-standard file pixel ratio
7. From the Material box, select the **Link** option.



8. From the Field Dominance box, select one of the following:

- **Auto** to use the sequence's setting.
- **Odd** to flag the incoming media as interlaced or field-based, and that the media begins with the odd field.
- **Even** to flag the incoming media as interlaced or field-based, and that the media begins with the even field.
- **None** to flag the incoming media as progressive or frame-based, which means that the odd and even fields are the same.

9. Click **Link**.

The Import File(s) dialog box is displayed.

10. Select the folder that contains the file to be linked, and then select the files.



To select more than one file, hold down the Ctrl key and click each file name.

11. Click **Open**.

As the material is linked, clips appear in the browser. The clip icons are underlined in red to indicate that no media has actually been captured.

Click **Help** for detailed information on the Input panel.

To re-establish the link to a clip

1. Right-click on a clip in the browser and choose **Properties**.

The Clip Properties dialog box is displayed.

2. Select the **File Info** tab.

In the Status text box, the following message is displayed: "File is missing from expected location".

3. Click **Relink file**.

4. In the Relink File dialog box, navigate to the location where the file has been moved, select it, and click **OK**.

5. Close the Clip Properties dialog box by clicking **OK**.

The link is re-established.



If you go back into the Clip Properties dialog box, you will see that the status of the linked file has changed to "File is Present".



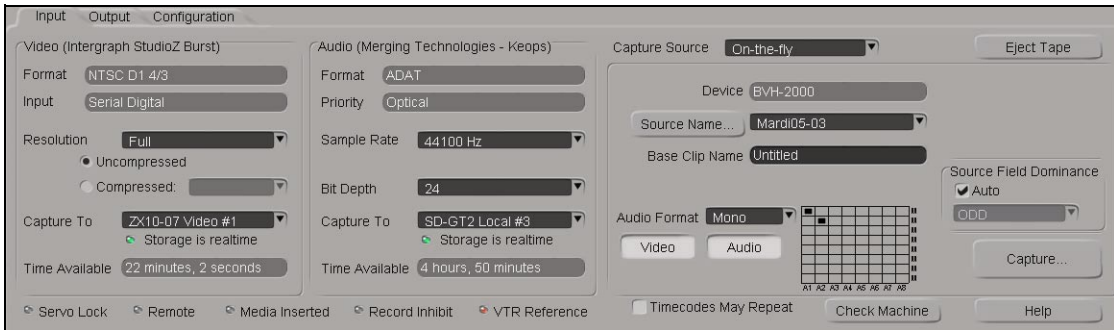
Capturing Clips On-the-Fly

You can capture material from tape as it plays. All you have to do is start the tape, and then set in and out-points for the material you want to capture. Once the tape finishes, clips are created in the browser based on the various in and out-points you set during playback.

Unlike the Live capture option, the On-the-fly option records the accurate timecode of the source material, letting you recapture the material at any time. This option also lets you create several clips by setting multiple in and out-points without having to start and stop playback.

To log and capture clips on-the-fly

1. From the Media Input/Output layout, select the **Input** panel.
2. Prepare to capture material by adjusting the settings in the Video and Audio boxes.
3. From the Capture Source list, select **On-the-fly**.



4. From the **Source Name** list, select the tape's name. If the tape is new, click **Source Name** and enter a name for the tape.
5. In the **Base Clip Name** text box, enter a name to prefix all your captured clips.
6. Select the **Video** option to capture the video channel of the material.
7. Select the **Audio** option to capture the audio channel(s) of the material.
8. From the Audio Format list, select one of the following:
 - **Mono** to create separate streams for each audio input.
 - **Stereo** to combine the left and right audio inputs to create stereo pairs.
 - **Quad** to combine the left, right, left rear, and right rear audio inputs to create quadraphonic master clips.
 - **LCRS** to combine the left, center, right, and surround audio inputs to create LCRS master clips.
 - **4 Stream** to combine four generic audio inputs to create four stream master clips.



- 5.1 to combine the left, right, center, LFE, left surround, and right surround audio inputs to create 5.1 master clips.
 - 6.1 to combine the left, right, center, LFE, surround center, left surround, and right surround audio inputs to create 6.1 master clips.
 - 7.1 to combine the left, right, center, LFE, left surround, right surround, left center, and right center audio inputs to create 7.1 master clips.
 - 8 **Stream** to combine eight generic audio channels to create eight stream master clips.
9. Assign the incoming audio tracks to the desired audio channels of your clip—see *Logging and Capturing Clips from Tape* on page 84.
 10. Select the **Timecodes May Repeat** option to flag your tape as having multiple occurrences of the same timecode. When recapturing, Avid|DS detects the flag and deactivates the streaming capture capabilities, which lets you manually cue the tape before capturing.
 11. From the Field Dominance box, select one of the following:
 - **Auto** to use the sequence's setting.
 - **Odd** to flag the incoming media as interlaced or field-based, and that the media begins with the odd field.
 - **Even** to flag the incoming media as interlaced or field-based, and that the media begins with the even field.
 - **None** to flag the incoming media as progressive or frame-based, which means that the odd and even fields are the same.
 12. Click **Capture**.
The tape begins playback.
 13. Click in the viewer to set an in-point, and then right-click in the viewer to set an out-point.
A clip is created for each of the in and out-points that you set. Continue to set in and out-points of the material you want to capture.
 14. To finish the capture session, click **Cancel** in the progress bar.
Clips appear in the browser for each of the in and out-points that you set. The clips are named as follows: Base Clip Name001, Base Clip Name002, and so on. Each clip's timecode matches that on the tape, making it possible for you to recapture the material at a different compression rate or resolution.



If you encounter problems capturing material from tape, you should disable the viewer using the Viewer button in the status bar and try capturing again. When capturing full resolution HD material at 29.97 and 30 frames per second, the viewer is automatically disabled.

Click **Help** for detailed information on the Input panel.



Performing a Live Capture

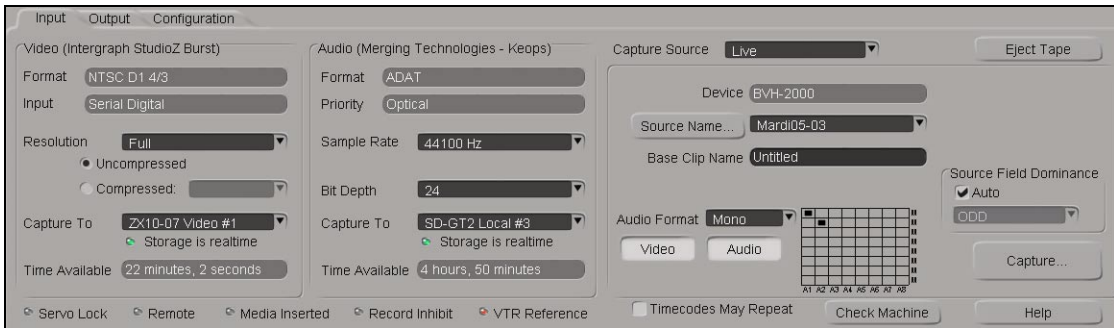
You can perform a live capture of audio and video material as the tape is playing from a variety of external devices. A live capture is essentially the same as a capture from tape except that you control the capture as the tape is playing (without any pre-roll). If there is a proper SMPTE or AES/EBU timecode signal, the material is assigned the incoming timecode. If no timecode signal is present, Avid|DS assigns an arbitrary timecode to the clip, starting at 00:00:00:00. Even if the material is assigned its appropriate timecode, the timecode may not be completely accurate.



Material captured using this option is considered live material and cannot be recaptured at a later time.

To perform a live capture

1. From the Media Input/Output layout, select the **Input** panel.
2. Prepare to capture material by adjusting the settings in the Video and Audio boxes.
3. From the Capture Source list, select **Live**.



4. From the **Device** list, select a device.
5. From the **Source Name** list, select the tape's name.
If the tape is new, click **Source Name** and enter a name for the tape.



It is very important to assign a unique name to every tape because Avid|DS uses it to identify the captured media.

6. In the **Base Clip Name** text box, enter a name to prefix all captured clips.
7. Select the **Video** option to capture the video channel of the material.
8. Select the **Audio** option to capture the audio channel(s) of the material.



9. From the Audio Format list, select one of the following:
 - **Mono** to create separate streams for each audio input.
 - **Stereo** to combine the left and right audio inputs to create stereo pairs.
 - **Quad** to combine the left, right, left rear, and right rear audio inputs to create quadraphonic master clips.
 - **LCRS** to combine the left, center, right, and surround audio inputs to create LCRS master clips.
 - **4 Stream** to combine four generic audio inputs to create four stream master clips.
 - **5.1** to combine the left, right, center, LFE, left surround, and right surround audio inputs to create 5.1 master clips.
 - **6.1** to combine the left, right, center, LFE, surround center, left surround, and right surround audio inputs to create 6.1 master clips.
 - **7.1** to combine the left, right, center, LFE, left surround, right surround, left center, and right center audio inputs to create 7.1 master clips.
 - **8 Stream** to combine eight generic audio channels to create eight stream master clips.
10. Assign the incoming audio tracks to the desired audio channels of your clip using the channel routing matrix—see *Logging and Capturing Clips from Tape* on page 84.
11. Select the **Timecodes May Repeat** option to flag your tape as having multiple occurrences of the same timecode. When recapturing, Avid|DS detects the flag and deactivates the streaming capture capabilities, which lets you manually cue the tape before capturing.
12. From the Field Dominance box, select one of the following:
 - **Auto** to use the sequence's setting.
 - **Odd** to flag the incoming media as interlaced or field-based, and that the media begins with the odd field.
 - **Even** to flag the incoming media as interlaced or field-based, and that the media begins with the even field.
 - **None** to flag the incoming media as progressive or frame-based, which means that the odd and even fields are the same.
13. Click **Capture**.

The capture begins and the progress bar displays the number of seconds of material captured. This value updates while the capture is in progress.



If you encounter problems capturing material from tape, you should disable the viewer using the Viewer button in the status bar and try capturing again. When capturing full resolution HD material at 29.97 and 30 frames per second, the viewer is automatically disabled.

14. When you want to stop capturing, click **Stop** on the progress bar.



Batch Capturing

The captured material is represented by a clip in the folder you selected from the browser. Click **Capture** again to resume capturing.

Click **Help** for detailed information on the Input panel.

In Avid|DS, you usually start your offline session using compressed media or logged clips. When it comes time for your online session, you need to capture the media from the logs or recapture the media uncompressed. If you had to capture each clip one at a time, it would take too long. Fortunately, you can capture a bunch of clips from the browser or timeline in one pass. This is called *batch capturing*.

Capturing Clips from the Browser

When you create a log of clips, empty master clips (without media) are created in the browser, where you can capture source material from tape or file. The master clips hold information about the in and out-points of material from tape, or about the location of an original file.

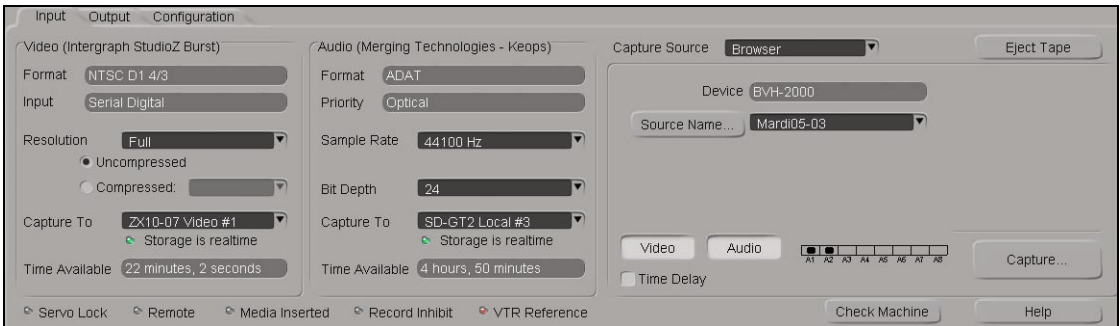
Recapturing clips with existing media lets you select a different capture quality for these clips. You can initially capture clips at a lower quality to save disk space and increase processing time. You can also recapture clips with existing media that have been partially or completely purged.



Avid|DS stops the deck, rewinds and then pre-rolls before capturing material. If, however, it detects two or more clips on the same tape and they are separated by less than 5 seconds, it will skip the pre-roll and capture both pieces of media in one pass. This feature, known as *streaming capture*, can reduce the time to recapture media especially if your media is lined up one right after the other on a single tape.

To recapture clips from the browser

1. From the Media Input/Output layout, select the Input panel.
2. From the Capture Source list, select **Browser**.



Setting up a capture from the browser



3. From the Contents view of the browser, select the master clips that you want to capture or recapture.
4. Click **Video** to recapture the video portion of your media.
5. Click **Audio** to recapture the audio portion of your media.
6. Assign the incoming audio tracks to the appropriate channels of your clip using the channel routing matrix.
7. If you want the capture to begin immediately, leave the **Time Delay** option deselected. If you want to capture certain files at a specific time in the future, select the **Time Delay** option.



You can recapture master clips from the browser or timeline at a specific date and time using the **Time Delay** option. This is useful when you're using 3D rendered image files in your sequence. You can render the 3D image files at night, set the **Time Delay** option to begin capture after the render is complete and have everything captured by the next morning.

The Time Delay option is only valid for media that was originally imported from file.

The date/time properties on your computer determine when to start and end your recapture. Make sure your clock is accurate, so that the recapture occurs at the desired time.

8. Click **Capture**.

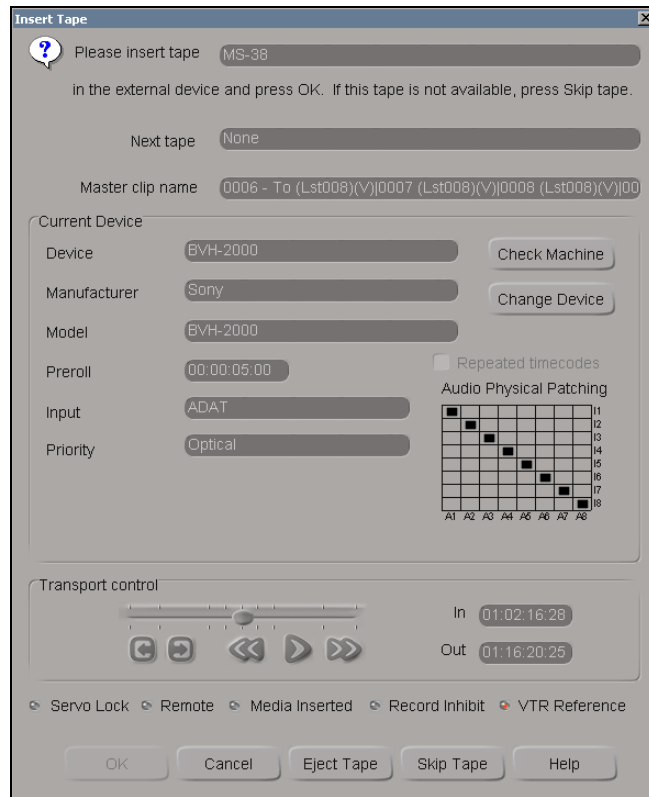
If you're capturing from a tape that is currently in the VTR, then capture starts automatically. As the clips are captured, the progress bar updates.



If Avid|DS is unable to capture the material on the first attempt, it will attempt the capture a second time. If it fails again, Avid|DS will attempt the capture a third time with an additional pre-roll of five seconds. If the capture fails again, the error is displayed in the Capture Error Log, with the possible cause of the problem.

If you encounter problems recapturing material from tape, you should disable the viewer using the Viewer button in the status bar and try capturing again. When recapturing full resolution HD material at 29.97 and 30 frames per second, the viewer is automatically disabled.

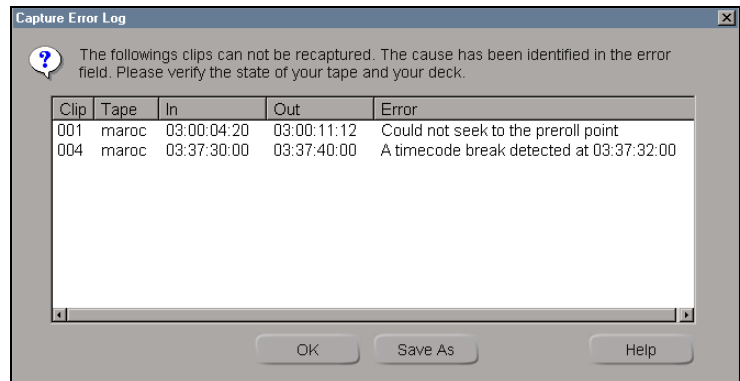
If the tape is not in the VTR, the **Insert Tape** dialog box is displayed.



- Use the transport controls in the dialog box to cue up the VTR.
- If the current device preset is incorrect in any way, including the assignment of audio inputs from the external device, you can modify it by clicking **Change Device**. The Device Configuration dialog box is displayed—see *Configuring the External Device* on page 74.
- Click **Skip Tape** to bypass capturing all the clips with this tape's source name.

If you selected the **Time Delay** option, the Start Capture At dialog box is displayed. Enter the date and time at which you want the capture to begin and click **OK**. The progress bar appears with the current date and time, as well as the capture start date and time you specified.

If any problems are detected during recapture, the Capture Error Log is displayed.



The Capture Error Log dialog box lists all the clips, including tape source name, in, and out-points, that could not be recaptured. It also gives you a brief description of the type of error that occurred.

9. To save this log as an .html file, click **Save As**.
10. In the Save As dialog box, navigate to an appropriate folder, enter a name for the log, and click **Save**.

The log is saved as an .html file and can be viewed in any browser.



If the name or location of the original file has changed, press **Ctrl** and click **Capture** to open the Import File(s) dialog box. You can browse to the appropriate location, or modify the name in the dialog box to match that of the new file you want to capture.

Click **Help** for detailed information on the Input panel.

Capturing Clips from the Timeline

When you create a log of clips from a tape, file, EDL, OMF, or ALE, master clips with no media are created in the browser. You can still place these clips on the timeline, and edit their in and out-points before capturing the media.

You can also capture media from clips on the timeline when you want to use a different quality.

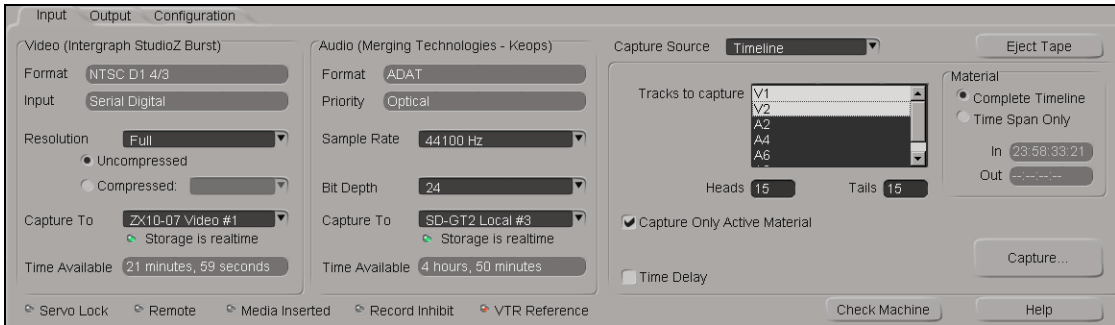


When you capture from the timeline, all the frames in a clip are recaptured unless otherwise specified.



To recapture clips from the timeline

1. From the Media Input/Output layout, select the **Input** panel.
2. From the Capture Source list, select **Timeline**.



Setting up a capture from the timeline

3. In the **Tracks to Capture** box, select the tracks from which you want to capture.
4. To record additional material before the in-point and after the out-point, enter the appropriate number of frames in the **Heads** and **Tails** text boxes.



You can only add heads and tails to the clip on the timeline up to the length of the original master clip. You cannot extend the clip beyond what was originally captured.

5. To capture only the active frames of clips on the timeline, select the **Capture Only Active Material** option.



When you select this option, clips with time effects (Timewarp, Interlace, Deinterlace, 3:2 Expand, or 3:2 Contract) are recaptured in their entirety regardless of the active areas. For all other types of container clips, only the active portions of the container clips are recaptured.

6. If you want the capture to begin immediately, leave the **Time Delay** option deselected. If you want the capture to begin at a specific time, select the **Time Delay** option.
7. To capture the clips on the timeline, select one of the following options:
 - **Complete Timeline** to capture the entire timeline.
By default, the full length of the current timeline's in and out-points are displayed in the In and Out timecode boxes.
 - **Time Span Only** to capture a specific section of the timeline. You must indicate the in and out timecodes in the In and Out timecode boxes.
8. Click **Capture**.



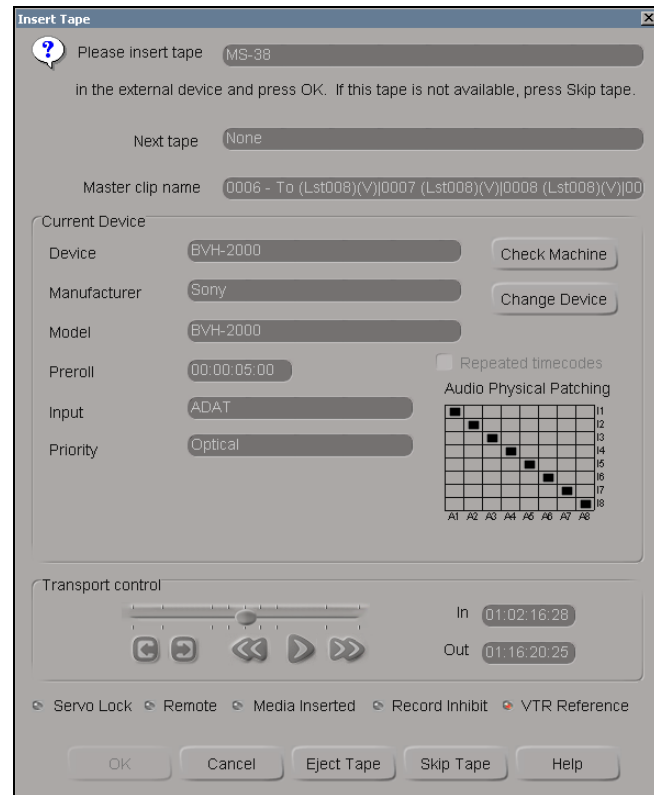
If you're capturing from a tape that is currently in the VTR, then capture starts automatically. As the clips are captured, the progress bar updates.



If Avid|DS is unable to capture the material on the first attempt, it will attempt the capture a second time. If it fails again, Avid|DS will attempt the capture a third time with an additional pre-roll of five seconds. If the capture fails again, the error is displayed in the Capture Error Log, with the possible cause of the problem.

If you encounter problems recapturing material from tape, you should disable the viewer using the Viewer button in the status bar and try capturing again. When recapturing full resolution HD material at 29.97 and 30 frames per second, the viewer is automatically disabled.

If the tape is not in the VTR, the Insert Tape dialog box is displayed.



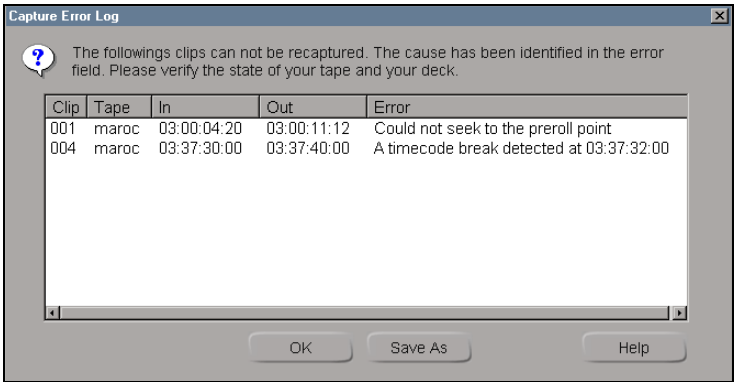
- Use the transport controls in the dialog box to cue up the VTR.



- If the current device preset is incorrect in any way, including the assignment of audio inputs from the external device, you can modify it by clicking **Change Device**. The Device Configuration dialog box is displayed—see *Configuring the External Device* on page 74.
- Click **Skip Tape** to bypass capturing all the clips with this tape’s source name.

If you selected the **Time Delay** option, the Start Capture At dialog box is displayed. Enter the date and time at which you want the capture to begin and click **OK**. The progress bar appears with the current date and time, as well as the capture start date and time you specified.

If Avid|DS detects any problems during recapture, the Capture Error Log is displayed.



The Capture Error Log dialog box lists all the clips, including tape source name, in, and out-points, that could not be recaptured. It also gives you a brief description of the type of error that occurred.

9. To save this log as an .html file, click **Save As**.
10. In the Save As dialog box, navigate to an appropriate folder, enter a name for the log and click **Save**.

The log is saved as an .html file and can be viewed in any browser.

Creating a Batch Capture List

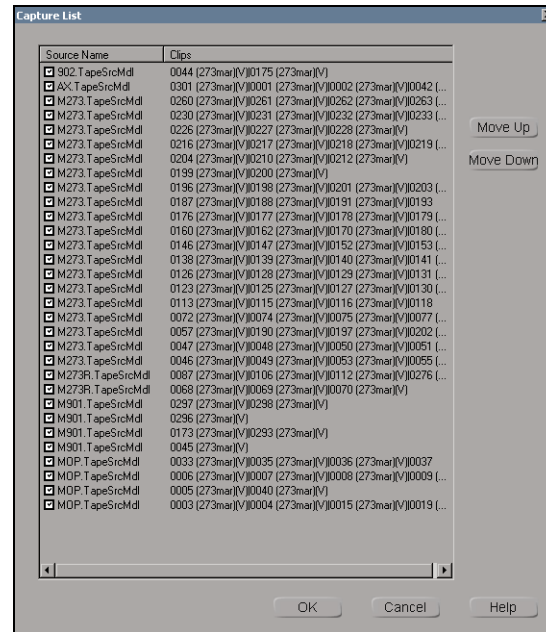
When you have several clips to recapture, it is sometimes useful to generate a list to review what you’re recapturing. The capture list in Avid|DS not only lets you review what you’re capturing, but also lets you prioritize items, as well as remove items from the list.

To create a batch capture list

1. Select the items for recapture in the browser or timeline.
2. In the Media Input/Output layout, select the **Input** panel.

3. From the Capture Source list, select either **Timeline** or **Browser**.
4. Set the capture settings as required—see *Capturing Clips from the Browser* on page 104 or *Capturing Clips from the Timeline* on page 107.
5. Press Alt and click **Capture**.

The Capture List dialog box is displayed.



Clips with check marks beside them are part of the list and will be recaptured

6. Double-click an entry in the list to remove it from the list of clips to be recaptured. Double-click it again to add it back to the list.
7. Using the **Move Up** and **Move Down** buttons, prioritize the capture list by moving more important clips to the top of the list and less important ones to the bottom.
8. Click **Source Name** or **Clips** in the title bar to sort the list according to the source name or the clip name.
9. Click **OK** to begin capturing.

If you are capturing from a tape that is currently in the VTR, then capture starts automatically. As the clips are captured, the progress bar updates.

If the tape is not in the VTR, the Insert Tape dialog box is displayed.

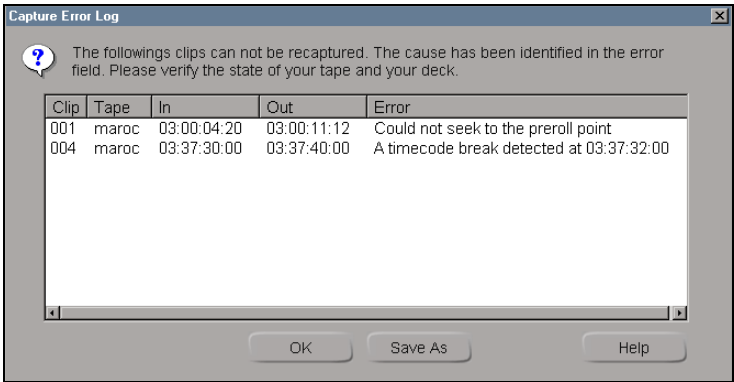
- Use the transport controls in the dialog box to cue up the VTR.



- If the current device preset is incorrect in any way, including the assignment of audio inputs from the external device, you can modify it by clicking **Change Device**. The Device Configuration dialog box is displayed—*Configuring the External Device* on page 74.
- Click **Skip Tape** to bypass capturing all the clips with this tape’s source name.

If you selected the **Time Delay** option, the Start Capture At dialog box is displayed. Enter the date and time at which you want the capture to begin and click **OK**. The progress bar appears with the current date and time, as well as the capture start date and time you specified.

If Avid|DS detects any problems during recapture, the Capture Error Log is displayed.



The Capture Error Log dialog box lists all the clips, including tape source name, in, and out-points, that could not be recaptured. It also gives you a brief description of the type of error that occurred.

10. To save this log as an .html file, click **Save As**.
11. In the Save As dialog box, navigate to an appropriate folder, enter a name for the log and click **Save**.

The log is saved as an .html file and can be viewed in any browser.

Click **Help** for detailed information on the capture list options.

Using Scripts to Capture Media

Avid|DS lets you create scripts to automate the capture process. Instead of defining the capture properties each time you capture media, you can do it once, create a script based on what you did, and then run that script the next time you capture. Creating a script can be as simple as copying the contents of the History pane to the Editing pane of the Script Editor and then saving it.

A script is a set of commands that can be executed in sequence as if they were a single command. Simple scripts are a set of native Avid|DS commands.



More advanced scripts use a third-party scripting language as the glue that holds the commands together. With a scripting language, your scripts can use variables, constants, conditional statements, loops, and procedures. You can change the default scripting language on the User Preferences dialog box (Scripting/Logging property page). For more information, see *Choosing a Scripting Language* in the online help.

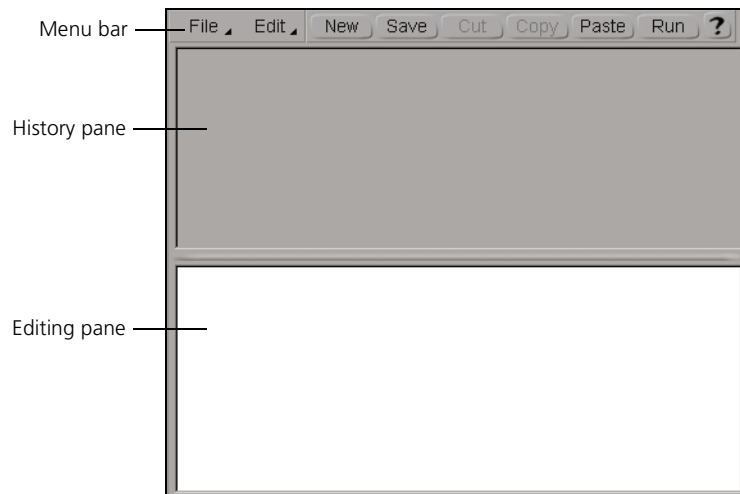


When using a script to capture media, make sure that the Start Capture command appears only once at the end of your script. If your script contains more than one Start Capture command, it will not work.

To create a script for capturing media

1. From the View menu, choose **Views > Script Editor**.

The Script Editor view is displayed.



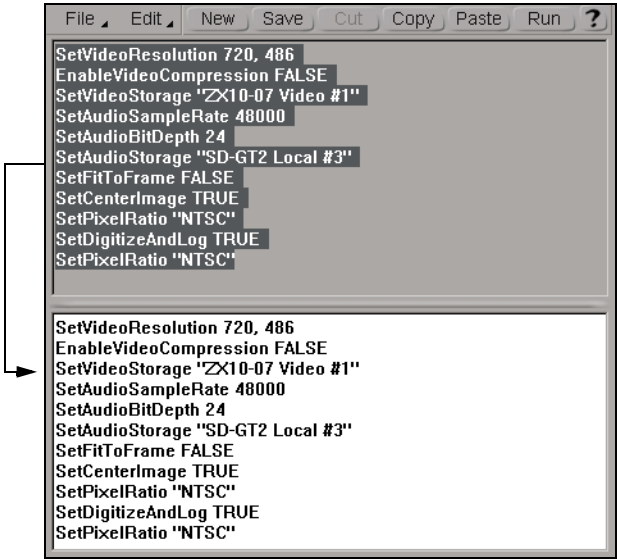
2. From the Media Input/Output Layout, select the **Input** panel.
3. Configure the video and audio input.
Each command that you set is logged in the History pane of the Script Editor.
4. Choose a capture source and select the appropriate settings for your capture session.
5. Depending on which options you choose, click **Capture**, **Log**, **Link**, or **Import**.

If you chose File as your capture source, the File Import dialog box is displayed. Choose the file(s) you want to import and click **Open**.



6. Once the capture is complete, select the contents of the History pane in the Script Editor.
 7. From the menu bar, click **Copy** or press Ctrl+C .
 8. Click in the Editing pane and then click **Paste** or press Ctrl+V.
- The contents of the History pane are displayed in the Editing pane.

Copy contents from History pane to Editing pane to create a script.



9. Click **Save**.
- The Save As dialog box is displayed.
10. Enter a name for your script in the **File name** text box and click **Save**.
- By default, all scripts are saved in the DSScripts folder.



Click the **Help** icon for detailed information on the Script Editor.

To run an existing script

1. From the Script Editor, choose **Open** from the File menu.
- The Open dialog box is displayed.
2. Browse through the folders to locate the script you want to run. Select the file and click **Open**.
- The contents of the script appear in the Editing pane of the Script Editor.
3. If you want to make changes to the script, you can modify the contents of the script by cutting, copying, or typing directly into the Editing pane.
 4. Click **Run**.



The script runs through each line and performs the associated commands.



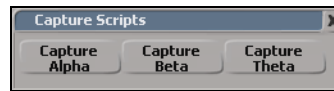
Once a script is running, the only way to terminate it is to exit Avid|DS. Never test your script by running it on valuable unsaved data.



Click the **Help** icon for detailed information on the Script Editor.

To create a toolbar button for a script file

1. Create a media input script and save it in the **DSScripts** folder.
2. In the browser, open the **DSScripts** folder.
3. Select the script file you created and drag it to a toolbar.



The Add Script Command dialog box is displayed.



You can also create a toolbar button from one or more lines in the History or Editing pane of the Script Editor. Select the contents of the script and then drag them onto a toolbar. A toolbar button is created with the name *Scriptnumber*.

4. In the **Command Name** text box, enter a name for the toolbar button.
By default, the Command Name is the name of the saved script file.
5. Specify a **Command Name for Scripting**. This is the name that is logged to the command history when you click on the toolbar button. You can also use this name to invoke this script from within another script. The command name for scripting cannot use spaces or punctuation.
6. If necessary, select the scripting language from the **Language** list. The list contains the supported languages that are installed on your computer.

If you dragged lines from the Script Editor onto the toolbar, then the default language is the one specified in your preferences—refer to *User Preferences dialog box* (Scripting/Logging property page) in the online help.

If you dragged a saved file, the default language is based on the file name extension:

Scripting language	File extension
JScript	.js
PerlScript	.pls
Python Active X Scripting Engine	.pys
VB Script Language	.vbs



7. Do one of the following:

- If your script does not contain any procedures, there is nothing more to do. Click **OK** to close the Add Script Command dialog box and add the button to your toolbar.
- If your script does contain procedures, continue with the following:

8. Click **Parse Script**.

The script is parsed and the procedures and arguments are “found”.



Parsing a script may execute global code, that is, any code that is not within a defined procedure. In such cases, it will also run procedures that are called from global code.

9. If your script contains procedures, you can specify which one to execute when the button is clicked. Select a procedure from the **Script Procedure** box. If you do not specify a procedure, only global code will be executed, as well as any procedures that are called from global code.



Even when a procedure is specified, global code may be executed before the procedure is called. This is a side-effect of parsing the script with some scripting engines. To be certain that your script behaves predictably in all situations, do not mix global code and procedures.

10. If the selected procedure contains arguments, they are listed under **Parameters**. For each argument, specify the value to use when the script is run by doing one of the following:

- Enter a value in the corresponding **Value** box. This value will be used whenever you click the button to run the script.
- Click twice in the **Value** box, and select **Prompt On Run** from the list. With this option, when you click the button to run the script, a dialog box prompts you to enter a value.

11. Click **OK**. The Add Script Command dialog box closes and the new button is added to the toolbar.



If you want to go back and edit the script, right-click on the toolbar button and choose **Edit Script** from the menu. A dialog box is displayed asking you if you want to save your script, click **No**. The contents of your script are displayed in the Editing pane of the Script Editor and are ready for editing.



Importing Render Passes from SOFTIMAGE|3D

If you work with 3D elements produced in SOFTIMAGE|3D, you can quickly and easily preview render passes in Avid|DS. Using the GENout shader for SOFTIMAGE|3D, you can render a .gen file, create a master clip in Avid|DS and then play it back in real time.

Installing the GENout Shader in SOFTIMAGE|3D

You need to install the GENout shader before you can use SOFTIMAGE|3D to create your render pass. The GENout shader is in the \Plug-Ins\GENout folder of the Avid|DS CD.

To install the GENout shader

1. In SOFTIMAGE|3D, place the shader executable (GENout.dll) in the lib20 folder of your mental ray® shader database.

Typically this is located at: <install location>\Softimage\SOFT3D_3.9SP1\mental_ray\MR_Shaders\Shader_Lib\lib20

2. Place the shader description file (sib_GENout.out) in the OUTPUT_SHADERS folder of your mental ray shader database.

Typically this is located at: <install location>\Softimage\SOFT3D_3.9SP1\mental_ray\MR_Shaders\Shader_Lib\OUTPUT_SHADERS

Creating a Render Pass with the GENout Shader

Once the GENout shader is installed, you must add it to your scene before you create the render pass.

To create a render pass with the GENout shader

1. In SOFTIMAGE|3D, go to **Matter > Render Settings**.
2. Set the render type to **mental ray 2.1**.
3. Set the appropriate rendering resolution.
4. Set the start and end frame range.
5. Open the Rendering Options dialog box (**Matter > Render > Options**).
6. Add a new output shader (Select button under Output Shaders).



The GENout shader should be added as the last shader in the stack, so all effects will be processed.

7. In the file browser, go to the Shader_Lib database and select the **sib_GENout** output shader.



8. Edit the output shader (Edit under Output Shaders). A dialog box is displayed with the shader parameters. Set them as follows:

- **Start Frame:** This is the first frame number of the sequence you will render. Usually this will be 1.
- **Render Color Channels:** Select this if you want to render the RGB information in a .gen file.
- **Render Alpha Channel:** Select this if you want to render the alpha information in a .gen file.
- **Color Space:** Select the desired color space. 0 for RGB and 1 for YUV.
- **File Name:** File name for the rendered sequence.



Do not include the file name extensions; this will be handled by the shader. For example, when given the file name
C:\Renders\Shot3\BeautyPass

The file will be written as:

C:\Renders\Shot3\BeautyPass_YUV_CMP.gen (for a YUV color channel file)

Now you can just render your sequence as usual. As frames are finished, they are inserted in the .gen file.

Creating a Master Clip from the Rendered .gen File

Once you've rendered the .gen file with the GENout shader, you can create a master clip in Avid|DS.



Although the Gen to Clip command creates a master clip in the browser and can be used in your project, the master clip does not contain any source media information. As a result, if you purge the media, you will not be able to recapture it. If you try to archive a project with master clips that were created using Gen to Clip, the clips will not be archived with your project, unless the media resides inside the current project.

The Gen to Clip command should only be used for .gen files created by SOFTIMAGE|3D. Do not use the Gen to Clip command to create master clips from .gen files created by Avid|DS.



To access the Gen to Clip command, right-click on a toolbar and choose **Customize** from the menu. In the Customize Toolbar property editor, drag **Gen to Clip** from the Available Commands list to the toolbar.



To create a master clip from the rendered .gen file

1. In Avid|DS, click **Gen to Clip**.

The Open dialog box is displayed.

2. Select the .gen file that you rendered and click **Open**.
3. A new master clip appears in the browser.



The .gen files should be in a valid VideoStorage directory.

The name of the master clip created will be the same as the name of the selected .gen files. You can now drag the clip to the timeline. For the clip to be real-time playable, the project and .gen file types must match (either RGB or YUV). If not, you must first process the clip to convert the type.



Once the master clip has been created, you can re-render your scene and then play it back in Avid|DS without having to create another master clip or recapture your media.

Importing Render Passes from SOFTIMAGE|XSI

You can also import render passes from SOFTIMAGE|XSI. Using the GENout shader for SOFTIMAGE|XSI, you can render a .gen file, create a master clip in Avid|DS and then play it back in real time.



The GENout shader for SOFTIMAGE|XSI and its installation instructions are available from Avid|DS Customer Service.

Creating a Render Pass with the GENout Shader

1. In SOFTIMAGE|XSI, go to the Render toolbar.
2. Click **Render > Options**.
3. Select the **Format** tab, and make sure that the Picture Standard is the same as the video format you're using in Avid|DS.
4. In the Selection panel, click **Explore > Current Pass**.
5. In the Explorer, double-click the current pass.

The Current Pass property page is displayed.

6. Select the **Output Shader** tab, and click **Add**.
7. From the Load a Preset dialog box, navigate to the Output folder, choose **sib_GENout**, and click **OK**.
8. Select the sibGENout shader from the Output Shader Stack and click **Inspect**.



9. From the sibGENout property page, use an absolute path to specify a name for the render passes, and the location where they will be saved.



The render passes should be saved directly into the video storage area of the Avid|DS workstation.

10. Leave the other settings at their default values.



Do not include the file name extensions; this will be handled by the shader. For example, when given the file name
C:\Renders\Shot3\BeautyPass

The file will be written as:

C:\Renders\Shot3\BeautyPass_YUV_CMP.gen (for a YUV color channel file)

Now you can just render your sequence as usual. As frames are finished, they are inserted in the .gen file.

Creating a Master Clip from the Rendered .gen File

Once you've rendered the .gen file with the GENout shader, you can create a master clip in Avid|DS.



Although the Gen to Clip command creates a master clip in the browser and can be used in your project, the master clip does not contain any source media information. As a result, if you purge the media, you will not be able to recapture it. If you try to archive a project with master clips that were created using Gen to Clip, the clips will behave like linked clips and will not be archived with your project.

The Gen to Clip command should only be used for .gen files created by SOFTIMAGE|XSI. Do not use the Gen to Clip command to create master clip from .gen files created by Avid|DS.



To access the Gen to Clip command, right-click on a toolbar and choose **Customize** from the menu. In the Customize Toolbar property editor, drag **Gen to Clip** from the Available Commands list to the toolbar.



To create a master clip from the rendered .gen file

1. In Avid|DS, click **Gen to Clip**.

The Open dialog box is displayed.

2. Select the .gen file that you rendered and click **Open**.
3. A new master clip appears in the browser.



The .gen files should be in a valid VideoStorage directory.

The name of the master clip created will be the same as the name of the selected .gen files. You can now drag the clip to the timeline. For the clip to be real-time playable, the project and .gen file types must match (either RGB or YUV). If not, you must first process the clip to convert the type.



Once the master clip has been created, you can re-render your scene and then play it back in Avid|DS without having to create another master clip or recapture your media.





Chapter 4 **Working with Sequences**



In This Chapter...

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

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Opening Sequences 127

Setting Sequence Preferences 131

Saving Sequences 150

Searching for Sequences 152

Importing Sequences from Another Project. 154

Deleting Sequences 157

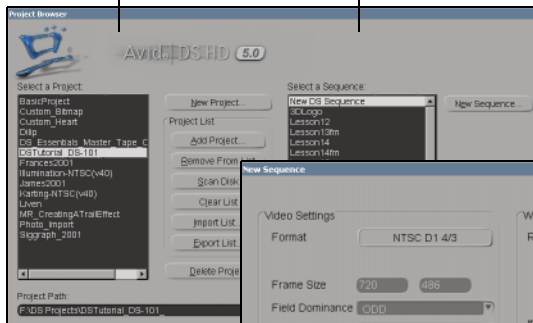
Workflow: Working with Sequences

Before you open a sequence, you must first open the project to which it belongs. The sequence is where you perform all your editing. The following illustration shows a simple editing scenario in Avid|DS.

1 Open project and sequence

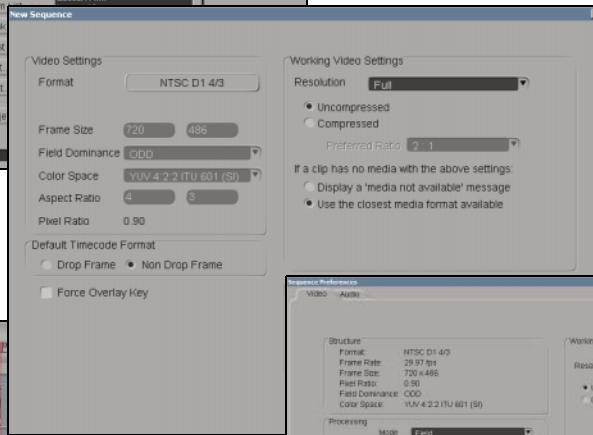
Select project

Select sequence



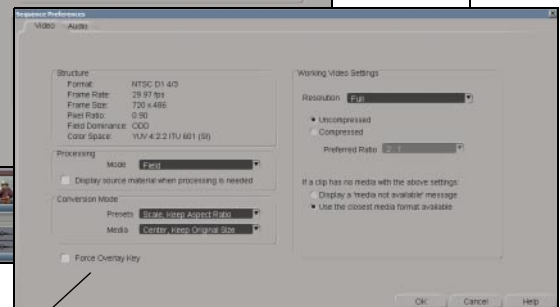
2 Set sequence preferences

Set your video and audio formats, and video resolution or compression



Sequence preferences can be changed during the course of a project to work on media at different qualities

3 Construct and save sequence



Process and output media at the new quality settings





You can easily create, open, and manage the sequences in your project using the Project Browser. When you open a sequence in Avid|DS, you can immediately begin audio/video editing, compositing, painting, titling, or audio mixing. Because the Avid|DS environment is nonlinear, these tasks can be performed in any order, changed at any time, and moved to any location.

Avid|DS 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 production, you can recapture the media at a higher resolution, and reprocess the effects.

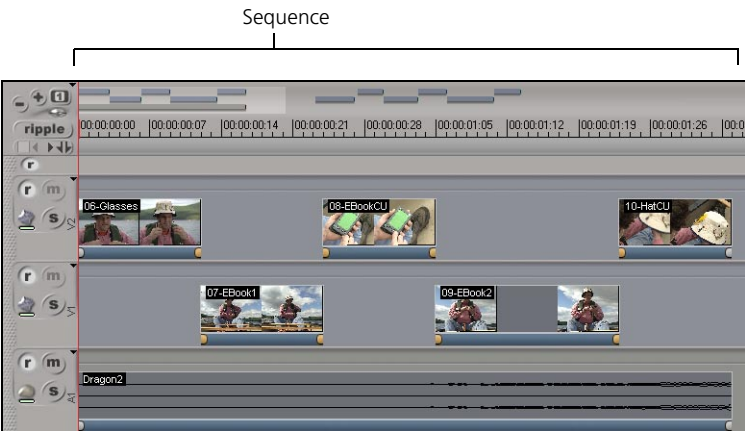


Although you can work with media that has different resolutions and compression ratios in the same sequence, you cannot work with compressed and uncompressed media in the same sequence.



Opening 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.

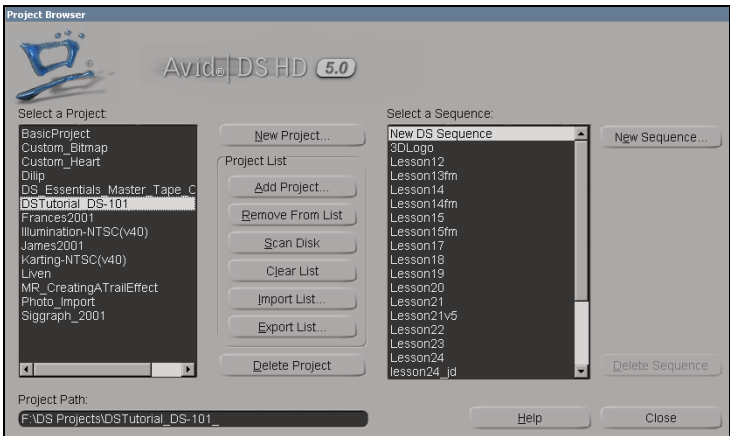


Sequences always belong to a particular project. Before you create or open a sequence, you must open the project to which it belongs. To get a quick view of all the projects on any workstation on the network, open the Project Browser dialog box.

To access the Project Browser dialog box

- From the File menu, choose **Open > Project**.

The Project Browser dialog box is displayed.





Creating a New Sequence

You must create sequences from within a project. You can either select a project from the Project Browser 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. From the File menu, choose **Open > Project**.
The Project Browser 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 displays any other sequences that belong to this project.
3. From the Select a Sequence box, select **New DS Sequence** from the list.
4. Click **New Sequence**.

The New Sequence dialog box is displayed. 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 131.



Avid|DS requires that you have at least 10% of your system memory (RAM) free at all times. As a result, you may not be able to create sequences with a custom formats which have resolutions that are much greater than the standard video resolution, such as 2000×1500. To avoid this problem, either reduce the size of your custom sequence or add more memory to your system.

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

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



While you have a project open, you can create new sequences directly from the File menu.

To create a new sequence within the current project

1. From the File menu, choose **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.



Opening an Existing Sequence

To create a new sequence with different sequence preferences

1. From the File menu, choose **New > DS 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 sequence.

The New Sequence dialog box is displayed.

3. Set the preferences for the new sequence and click **OK**.

A new sequence is opened in the current project with the new sequence preferences.

Click **Help** for detailed information on the New Sequence dialog box.

You can open a sequence in one of three ways:

- From the Project Browser dialog box, if you want to open a sequence in another project,
- From the File menu, if your project is already open, or
- By double-clicking on the sequence in the browser.

You can modify the contents and working quality options of a sequence at any time.



Each time you start Avid|DS, 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.

To open a sequence from the Project Browser dialog box

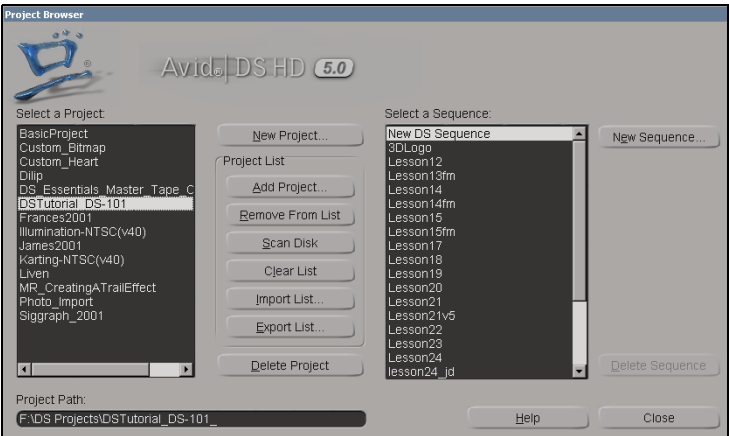
1. From the File menu, choose **Open > Project**.

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 Project Browser dialog box is displayed.



3. In the **Select a Project** box, select the project to which your sequence will belong.
The **Select a Sequence** box displays any other sequences that belong to this project.
4. From the **Select a Sequence** box, select a sequence and click **Open Sequence**.
Click **Help** for detailed information on the Project Browser dialog box.

To open a sequence from the File menu

1. From the File menu, choose **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 distinguished by the sequence icon.
4. Click **OK** or double-click on the sequence to open it.

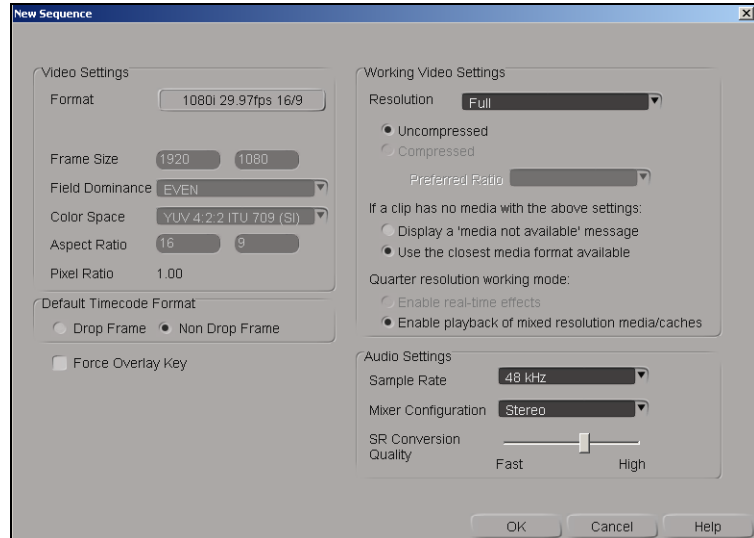
To open a sequence from the browser

1. Locate the sequence in the browser.
2. Double-click on the sequence.
If the sequence you are currently working on has not been saved, you are prompted to do so.
3. Click **Yes** to save the current sequence.
The sequence is opened.



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. You can, however, change these preferences for individual sequences within a project.



Setting preferences for a new sequence

There are three main questions that you should consider before creating your sequence:

1. What video and audio format am I going to work with?
2. What resolution should I use for my media?
3. Do I need to compress my media?

Depending on your hardware configuration, Avid|DS lets you work in a variety of video formats, such as PAL D1, NTSC D1, 720P, 1080I, 1080PsF, as well as custom formats. For some of the video formats, you must also select a corresponding aspect ratio, color space, and frame rate. Depending on the format you choose, some parameters, such as field dominance and pixel ratio are set automatically. Other formats, such as the Custom option, let you set most of the parameters yourself.

Once the video format has been selected, it cannot be changed. You can also work with a variety of different audio sample rates and/or bit depths. Unlike video formats, audio sample rate and bit depth can be changed at any time—see *Changing the Sequence Preferences* on page 142.



Avid|DS requires that you have at least 10% of your system memory (RAM) free at all times. As a result, you may not be able to create sequences with custom formats which have resolutions that are much greater than the standard video resolution, such as 2000×1500. To avoid this problem, either reduce the size of your custom sequence or add more memory to your system.

The second and third questions determine how Avid|DS performs during the editing process. The working video settings let you work with video media at high or low resolution, with or without compression. You can change these settings at any time to accommodate the task you are performing.

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 disk array.



Some of the video formats, such as 720P, 1080I, and 1080P, are only available with the high definition (HD) version of Avid|DS and the accompanying hardware.

Setting the Audio and Video Format

The audio and video formats set the standard for the audio and video clips that will be used in your sequence. Avid|DS supports several standard video formats, as well as a custom format that allows you to set the parameters the way you want. When you create a new sequence, you must select an audio and video format.

To set the video format

- In the New Sequence dialog box, select a format from the **Format** list in the Video Settings box.

When you choose a video format, you must also define the aspect ratio, color space, and frame rate. The frame size, field dominance, and pixel ratio are based on the format you chose. These settings cannot be changed after you click **OK**.

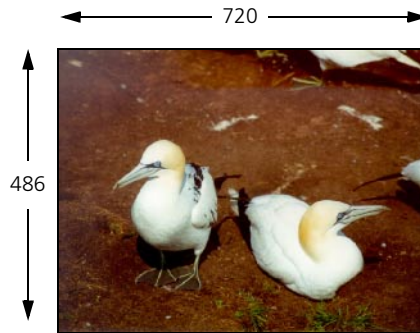


If you choose a drop-frame format, such as NTSC, you also have the option to display timecode as either drop frame or non-drop frame. This option only affects the timecode display and not the sequence frame rate.

Click **Help** for detailed information on the New Sequence dialog box.

About Frame Size

Frame size is the dimensions of a digital image in Avid|DS. These measurements are based on DSUs (Avid|DS units), so that there is a common unit of measurement between video images and computer-generated graphics.



An NTSC D1 4:3 image by default has a frame size of 720×486 pixels.

A PAL D1 4:3 image, however, has a default frame size of 720×576 pixels.

A 16:9 HD image can have a variety of frame sizes, such as 1920×1080 pixels or 1280×720 pixels.

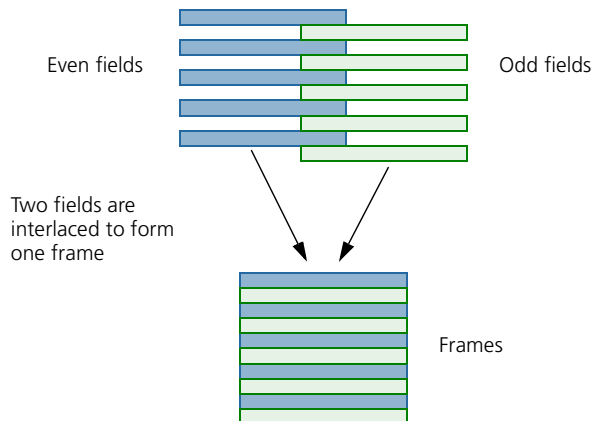
Frame size or dimensions of an NTSC image within Avid|DS

About Field Dominance

NTSC and PAL 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. The two fields are combined (interlaced) to form one frame. For more information, refer to *Frames Versus Fields* on page 24 of the Avid|DS Compositing & Effects Guide.



HD video material can either be interlaced or progressive, such as 1080I or 1080P. As mentioned previously, 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. For more information, refer to *Interlacing Versus Progressive Scanning* on page 24 of the Avid|DS Compositing & Effects Guide.



Interlaced fields

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.



In Avid|DS, you can 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 rotokey. For more information, refer to *Deinterlace Effect* on page 345 and *Interlace Effect* on page 347 of the Avid|DS Compositing & Effects Guide.

About Color Space

Color space determines how the color components of the video signal are represented on your screen. There are three pixel formats available: YUV 4:2:2 (601), YUV 4:2:2 (709), and RGB. Avid|DS converts all imported material to the pixel format or color space of the sequence. All material imported in RGB color space, uses 32 bits per pixel and contains an alpha channel, even if you did not import the alpha channel. For material imported in the YUV 4:2:2 color space, you have the choice to include the alpha or not. YUV 4:2:2 uses 16 bits per pixel, whereas YUV 4:2:2 with alpha uses 32 bits per pixel.



By default, all NTSC, PAL, and HD sequences are in YUV color space. As a result, all the material you capture will be in YUV color space.

Cache media, created from processed effects, transitions, or composites, is treated differently than source media. Effects, transitions, and composites can be divided into two categories: real-time effects and processed effects. All real-time effects are created in YUV color space, and all processed effects are created in RGB color space regardless of the color space setting of your sequence. As a result, some banding may occur when you're working with a YUV sequence that contains effects being processed in RGB. To solve this problem, you can apply the RGB-YUV Dither effect. For more information, refer to *RGB-YUV Dither Effect* on page 265 of the Avid|DS Compositing & Effects Guide.



Instead of using your graphics accelerator card, which displays images in YUV color space, you can select the **S/W Display** button in the Viewer toolbar, which uses RGB color space to display images in the viewer. However, you cannot play back your sequence in real-time in S/W Display mode.

About Aspect 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.



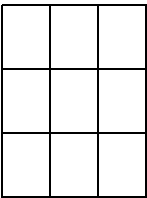
About Pixel Ratio

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. Computer-generated images, however, have square pixels with a ratio of 1.0. Avid|DS has to map square pixels to rectangular pixels when capturing images from file.

As a result, a D1 NTSC video frame displayed on a computer screen appears slightly wider than reality because the pixels are taller than they are wide. A D1 PAL frame displayed on a computer screen, however, appears slightly taller than reality because the pixels are wider than they are tall.

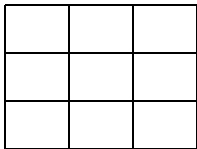
Avid|DS can compensate for different pixel ratios, so that a captured image does not appear distorted. When you capture material from file, you must set the file's pixel ratio, which tells Avid|DS the original state of the material.

D1 NTSC pixels (0.9)



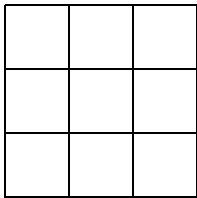
D1 NTSC pixels (0.9).
Pixels are taller than they are wide.

D1 PAL pixels (1.07)



D1 PAL pixels (1.07).
Pixels are wider than they are tall.

Computer generated pixels (1.0)



Computer generated pixels (1.0). Pixels are square.

NTSC D1, PAL D1, and square pixel ratios

To set the audio format

- In the New Sequence dialog box, select a sampling rate from the **Sample Rate** list in the Audio Settings box.



The default audio sample rate is set to the highest sample rate supported by the installed hardware.

Click **Help** for detailed information on the New Sequence dialog box.

About Audio Quality

Audio quality defines the sample rate and bit depth at which an audio signal is captured. The higher the sample rate, the more accurate the digital representation of the signal. A higher sample rate produces better quality, but uses more disk space. If you lower the sample rate, you risk degrading the sound quality.



Setting the Working Video Quality

You can set the sample rate conversion quality, which determines the quality at which your sample rate is converted. The more bits you have, the more precisely you can represent the sample amplitude.

You can also set the mixer configuration, which determines the number and type of outputs displayed on the mixer. You can choose from a number of configurations, such as mono, stereo, quadrasonic, and 5.1.



You can modify the current sequence's audio quality settings in the Sequence Preferences dialog box.

When working with digitized video and audio, it's easy to consume large amounts of valuable storage space. That's why it is important to use your storage space efficiently. Avid|DS gives you the flexibility to work with different media qualities.

Video media quality is determined by two factors:

- Resolution, which is the amount and degree of detail in a video image, and
- Compression, which is a technique used to reduce the amount of space necessary to store video data.

You can work at full, half, or quarter resolution, 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. You can change the video settings at any time if you want to display or process media at a different quality.



When you create a new sequence or open an existing sequence, and change the working quality settings, you can also set new defaults for capturing, outputting, and processing files. You can override these settings when capturing or outputting media.

To define the working quality

1. From the File menu, choose **New > DS Sequence**.
2. In the Working Video Settings box, make a selection from the **Resolution** list. Setting it at full resolution results in large, high-quality media and cache files. Setting it at quarter resolution results in smaller, lower-quality media and cache files.
3. 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.



You can capture both compressed and uncompressed video media but you cannot use them at the same time within a sequence.

4. 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 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 uses only the media that matches the selected working video settings. If there is no media to match the working settings, a “Media Not Available” message is displayed in the viewer. This serves as a good indicator when you’ve captured video that does not conform to your sequence preferences. For more information about displaying the closest media, see *About Video Quality Matching* on page 138.

Click **Help** for detailed information on the New Sequence dialog box.

About the Working Resolution

The resolution you set affects the size of cache files. The higher the resolution, the larger the size of the cache files.

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.



In Avid|DS HD, working in quarter resolution gives you the same real-time effects that are available in the standard version of Avid|DS.

For more information see *Using Real-time Effects in Avid|DS HD* on page 80 of the Avid|DS Compositing & Effects Guide.

About the Working Compression Ratio

Compression is a technique used to reduce the amount of space necessary to store video information. 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. Compressed data usually suffers some loss or degradation from the original source. If you choose to work with compressed media, you can use clips that have been captured at different compression ratios. After you’ve done a rough cut, you can purge the compressed media, and recapture the edited material with less or no compression.

You can capture both compressed and uncompressed media, but you cannot use them both *at the same time* within a sequence. If you’re using compressed media, however, you can mix different compression ratios within a sequence.



About Video Quality Matching

Since Avid|DS supports multiple qualities for your video material, you can choose the version of the captured media that you want to use.

As you set your sequence preferences, such as the working resolution, compression, or sample rate, you are defining 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 can either:

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

Quality matching is used for both video and audio. 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. In both cases, Avid|DS first tries to find the media that exactly matches your sequence preferences. For more information, see *About Audio Quality Matching* on page 141.

For video, Avid|DS looks for an exact match when the play cursor passes over the clip on the timeline. To find an exact match for the video media, Avid|DS does the following:

1. **Resolution:** Verifies if there is an exact resolution match.
2. **Aspect ratio:** Verifies if the aspect ratio matches that of the current sequence.
3. **Compression ratio:** Verifies if there is an exact compression ratio match. For the purposes of quality matching, uncompressed media has a compression ratio of 1.0.
4. **Frame rates:** Verifies if the frame rates are identical.
5. **Field dominance:** Verifies 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		
		None	Even	Odd
Sequence preference	None	Yes	No	No
	Even	Yes	Yes	No
	Odd	Yes	No	Yes



6. **Image formats:** Verifies if the following are identical:

- Color Model
- Frame Setup: Physical structure of the image
- Pixel Format: Structure of an image's pixels (YUV 4:2:2 or RGB)
- Bits per Channel: Number of bits used to encode a channel

The test is 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 (if this option was selected) is displayed in the viewer.

If you choose the **Use the closest media format available** option, Avid|DS first looks for an exact match. If it does not find an exact match, then it tries to find the closest match. Once it finds a candidate, it then continues to verify if there are any other candidates that more closely match the sequence preferences.

When choosing a closest match, Avid|DS does the following:

1. **Compression:** Verifies if the compression is compatible. If you are looking for compressed media, any compression ratio will do, except uncompressed (compression ratio of 1.0). Similarly, if you are looking for uncompressed media, only media with a compression ratio of 1.0 will do.
2. **Frame rate:** Verifies if the frame rates are identical.

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 uses the following criteria to determine which media file is a closer match and will be displayed:

1. **Captured versus linked media:** Captured media is considered a closer match than linked media.
2. **Conversion needs:** Media with an image format, size, resolution, 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.
3. **Resolution width:** Media which matches the resolution width is a closer match than one that does not. If none of the candidates match the resolution width of the current sequence, then the media with the greater resolution width is determined to be a closer match.
4. **Resolution height:** Media which matches the resolution height is a closer match than one that does not. If none of the candidates match the resolution height of the current sequence, then the media with the greater resolution height is determined to be a closer match.
5. **Compression ratio:** Verifies if there is an exact compression ratio match. If none of the candidates match the compression ratio, then the media with the smaller compression ratio is determined to be a closer match.



- 6. **Image format:** Media with the same image format as the current sequence is a better match than one that is different.
- 7. **Aspect ratio:** Media with the same aspect ratio as the current sequence is a better match than one that is different.
 - **Width in square pixels:** Media with the same aspect ratio width in square pixels is a closer match than one with a different width. 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:** Media with the same aspect ratio height in square pixels is a closer match than one with a different height. 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.

Once it finds the candidate that is the closest match, Avid|DS 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		
		None	Even	Odd
Sequence preference	None	No	No	No
	Even	No	No	Yes
	Odd	No	Yes	No



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.



About Audio Quality Matching

Unlike video media, you don't have the choice to use an exact match or a closest match for audio media. Avid|DS first tries to find audio media that matches the audio settings for the current sequence. If an exact match cannot be found, then it automatically tries to find the closest match. To find an exact audio media match, Avid|DS does the following:

1. **Sample Rate:** Verifies if there is an exact sample rate match.
2. **Bit Depth:** Verifies if there is an exact bit depth match.

If an exact audio media match is found, then that audio media is used during playback. If any one of the criteria fails, then Avid|DS looks for the media that most closely matches the current sequence settings. When choosing a closest match, Avid|DS looks at the following criteria:

1. **Sample Rate:** Verifies if there is an exact sample rate match.

If no candidates are found with the same sample rate, the audio tracks turn red and you're prompted to convert the audio media to the sample rate of the current sequence. If there are several candidates with the same sample rate, Avid|DS uses the following criteria to determine which media is a closer match:

2. **Captured versus Linked Media:** Captured media is considered a closer match than linked media.
3. **Bit Depth:** Media which matches the bit depth of the current sequence is a closer match than one that does not. If none of the candidates match the bit depth, media with a greater bit depth is determined to be a closer match.

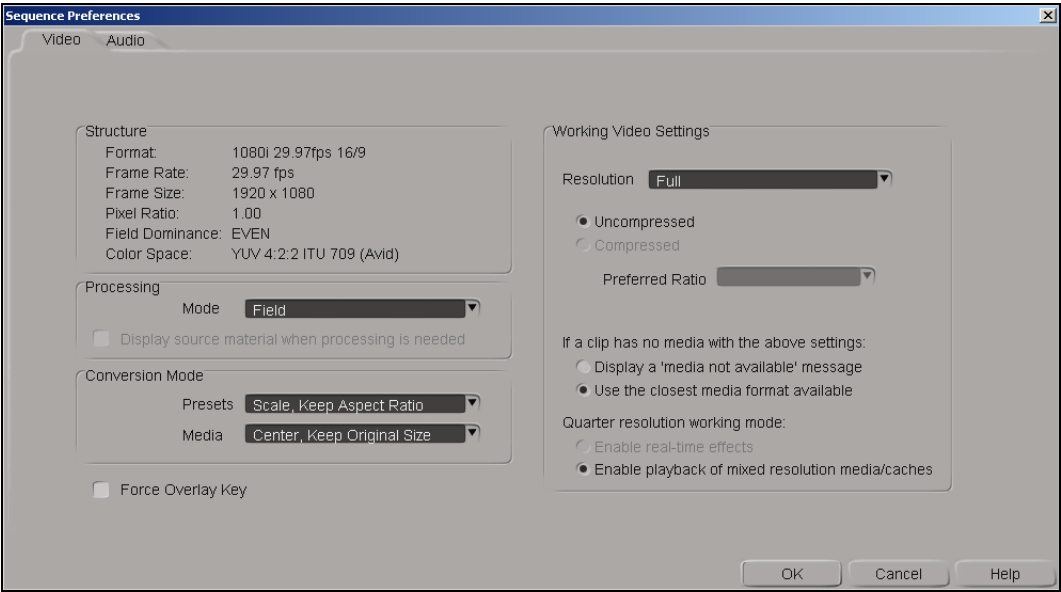


Changing the Sequence Preferences

The video and audio formats determine the image frame size and audio sampling rates, respectively. The video format cannot be changed once you create the sequence. You can, however, change the working video settings, processing and presets settings, and audio preferences at any time.

To change the sequence preferences

1. From the File menu, choose **Sequence Preferences**.



Sequence Preferences dialog box

2. In the Processing box, select one of the following from the Mode list:
 - **Field** to convert the image to fields, which processes each field of your effects and graphics separately, and then reconverts the video information to frames to display the results. Field-based processing takes longer, but is designed to increase the accuracy of animated effects, graphics, and DVEs.
 - **Frame** to process the entire frame (both fields together). This option is typically used with frame-based material.



Even though you set the processing mode for the sequence as a whole, you can still change it in the Processing Options dialog box. For more information, refer to *Setting the Processing Options* on page 137 of the Avid|DS Compositing & Effects Guide.



3. Select the **Display source material when processing is needed** to view the underlying material instead of the “Processing Needed” message when unprocessed material is encountered during playback. If you don’t select it, when you play back a sequence, the “Processing Needed” message is displayed in the viewer when unprocessed material is encountered. This option is only available when working in a SD sequence.
4. To change how preset files are converted when used in other video formats, select one of the following from the **Presets Conversion Mode** list:
 - **Scale to Fit** to scale the preset in both the X and Y axes to fit the sequence settings, such as 16:9 and 4:3. This option does not maintain the aspect ratio of the original preset.
 - **Scale, Keep Aspect Ratio** to scale the preset in both the X and Y axes to fit the sequence settings, but maintains the ratio between width and height. It takes the larger axis of the preset and scales it to fit in the viewer. Then it centers the preset on the other axis.
 - **Center, Keep Original Size** to center the preset in the viewer along both the X and Y axes. This option does not modify the original size of the preset.
 - **Fit X Axis, Keep Aspect Ratio** to scale the preset in the X axis to fit the sequence settings, then scales the preset along the Y axis to maintain the ratio between width and height intact. If the resulting preset is larger or smaller than the sequence settings, it is centered along the Y axis.
 - **Fit Y Axis, Keep Aspect Ratio** to scale the preset in the Y axis to fit the sequence settings, then scales the image along the X axis to maintain the ratio between width and height intact. If the resulting preset is larger or smaller than the sequence settings, it is centered along the X axis.
5. To change how media in both clips and sequences are converted when used in sequences with different video formats, select one of the following from the **Media Conversion Mode** list:
 - **Scale to Fit** to scale the media in both the X and Y axes to fit the sequence settings, such as 16:9 and 4:3. This option does not maintain the aspect ratio of the original media.
 - **Scale, Keep Aspect Ratio** to scale the media in both the X and Y axes to fit the sequence settings, but maintains the ratio between width and height. It takes the larger axis of the preset and scales it to fit in the viewer. Then it centers the preset on the other axis.
 - **Center, Keep Original Size** to center the media in the viewer along both the X and Y axes. This option does not modify the original size of the media.
 - **Keep Original Size and Position** to display the media in the viewer without modifying its original size or position.

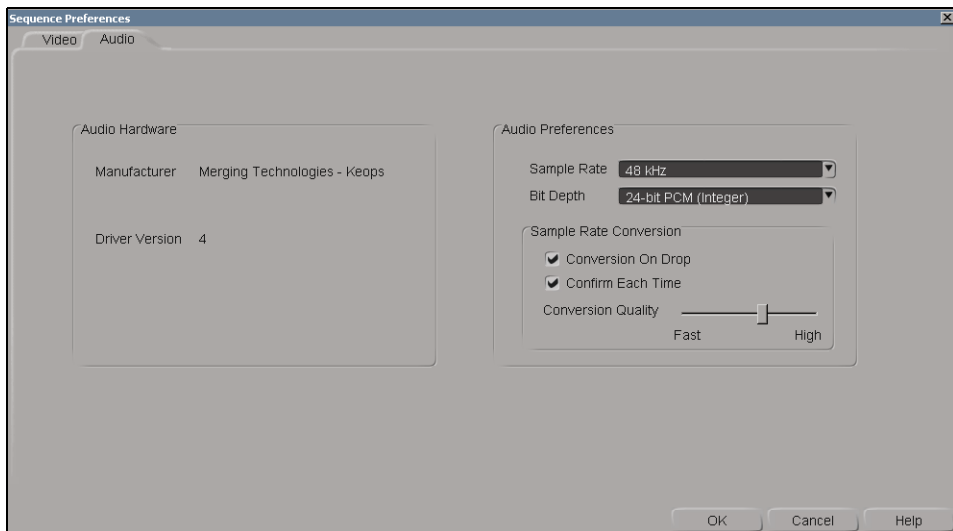


- **Fit X Axis, Keep Aspect Ratio** to scale the media in the X axis to fit the sequence settings, then scales the media along the Y axis to maintain the ratio between width and height intact. If the resulting image is larger or smaller than the sequence settings, it is centered along the Y axis.
 - **Fit Y Axis, Keep Aspect Ratio** to scale the media in the Y axis to fit the sequence settings, then scales the media along the X axis to maintain the ratio between width and height intact. If the resulting image is larger or smaller than the sequence settings, it is centered along the X axis.
6. **Force Overlay Key** to force the overlay track to use the matte of a clip on this track, or treat it like it has a full alpha for the RGB composite. This behavior is apparent when you have a clip on the overlay track, and there are no other clips on the video tracks below it. You'll see the image without the key applied. If you select this option, you'll see the image keyed over a black background.



If you select the Force Overlay Key option, any real-time effects will no longer be playable in real-time.

7. From the **Working Video Settings** box, select a working resolution and compression ratio—see *Setting the Working Video Quality* on page 136.
8. To change the audio settings, select the **Audio** tab.





9. From the **Sample Rate** list, select a sampling rate for your sequence. The higher the sampling rate, the more accurate the audio will be.



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. From the **Bit Depth** list, select a bit depth value. The higher the value, the more precise the audio will be.
11. 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.
12. Deselect the **Confirm Each Time** option if you don't want a confirmation dialog box to appear every time you import an audio file with a different sample rate into the current sequence.
13. Drag the 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.
14. Click **OK** to accept the changes you made.

Click **Help** for detailed information on the Sequence Preferences dialog box.

Understanding the Conversion Modes

Since Avid|DS is resolution independent, you can work with media and sequences with different resolutions, all within the same sequence. Avid|DS lets you decide how these different formats will fit together.

There are three different situations in which you convert media:

1. When you import media,
2. When you drop a clip or sequence on the timeline, and
3. When you change the conversion mode for clips that are already on the timeline.

The first case deals with digitized media, and is therefore slightly different than the other two cases, which deal more with how media is treated on the timeline.



When you digitize or import media, it gets converted to the current sequence preferences using the conversion modes on the Input panel of the Media Input/Output layout. Since you're determining how media is being digitized, the scale/pan settings applied to the media are fixed. This means that you cannot change these settings when you recapture the media. For more information, see *Importing Material from File* on page 89.

In the second case, 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 by a change in the Sequence Preferences settings. Only clips placed on the timeline after the change will be affected.

In the third case, you're dealing with clips that are already on the timeline. You can 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 treats the clips within that sequence as a single unit in order to preserve the relationship between the clips. By doing so, Avid|DS ensures that the ratio between each clip remains the same. Once the clips are grouped together, Avid|DS 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 in custom sequence mode.



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:

Item	Media Conversion Treatment
Captured clip	Frame size* 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

*The sequence size at the time of capture.

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:

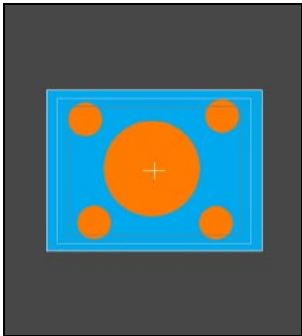


Image 1: 1440×972 linked image set to Scale to Fit

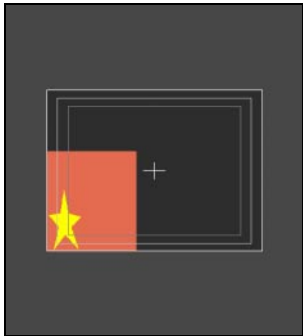


Image 2: 300×300 linked image set to Keep Original Size and Position

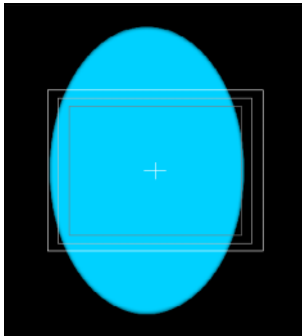
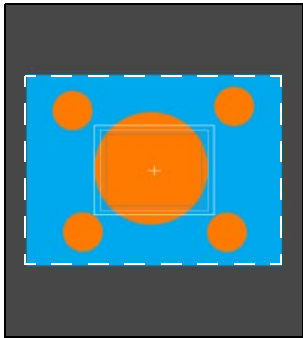


Image 3: 1000×1000 linked image set to Center, Keep Original Size



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.

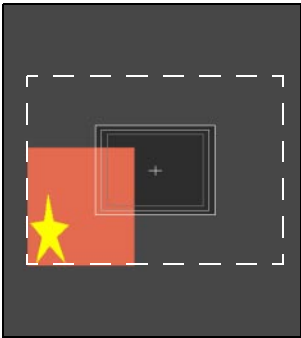
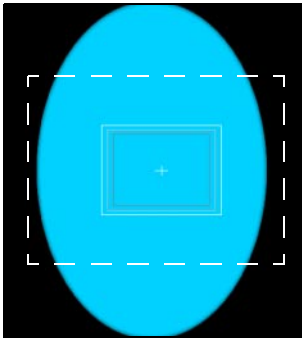
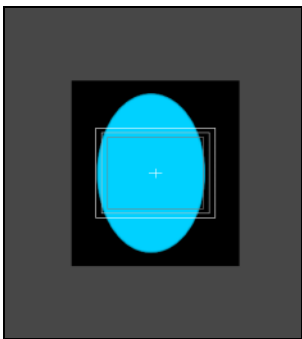
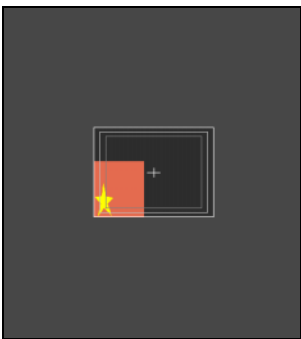
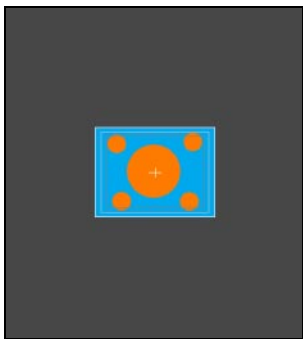


Image 2 was not centered in the original sequence, so in this sequence, the star gets cut out of the viewer. Since the original linked clip was set to Keep Original Size and Position, it has only been converted once and its conversion mode will be set to that of the current sequence.



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.

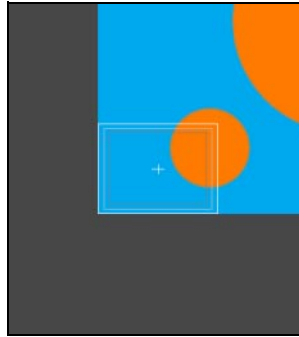
If you change the conversion mode in the Sequence Preferences dialog box to Scale to Fit, and place sequence A into sequence B again, the following occurs:



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 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 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.

To change the sequence conversion mode

1. From the File menu, choose **Sequence Preferences**.

The Sequence Preferences dialog box is displayed.

2. In the Conversion Mode box, select a mode for **Presets** and/or **Media**.

From now on, when you place clips or sequences on the timeline, they will be converted using the mode you selected.

To change the conversion mode for a clip or sequence on the timeline

1. Right-click a clip on the timeline and choose **Properties** from the menu.

The Clip property editor is displayed.

2. From the **Conversion Mode** list, select a conversion mode.

The clip will be converted using the mode you selected.



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 this 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 *Autosaving Sequences* in the online help.

To save a sequence for the first time

1. From the File menu, choose **Save**.
The Save Sequence dialog box is displayed.
2. Use the browser 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 appears in the browser. You can now continue editing or close the current sequence, and begin work on a new sequence or project.

To save an existing sequence

- From the File menu, choose **Save**.
The existing sequence is overwritten.
The sequence is saved and a sequence icon with the sequence name appears in the browser. 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. From the File menu, choose **Save As**.
2. Enter 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 copying the sequence directly from the browser. Copying the sequence in the browser takes less time than creating a copy with the Save As command. For more information, see *Moving Files between Folders* on page 28.



Searching for Sequences

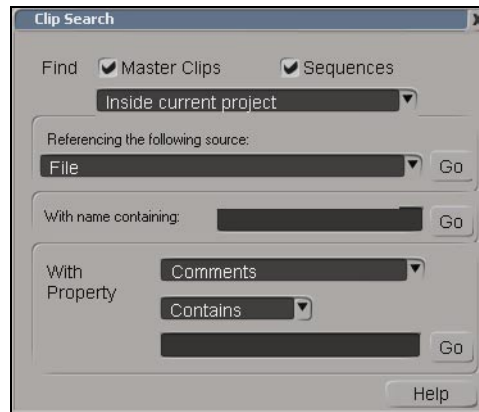
Large projects can contain many sequences and even more master clips. Although you can use the browser to find a particular sequence or clip, it can be more efficient to search for sequences and master clips using the Clip Search tool.

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

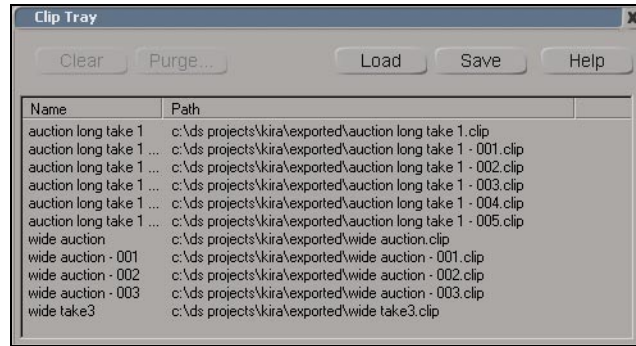
1. From the View menu, choose **Views > Clip Search**.

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:** Enter 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**, enter 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.

Click **Help** for detailed information on the Clip Search dialog box.



Importing Sequences from Another Project

Depending on how you set up your sequences and projects, you may want to use the same sequence in more than one project. You can import sequences with or without media from one project to another. When you import the media, both the source media and caches are imported into the current project. If the sequence contains reference clips, they are also imported into the current project.



You can also import master clips from one project to another in the exact same way as sequences.

If you want access to the media, you have the choice of making an actual copy in the current project or creating a link from the current project to the media on the disk array. By creating a link to the media, you actually share the media between the two projects. This means that you don't have to copy it into the current project, which saves space on your disk array. If you want to link to the media, it must reside on the disk array connected to your workstation or one that is shared between the two projects and/or workstations.



Shared storage devices can be any storage area on your local machine or anywhere on the network. The limitation with media sharing is that the storage device may not have sufficient bandwidth to provide real-time access to the media for more than one user at a time. However, if the storage device has sufficient bandwidth, real-time playback is possible.

When you import a sequence from another project and share the media by creating a link to it, you do not gain ownership of this media. The ownership of the media remains with the project in which the media resides. As a result, you will not be able to purge or delete the media in this sequence. You can only purge or delete the media from within the project that owns the media.

If you want to bring the media into the current project after you've created a link, you can use the Media Manager to move the media.

There are two ways to import a sequence from another project. You can right-click on the sequence and choose the Import to Current Project command or you can drag and drop the sequence from one browser to another. The main difference between the two options, is that the first option lets you determine what is imported.

To import a sequence from another project

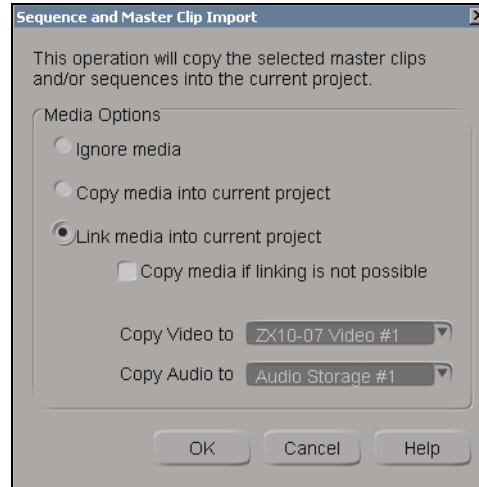
1. In the browser, open the project folder of the sequence you want to import.



If you want to import a sequence that is on another workstation on the network, you must share the project folder and the folder containing the media at the Windows NT level.

2. In the Contents view of the browser, right-click on the sequence and choose **Import to Current Project** from the menu.

The Sequence and Master Clip Import dialog box is displayed.



3. Select one of the following options:

- **Ignore Media** to import only the project files.
- **Copy media into current project** to import the project files and create a copy of the media in the current project.
- **Link media into current project** to import the project files and create a link to the media.

When you link to the media, the ownership of the media remains with the project that created the media. As a result, you will not be able to purge or delete the media.



The **Link media into current project** option only works if the media resides in the same storage area or in a storage area that is shared between the two workstations.

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 will check to see if the media is still in its original location. If it is, the link is recreated. If it is not, the media is restored to its original location. The ownership of the media remains with the project that created it.



4. If you want to ensure that the media is available from the current project, select the **Copy media if linking is not possible** option. This option acts as a backup to the linking option. If the link is not possible because the storage areas do not meet the linking requirements, the media is copied to the current project.
5. From the **Copy Video to** list, select the storage device on which you want the video media to reside.
6. From the **Copy Audio to** list, select the storage device on which you want the audio media to reside.
7. Click **OK**.
8. In the browser, go back to the current project folder.
A new folder appears in the browser within the current project folder, entitled “Imported from project *projectname*”.

To import a sequence by dragging and dropping

1. From the Views menu, choose **Views > Browser** to open a second browser.
A floating browser is displayed.
2. In the floating browser, open the project folder of the sequence you want to import.
3. In the original browser, open the folder in which you want the sequence to reside.
4. Drag the sequence you want to import from the floating browser to an empty area of the Contents view in the original browser.

If the sequence’s media resides on a shared storage device:

- The sequence is copied into the current project.
- A link to the media is created. Since you’re sharing the media files, you do not get ownership of them

If the sequence’s media resides on a storage device that is not shared:

- The sequence is copied into the current project.
- The media files are copied into the current project. Since a new copy is created in the current project, you now have ownership of these media files.



Deleting Sequences

If you no longer require a sequence, you can create an archive of the project in which it resides or delete it from the project. When you delete a sequence, you usually remove all of its cache files as well. The clips and media, however, remain intact.

When deleting sequences, you can:

- Check that no other sequences in the current project are using its cache files. If the caches are being used, they are not deleted. If they are not being used, they are deleted with the sequence file.
- Quickly get rid of sequences and their cache files without verifying if the caches are being used by another sequence. Although this option is quicker, it can be risky. You should only use this option when you're absolutely sure that you no longer need the sequence's cache files.

To delete a sequence



1. From the view switcher, click the Browser icon.
2. In the Contents view of the browser, right-click on a sequence that is not currently open and choose one of the following from the menu:
 - **Delete** to delete your sequence and its cache files after having verified that they are not being used by another sequence.
 - **Total Delete** to quickly delete your sequence and its cache files without checking to see if they are being used elsewhere.

You are prompted to confirm the deletion.
3. Click **Yes** to delete the sequence.





Chapter 5 **Conforming**



In This Chapter...

This chapter describes how to load an EDL, OMF, or ALE file into Avid|DS and create a sequence on which you can apply further edits.

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Workflow: Conforming

Conforming is the process of bringing a project from an offline environment into Avid|DS, so you can continue the editing process. The following illustration shows you how to import Edit Decision Lists (EDL), Open Media Framework (OMF), and Avid Log Exchange (ALE) files into Avid|DS.

- 1 Import the EDL, OMF, or ALE file

Ref	Source	Node	Track	Dur	Source In	Source Out	Record In	Record Out
Master: Linearize								
0003	Citr_w	V	C	00:00:00:00	00:00:04:07	00:00:00:00	00:00:00:00	00:00:04:07
0003	Mex_Dw	V	D	00:00:00:00	00:00:00:03	00:00:00:00	00:00:00:00	00:00:00:03
0004	Citr_w	V	C	00:00:04:07	00:00:04:07	00:00:04:07	00:00:04:07	00:00:04:07
0004	Mex_Dw	V	D	00:00:00:03	00:00:00:03	00:00:00:03	00:00:00:03	00:00:00:03
0005	Citr_w	V	C	00:00:04:07	00:00:04:07	00:00:04:07	00:00:04:07	00:00:04:07
0005	Mex_Dw	V	D	00:00:00:03	00:00:00:03	00:00:00:03	00:00:00:03	00:00:00:03
0007	Mex_Dw	V	C	00:00:03:11	00:00:03:11	00:00:03:11	00:00:03:11	00:00:03:11
0007	Tran_w	V	D	00:00:00:00	00:00:00:00	00:00:00:00	00:00:00:00	00:00:00:00
0009	Audio_s	A12	C	00:00:00:00	00:00:14:03	00:00:00:00	00:00:00:00	00:00:14:03
0009	Audio_s	A14	C	00:00:00:00	00:00:14:03	00:00:00:00	00:00:00:00	00:00:14:03



Ref	Source	Node	Track	Dur	Source In	Source Out	Record In	Record Out
Master: Linearize								
0003	Citr_w	V	C	00:00:00:00	00:00:04:07	00:00:00:00	00:00:00:00	00:00:04:07
0003	Mex_Dw	V	D	00:00:00:00	00:00:00:03	00:00:00:00	00:00:00:00	00:00:00:03
0004	Citr_w	V	C	00:00:04:07	00:00:04:07	00:00:04:07	00:00:04:07	00:00:04:07
0004	Mex_Dw	V	D	00:00:00:03	00:00:00:03	00:00:00:03	00:00:00:03	00:00:00:03
0005	Citr_w	V	C	00:00:04:07	00:00:04:07	00:00:04:07	00:00:04:07	00:00:04:07
0005	Mex_Dw	V	D	00:00:00:03	00:00:00:03	00:00:00:03	00:00:00:03	00:00:00:03
0007	Mex_Dw	V	C	00:00:03:11	00:00:03:11	00:00:03:11	00:00:03:11	00:00:03:11
0007	Tran_w	V	D	00:00:00:00	00:00:00:00	00:00:00:00	00:00:00:00	00:00:00:00
0009	Audio_s	A12	C	00:00:00:00	00:00:14:03	00:00:00:00	00:00:00:00	00:00:14:03
0009	Audio_s	A14	C	00:00:00:00	00:00:14:03	00:00:00:00	00:00:00:00	00:00:14:03

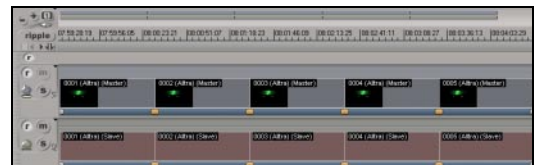
- 2 Load the list of events



Log as clips into the browser



Load directly onto timeline



- 3 Capture media



Digitize media from tape or file into Avid|DS.



Working with Edit Decision Lists (EDL)

Avid|DS supports EDL files. An EDL is a detailed list of the edits contained in a sequence, including all the timecode and supported effects information required to recreate the sequence in an online session. The EDL file is organized into a series of chronological instructions called *events*. You can use these events to create clips or to completely recreate the sequence on the timeline.

The EDL view lets you import an EDL file produced on any external system, and capture material based on the edits in that EDL. When you import an EDL into Avid|DS, it appears in the EDL view, where you can see the list of events. After importing your EDL into Avid|DS, you can select the events that you want to recreate. To do this, you can either log the events as master clips in the browser, or drop the edit list right onto the timeline. You can then capture media from either the clips in the browser or on the timeline.



You can only recapture logged clips created from an EDL that originated on tape. Avid|DS does not support recapture from file for logged clips created from an EDL.

Clip names are created from the event number. If you have more than one EDL in a project, however, there will be at least two clips with the same name. To avoid the conflict, the name of the EDL is appended to the clip name. For example:

001 (NewYork1)
001 (NewYork2)

After the clips are created, you can rename them at any time. For more information, see *Renaming Project Files* on page 28.



Avid EDL Manager is available on the Avid|DS Drivers CD.

The Avid EDL Manager is a standalone application that lets you convert between different EDL formats, such as Sony, GVG, or CMX. You can also convert EDL files to OMF 1.0 files. Since Avid|DS only supports OMF 2.0 files, you will need to further convert the OMF 1.0 files so that they can be read by Avid|DS.

You can also use the Avid EDL Manager to create an EDL that displays additional types of information, such as comments or patches. You can specify the different audio and video tracks in the sequence, as well as specify the assembly modes that the online edit controller uses when creating your sequence. Refer to the Avid EDL Manager User's Guide for more information.



Opening an EDL File

Avid|DS supports both the GVG and CMX EDL formats.

To open an EDL

1. Do one of the following:

- In the view switcher, click the EDL icon.
- From the View menu, choose **Views > EDL**.



The EDL view is displayed.



2. To load a new EDL, click the Load EDL icon.

3. In the Open dialog box, select an EDL. If you know the system from which the EDL was generated, select the appropriate file type (DS, CMX, GVG).

4. Click **Open**.

The selected EDL is displayed in the EDL view.

If you selected the wrong file type, you are prompted to convert the file to the appropriate type.

Diagram illustrating the EDL view interface with labels:

- EDL name:** Points to the dropdown menu showing "%EDDIES FINAL PANSCAN".
- EDL tools:** Points to the toolbar containing icons for opening, saving, and other functions.
- Record in-point:** Points to the "First edit at: 01:00:00:00" field.
- Edit list:** Points to the main table area containing the list of edit decisions.

Ev#	Source	Mode	Tran	Dur	Source In	Source Out	Record In	Record Out
TITLE: %EDDIES FINAL PANSCAN								
*DS type=header major=1 minor=0								
*DS type=header frame-rate=30 fca=non-drop-frame								
*DS type=header sort-order=none [current] note-placement=above								
* EFF_PAINT_SCRATCH								
0001	AX	V	C		00:00:02:04	00:00:08:10	01:00:00:00	01:00:06:06
0002	AX	A12	C		00:00:00:00	00:00:30:00	01:00:00:00	01:00:30:00
0003	AX	V	C		00:00:02:04	00:00:08:10	01:00:06:06	01:00:12:12
0004	AX	V	C		00:00:02:04	00:00:08:10	01:00:12:12	01:00:18:18
0005	AX	V	C		00:00:02:04	00:00:08:16	01:00:18:18	01:00:25:00
0006	AX	V	C		00:00:02:04	00:00:07:04	01:00:25:00	01:00:30:00
0007	1	V	C		01:00:16:04	01:00:21:26	01:00:52:11	01:00:58:03
0008	AX	A12	C		00:00:40:10	01:20:33:00	01:00:52:11	02:20:45:01
0009	1	V	C		01:02:43:22	01:03:21:02	01:00:58:03	01:01:35:13
* EFF_PAINT_SCRATCH								
0010	1	V	C		01:00:27:13	01:00:38:06	01:01:35:13	01:01:46:06
* EFF_PAINT_SCRATCH								
0011	1	V	C		01:00:42:00	01:00:57:04	01:01:46:06	01:02:01:10
0012	1	V	C		01:00:57:05	01:01:10:00	01:02:01:10	01:02:14:05
* EFF_PAINT_SCRATCH								
0013	1	V	C		01:01:17:02	01:01:18:15	01:02:14:05	01:02:15:18
0014	1	V	C		01:01:11:19	01:01:17:01	01:02:15:18	01:02:21:00

An imported EDL in the EDL view



Click the Help icon for detailed information on the EDL view.



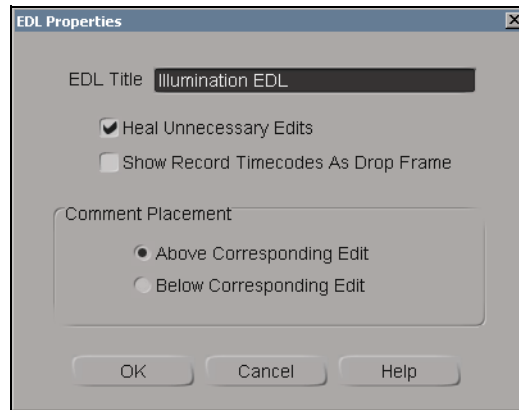
Setting EDL Properties

You can specify options for the currently displayed EDL in the EDL Properties dialog box, such as displaying timecodes as drop frame and determining comment placement.

To set EDL properties

1. Right-click on the main area of the EDL view and choose **Properties** from the menu.

The EDL Properties dialog box is displayed.



2. Use the controls in the EDL Properties dialog box to set the EDL properties. Click **Help** for detailed information on the EDL Properties dialog box.

Conforming an EDL File

When conforming your EDL, you have the choice of logging the events in the browser, recreating the list of events on the timeline, or both. Once the events are logged, you can capture the media at any time from either the browser or timeline. For more information, see *Batch Capturing* on page 104.

Before conforming your EDL, you should check if there are any layers to be composited. Offline editors often create multiple EDLs because the convention is to put separate layers into separate EDLs. Any audio or video events in the list are automatically loaded onto the appropriate tracks.

During the conform process, you can set up the appropriate heads and tails values for each clip. This is important if you need additional material at the beginning and end of each clip to do minor changes during the final stage of the edit. You can also configure the audio channel patching for each tape.

If you recreate your sequence on the timeline, you may want to process a rough cut and proof it against the original EDL. You can do this by reloading the EDL onto a new overlay track, adding a fade or crop effect to the overlay track and processing it, and then playing the sequence to make sure that the cuts and transitions on the two tracks occur in sync.



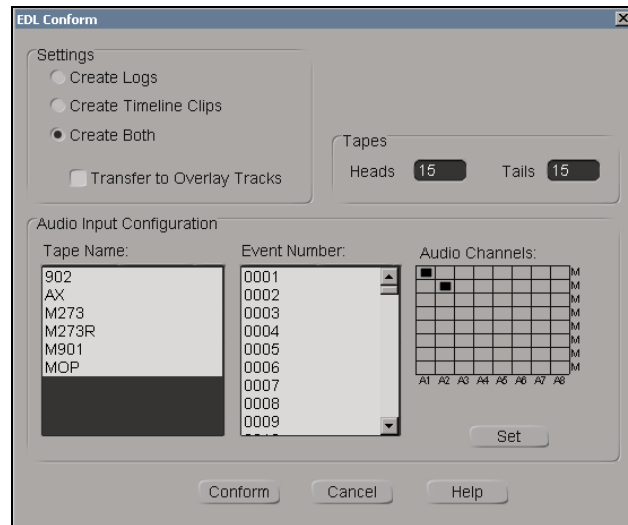
If the proofing session is successful, you can then remove the overlay track and continue to add effects and finishing touches to your sequence.

To conform an EDL file

1. Open a new sequence in your project.
2. Import or open an edit list in the EDL view.
3. From the EDL view, click the Conform EDL icon.



The EDL Conform dialog box is displayed.

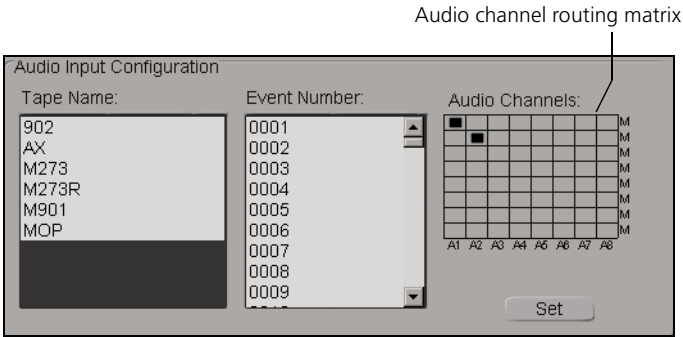


You can capture all events in the edit list, or hold down the Ctrl key and click the EDL events associated with the source material you want to capture.

4. Select one of the following options:
 - **Create Logs** to create a log of events in the browser.
 - **Create Timeline Clips** to recreate the events on the timeline.
 - **Create Both** to create both a log of events in the browser and a sequence based on the events in the EDL.
5. Select the **Transfer to Overlay Tracks** option to recreate the sequence on an overlay track.
6. To add material before the in-point and after the out-point of all tape sources, enter the appropriate number of frames in the **Heads** and **Tails** text boxes.



7. If you need to reconfigure the audio tracks, select a tape name from the Tape Name list and assign the incoming audio tracks to the audio channels of your clip by clicking in the audio channel routing matrix.



You can assign the audio channels differently for each tape name or you can multi-select the tape names, and make the audio channel assignment the same for all of them.

8. Click **Set** after you've assigned the audio tracks for each tape name to save the settings.
9. Click **Conform** to begin conforming the EDL.

The events are recreated on the timeline as empty clips, and master clips are created in the browser for each event. The clip icons in the browser are red since they have no media yet.





Audio events in the edit list do not support stereo clips. When a stereo clip (two streams) is created on the timeline, it is split onto two mono tracks; each track holds one stream.

Creating Layers from an EDL

Receiving multiple EDLs for different levels in a composite occurs frequently. For example, there may be an EDL for the background and another for the foreground. When this happens, both layers must be in sync on the timeline. You can either place the layers on the overlay tracks, which allows more than one layer to be active at a time, or you can place these two layers in a container clip. For more information, see *Using Container Clips* on page 258.

To create a layer from an EDL

1. Open a new or existing sequence in your project.
2. Import or open an edit list in the EDL view.
3. From the EDL view, click the Conform EDL icon.



The EDL Conform dialog box is displayed.

4. Select one of the following:
 - **Create Timeline Clips** to recreate the events on an overlay track.
 - **Create Both** to create both a log of events in the browser and a sequence based on the events in the EDL.
5. Select the **Transfer to Overlay Tracks** option to have the sequence recreated on an overlay track.
6. Set the **Heads** and **Tails** and configure the audio inputs as required. For more information on these options, click **Help** or see *Conforming an EDL File* on page 164.
7. Click **Conform** to recreate the events on an overlay track on the timeline.



Avid|DS ignores the current setting of the Ripple mode when performing an EDL to timeline. By default, all EDL conforms are performed with the Ripple mode off.



Modifying an EDL File

Avid|DS lets you modify certain properties of the EDL after you've loaded it into the EDL view. You can change the name of the source tape, as well as ripple the source timecodes.

Changing the Source Tape Name

If your source tape name is too long, or the name of the tape has changed between the offline and the online, you can modify the name of your tape directly in Avid|DS. Once you've loaded an EDL into the EDL view, you can modify the source name of any one of the sources.

To change the source name of a tape in an EDL

1. Load an EDL into the EDL view.
2. Right-click on the main area of the EDL view and choose **Change Source Name** from the menu.

The Change Source Name dialog box is displayed.

3. From the **Old Source Name** list, select the name of the tape you want to change.
4. Enter the new name in the **New Source Name** text box and click **OK**.

The Source Name is changed in the EDL view.

Rippling the Source Timecodes

If there's a time delay between your master tapes and the offline EDL list, or the time of an event has changed, you can push or ripple any one of the source timecodes forwards or backwards directly in Avid|DS.

To ripple all source timecodes in an EDL

1. Load an EDL into the EDL view.
2. Right-click on the main area of the EDL view and choose **Ripple Sources** from the menu.

The Ripple Sources dialog box is displayed.

3. In the **Ripple By** timecode box, enter the amount by which you want the source timecodes to move.



To ripple the source timecode backwards, enter the amount preceded by a minus (–) sign in the **Ripple By** timecode box.

4. Click **OK**.

The source timecodes of all your source tapes are modified by the amount you specified.



To ripple the source timecode of one event in an EDL

1. Load an EDL into the EDL view.
2. Select the event in the Edit list.
3. Right-click and choose **Ripple Sources** from the menu.
The Ripple Sources dialog box is displayed.
4. In the **Ripple By** timecode box, enter the amount by which you want the source timecode to move.



To ripple the source timecode backwards, enter the amount preceded by a minus (–) sign in the **Ripple By** timecode box.

5. Click **OK**.

The source timecode of that one event is modified by the amount you specified.

To ripple the timecodes of all events from one source

1. Load an EDL into the EDL view.
2. Right-click on the main area of the EDL view and choose **Ripple Sources** from the menu.
The Ripple Sources dialog box is displayed.
3. Select the **Apply To All Edits From This Source** option to modify the source timecode of one of your source tapes.
4. Select the name of the tape from the list.
5. Enter the amount by which you want the source timecodes to move in the **Ripple By** timecode box and click **OK**.

All the timecodes for that one source tape are modified by the amount you specified.



Exporting an EDL File

If you want to perform certain tasks on another system, you can create an EDL of your current sequence, save it to file, and then transfer it.

Avid|DS lets you create an EDL of your current sequence. The EDL contains information about all the timecode, transitions, and supported effects. Once you've created an EDL of your current sequence, you can save it and transfer the information to another system.

To create and save an EDL of the current sequence



1. From the EDL view, click the Timeline to EDL icon to create an EDL of the current sequence.

Each event is created in the EDL view.



2. Click the Save EDL icon to save your EDL to file.

The Save As dialog box is displayed.

3. Navigate to an appropriate folder, enter a name in the **File Name** text box, and click **Save**.

The EDL is saved in the location you specified.

Printing an EDL File

When you need a hard copy of your EDL for review or want to keep a hard copy as a reference, you can print one out from within the EDL view. You can set the number of copies to print, as well as the orientation of the page. The EDL is printed on your default printer.

To print an EDL file

1. Load an EDL into the EDL view.
2. From the EDL view, click **Print**.
The Print EDL dialog box is displayed.
3. In the Number of Copies text box, enter the number of copies you want to print.
4. Choose either **Portrait** or **Landscape** as the page orientation for the EDL.
5. Click **Print**.

The EDL is printed on your default printer.



To change your default printer, modify the printer settings in Windows NT.



Proofing

If you recreated your sequence on the timeline, you may want to process the rough cut, and proof it against the original EDL to make sure that the timing is correct.

To proof the EDL to Timeline

1. Reload the EDL onto a new overlay track.
2. Add a fade or crop effect to the overlay track.
3. Process the effect.
4. Play the sequence to make sure that the cuts and transitions on the two tracks occur in sync.

If the proofing session is successful, you can remove the overlay track and continue to add effects and finishing touches to your sequence.



Working with Open Media Framework (OMF) Compositions

Avid|DS supports the OMF file format. OMF files facilitate the transfer of digital media from one system to another. They can contain both media and compositional information. An OMF composition is basically an advanced form of the EDL. It contains instructions for transitions, timewarps, keys, titling, and some other effects information. The OMF view preserves all the layering information from an OMF file, so that you can select events and layers that you want to recreate on the timeline.



Avid|DS OMF support is limited to the import and export of audio media only.

Avid|DS supports many types of Avid Media Composer® and Symphony™ effects. For a complete list, see *OMF Level of Support* on page 180.



Avid|DS can only import OMF 2.0 files.



Opening an OMF File

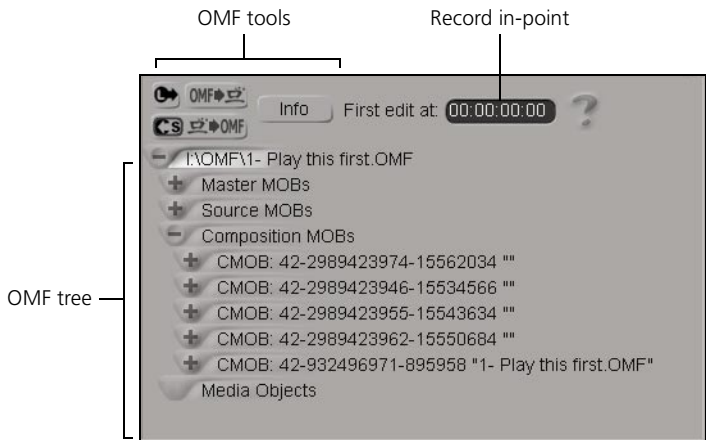
You can import OMF files created on other systems. By using the OMF file format to transfer sequences from an offline system to Avid|DS, you can quickly import sequences with most of the offline editing and effects work intact.

To open an OMF file

1. From the View menu, choose **Views > OMF**.
2. From the OMF view, click the **Load OMF** icon and select a file from the Open dialog box.



The selected OMF file is displayed in the OMF view.



An OMF imported into the OMF view



When you load an OMF file with more than one composition, you are prompted to choose which composition to import.



Click the Help icon for detailed information on the OMF view.

Conforming an OMF File

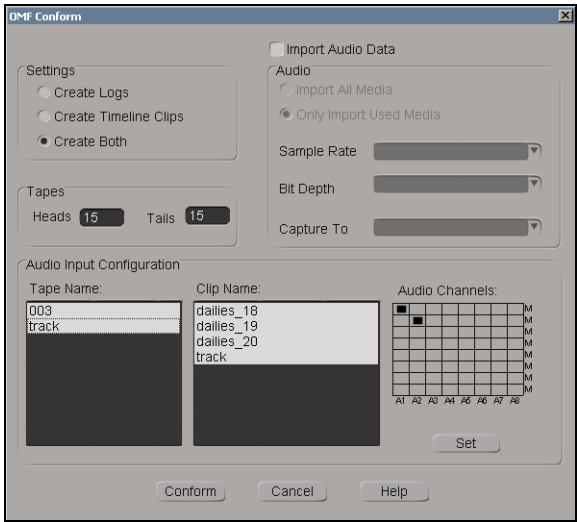
You can log your clips in the browser to create master clips that can be reused in other sequences, recreate your sequence in Avid|DS by loading the OMF file onto the timeline, or both. It is a good practice to do both, so that when a clip is deleted from the timeline, you always have the master clip in the browser. You also have the option of importing any audio media that is in the OMF file.

To conform an OMF file without audio media

1. Open a new sequence in your project.
2. Load an OMF file into the OMF view.



3. In the OMF view, click the Conform OMF icon.
The OMF Conform dialog box is displayed.



4. Select one of the following options:
- **Create Logs** to log the clips in the browser.
 - **Create Timeline Clips** to recreate the sequence on the timeline based on the compositional information in the OMF file.
 - **Create Both** to log the clips in the browser and to recreate the sequence based on the compositional information in the OMF file.
5. To add material before the in-point and after the out-point of all tape sources, enter the appropriate number of frames in the **Heads** and **Tails** text boxes.
6. If you need to reconfigure the incoming audio tracks, select a tape name from the **Tape Name** list and assign the audio tracks to the audio channels of your clip by clicking in the audio channel routing matrix.



You can assign the audio tracks differently for each tape name.

7. Click **Set** after you have assigned the audio tracks for each tape name to save the settings.

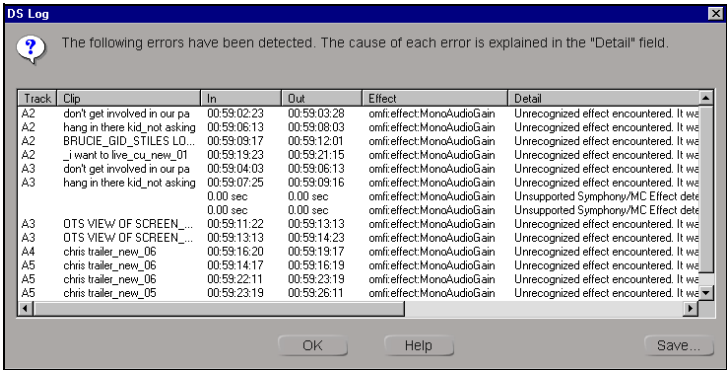


8. Click **Conform** to begin conforming the OMF.

The clips, transitions, and supported effects are recreated on the timeline using the compositional information and empty master clips are created in the browser. The clip icons in the browser are red since no media has been imported yet.

Effects that are not supported in Avid|DS are marked by effect bars that have been deactivated. These effect bars act as markers to indicate where the effect was originally placed.

If there are any unsupported effects, a user message is displayed that asks you if you would like to view the generated list. If you click Yes, the list is generated and displayed in the Conform Error Log dialog box.



The Conform Error Log dialog box displays the in and out-points of the effect, the name of the original effect, as well as a brief description of the type of error that occurred.

9. To save this log as an .html file, click **Save**.

The Save As dialog box is displayed.

10. Navigate to an appropriate folder, type in a name for the log and click **Save**.

The log is saved as an .html file and can be viewed in any browser.

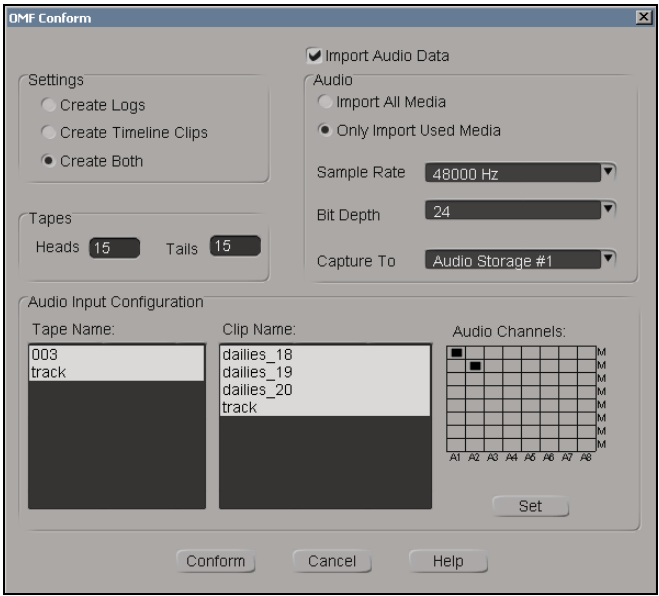


To conform an OMF file with audio media

1. Open a new sequence in your project.
2. Load an OMF file which contains audio media into the OMF view.
3. In the OMF view, click the Conform OMF icon.



The OMF Conform dialog box is displayed.



4. Select one of the following options:
 - **Create Logs** to log the clips in the browser.
 - **Create Timeline Clips** to recreate the sequence on the timeline based on the compositional information in the OMF file.
 - **Create Both** to log the clips in the browser and to recreate the sequence based on the compositional information in the OMF file.
5. To add material before the in-point and after the out-point of all tape sources, enter the appropriate number of frames in the **Heads** and **Tails** text boxes.
6. If you need to reconfigure the audio tracks, select a tape name from the Tape Name list and assign the audio tracks to the audio channels of your clip by clicking in the audio channel routing matrix.



You can assign the audio tracks differently for each source name. The audio media will be imported using the assignment specified in the audio channel routing matrix and not those originally set in the file.



7. Click **Set** after you have assigned the audio tracks for each source name to save the settings.
8. Select the **Import Audio Data** option.
9. Select one of the following options:
 - **Import All Media** to import all the audio media contained in the OMF file into the current project.
 - **Only Import Used Media** to import only the audio media used in the actual sequence into the current project.
10. From the **Sample Rate** list, select a sampling rate at which to convert your audio media. The higher the sampling rate, the more accurate the conversion will be.



Make sure the sample rate you select matches the sample rate of your current sequence. If the sample rates do not match, no audio media will be available for playback.

To playback the audio media, you would have to change the sample rate of the sequence in the Sequence Preferences dialog box.

11. From the **Bit Depth** list, select a bit depth value. The higher the value, the more precise the audio conversion will be.
12. From the **Capture To** list, select a storage area onto which your audio media will be stored.
13. Click **Conform** to begin conforming the OMF.

Depending on the settings you chose, any of the following will occur:

- the clips, transitions, and supported effects are recreated on the timeline using the compositional information
- master clips are created in the browser
- the audio media is imported to your disk array.

Since no video media was imported, the video clip icons in the browser are red, indicating that no media has been imported yet.

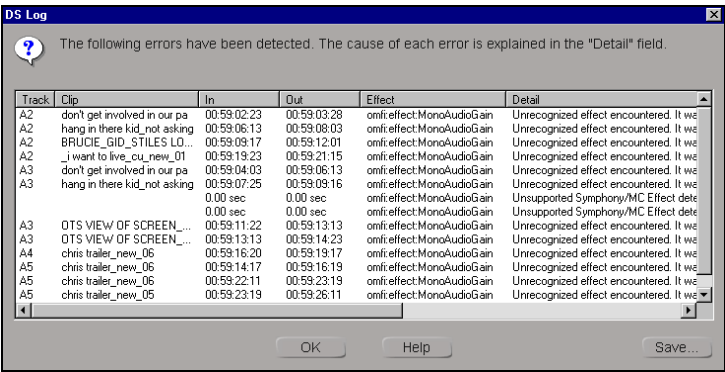
Effects that are not supported in Avid|DS are marked by effect bars that have been deactivated. These effect bars act as markers to indicate where the effect was originally placed.



Even though Avid|DS may not be able to import certain effects, it will keep any keyframed information, which you can use as a reference to recreate the effect.



If there are any unsupported effects, a user message is displayed that asks you if you would like to view the generated list. If you click Yes, the list is generated and displayed in the Conform Error Log dialog box.



The Conform Error Log dialog box displays the in and out-points of the effect, the name of the original effect, as well as a brief description of the type of error that occurred.

- 14. To save this log as an .html file, click **Save**.
The Save As dialog box is displayed.
- 15. Navigate to an appropriate folder, type in a name for the log and click **Save**.
The log is saved as an .html file and can be viewed in any browser.

Exporting an OMF File

If you ever need to do some audio finishing on Pro Tools®, Avid|DS lets you create, save, and export OMF files for the audio portion of your sequence. When you create and save an OMF file from within Avid|DS, both the compositional information and audio media can be included.



Only the audio portion of your sequence can be exported to an OMF file. Any video clips on the timeline are ignored when you create an OMF file.

No audio effects are exported, but edit points are created to show where effects were originally placed.

You will need DigiTranslator™ to convert the OMF files into a format that Pro Tools can read.



Creating and Saving an OMF File

The OMF file may contain both the media and information about all the timecode, transitions, and supported effects. Once you've created an OMF file of the audio portion of your sequence, you can save it and then transfer the information to another system.



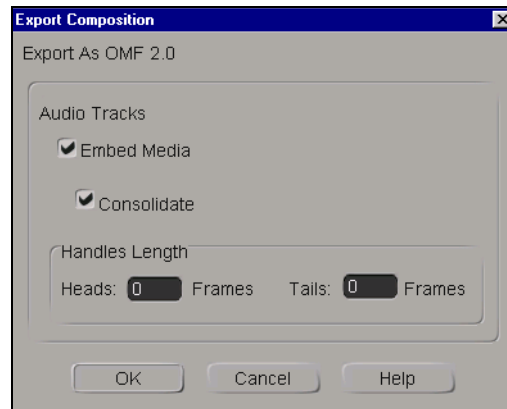
Avid|DS only exports OMF 2.0 files.

To create and save an OMF file with audio media



1. From the OMF view, click the **Timeline > OMF** icon to create an OMF file of the audio portion of the current sequence.

The Export Composition dialog box is displayed.



2. Select the **Embed Media** option to include the media in the OMF file you are creating.
3. Select the **Consolidate** option to include only the media that is being used on the timeline.



If the Consolidate option is not selected, the entire audio clip will be included in the OMF file.

4. In the Handles Length box, do the following:
 - Add a number in the **Heads** text box if you want to add extra frames before the material used on the timeline. These additional frames will be included in the OMF file for source material coming from tape only.
 - Add a number in the **Tails** text box if you want to add extra frames of material after the end of the material used on the timeline. These additional frames will be included in the OMF file for source material coming from tape only.



OMF Level of Support

5. Click OK.
The Save As dialog box is displayed.
6. Navigate to an appropriate folder, enter a name in the **File Name** text box, and then click **Save**.
All the information obtained from the audio tracks on the timeline are saved as an OMF file in the location you specified. You can now transfer it to another system.

Avid|DS supports many Media Composer 10.0 and Symphony 2.1 effects that are imported via OMF. However, the level of support can vary, so please consult the table and legend below for full details.



The support information for the Audio (Export) category is for use with Pro Tools.

Legend

Support level	Description
A	Effect supported. The effect is imported as a corresponding Avid DS effect. All parameters are set to match, as much as possible, the original effect.
B	Imported with some parameters
C	Imported without parameters
D	Replaced when imported
E	Not supported. Effect replaced by a “null” fade and keyframe locations are kept.
F	Not supported. The effect is ignored by Avid DS.
AVX	This is an AVX plug-in. Effect must be installed on an Avid DS system for the effect to be loaded.

Category	Effect	Support level	Comment
3D		E	
Audio (Import)	Transitions	D	All audio transitions are replaced with a cross fade
	Audio Effects	F	
Audio (Export)	Mono Audio Gain	C	



Category	Effect	Support level	Comment
	Mono Audio Transition	D	Replaced with an audio transition. No parameters are exported.
	Audio Effects	F	
Blend	3D Warp	E	
	Dip to Color	E	
	Dissolve	C	
	Fade from Color	E	
	Fade to Color	E	
	Picture-in-Picture	A	
	Superimpose	A	
Box Wipe	All	A	
Conceal	All	D	Replaced by corresponding SMPTE wipes
Edge Wipe	All	A	
Film	1.66 Mask	B	Background color not imported
	1.85 Mask	B	Background color not imported
	16:9	B	Background color not imported
	Anamorphic Mask	B	Background color not imported
	Blowup	E	
	Film Dissolve	C	
	Film Fade	C	
	Mask	B	Background color not imported
Image	Color Correction	E	
	Color Effect	C	
	Flip	A	
	Flip-Flop	A	
	Flop	A	
	Mask	B	Background color not imported
	Paint Effect	E	
	Pan and Scan	A	



Category	Effect	Support level	Comment
	Resize	B	Background color not imported
	Scratch Removal	E	
	Spot Color	E	
	Submaster	A	
Key	Animatte	E	
	Chroma Key	C/D	If used as a transition, then imported as a dissolve
	Luma Key	E	
	Matte Key	B	
	RGB Keyer	AVX	
L-Conceal	All	D	Replaced by corresponding SMPTE wipes
Marquee®	Marquee	AVX 1.5	AVX 1.5 effects are not supported in Avid DS
Matrix Wipe	Grid	E	
	One-way Row	E	
	Speckle	E	
	Spiral	E	
	Zig Zag	E	
Peel	All	D	Replaced by corresponding SMPTE wipes
Push	All	D	Replaced by corresponding SMPTE wipes
Shape Wipe	4 Corners	E	
	Center Box	D	Replaced by circle wipe
	Circle	A	
	Clock	A	
	Diamond	D	Replaced by circle wipe
	Ellipse	D	Replaced by circle wipe
	Horizontal Bands	E	
	Horizontal Blinds	E	
	Vertical Blinds	E	



Category	Effect	Support level	Comment
Spin	X Spin	B	Border not supported. Effect is similar in Avid DS, but not identical
	Y Spin	B	Border not supported. Effect is similar in Avid DS, but not identical
	Z Spin	B	Border not supported
Squeeze	All	D	Replaced by corresponding SMPTE wipes
Ultimatte	Keyer	AVX	
Timewarp	Strobe	A	
	Freeze Frame	A	
	Variable Speed	A	Symphony and Media Composer don't export negative speed values



Acceleration curves are always exported by Symphony and Media Composer as linear curves.

Only the following effects applied to a Filler track in Media Composer and Symphony are imported:

- Blend Masks
- Pan and Scan

An effect applied to a Filler track is converted into a timeline effect in Avid|DS. This may produce unwanted results, since an effect applied to a Filler track in Symphony or Media Composer systems only impacts the tracks below it. In contrast, when the effect is conformed to Avid|DS as a timeline effect, it is applied to *all* tracks.



Working with Avid Log Exchange (ALE) Files

Avid|DS supports ALE files—a file format specifically designed to hold information about log files generated by Media Composer. ALE files contain only information about the source material, so you can't import sequences, effects or other higher level information.



Although the ALE file format was designed for log files generated by Media Composer, many other systems can output ALE files as well.

You can use ALE files to transfer information from Avid MediaLog™ to Avid|DS. MediaLog is a tool that helps you select and log footage *before* your editing session. Although you can log footage with Avid|DS, using MediaLog can free up your Avid|DS system for editing and effects. After logging shots, you can use Avid|DS to digitize and edit the footage.

You can import bins created in MediaLog into Avid|DS. To do this, you must first export the bin as an ALE file. You can then load the ALE file into Avid|DS and create logs. Refer to the MediaLog User's Guide and the article "Converting Avid MediaLog Bins to Avid|DS Logs" for more information.



MediaLog is available on the Avid|DS Drivers CD.

Importing an ALE file

ALE files can be imported and interpreted by Avid|DS.

To import an ALE file

1. From the View menu, choose Views > ALE Import View.
2. In the ALE Import view, click the **Load ALE File** icon.
3. In the Open dialog box, select a file.



The selected ALE file appears in the ALE Import view.

Load ALE Create Logs ALE Info

Name	Tracks	End	Start	Duration	Mask IN	Mask OUT
NEW BRIAN WILLIAMS P1	VA1A2	20:11:59:19	20:11:17:25	41:23	20:11:21:10	20:11:58:05
Mike Jensen PKG Close VO	VA1A2	18:40:46:25	18:40:37:16	9:09	18:40:46:25	18:40:44:28
Hurricane Pauline PKG	VA1A2	20:25:09:04	20:23:45:13	1:23:19	20:23:50:03	20:23:50:03
Hurricane Pauline Take 1	VA1A2	20:13:44:14	20:13:05:25	38:19	20:13:13:29	20:13:40:14
Hurricane Pauline Take 2	VA1A2	20:15:13:25	20:14:39:05	34:19	20:14:40:19	20:14:40:19
MIR PKG	VA1A2	20:22:48:15	20:18:46:00	4:02:17	20:21:07:23	20:21:07:23
MIR Take 1 BW	VA1A2	20:13:05:25	20:12:34:29	40:24	20:12:55:17	20:12:55:17
News Close Long	VA1A2	20:04:52:14	20:04:01:15	50:29	20:04:12:19	20:04:12:19
News Close Short	VA1A2	20:15:38:08	20:15:12:25	24:13	20:15:37:16	20:15:38:08
News Music Short	AI1A2	15:44:03:21	15:43:51:00	12:19		
Stock Market Take 1	VA1A2	20:08:19:28	20:08:51:25	28:01	20:08:55:10	20:09:11:17
Stock Market Take 2	VA1A2	20:09:59:07	20:09:35:10	23:27		
Stock Market Take 3	VA1A2	20:12:24:29	20:11:18:29	1:06:00	20:12:18:09	20:12:18:09
Stock PKG	VA1A2	20:28:26:12	20:25:18:03	3:08:09	20:25:27:28	20:25:27:28



Click the Help icon for detailed information on the ALE view.



Getting Information on ALE Files

You can view the global properties of an ALE file, which includes the location of the file and the values of various global properties, such as video/audio format, fps, and more in the ALE Import view.

To get information on ALE Files

- In the ALE Import view, click the Info icon.

The ALE Global Properties dialog box is displayed.

Logging Clips from an ALE File

After you've imported an ALE file into Avid|DS, you can select the clips you want to log in the browser. However, before you can log master clips, the clips must have associated values for the following properties:

- End
- Name
- Start
- Tape (or a global tape property)
- Tracks

If any of these properties don't have associated values, the Create Logs icon will appear dimmed.

To log a master clip in the browser

1. Load an ALE file into the ALE view.
2. Select the clip(s) you want to log in the browser by clicking them. To select more than one clip at a time, select a clip, hold down the Ctrl key and click the others.

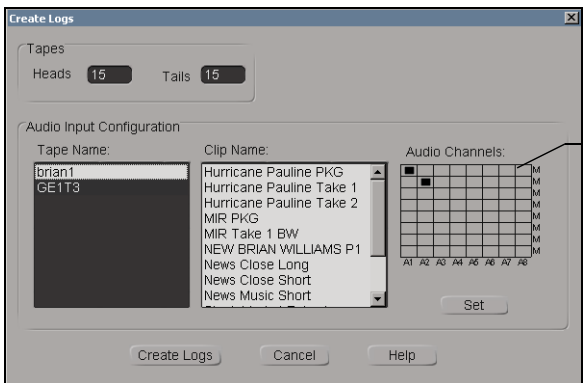


If no clips are selected in the ALE Import view, Avid|DS creates logs for every clip.



3. In the ALE Import view, click the **Create Logs** icon.

The Create Logs dialog box is displayed.



Routing matrix



4. If you need to reconfigure the audio tracks, select a tape name from the Tape Name list and assign the audio tracks to the audio channels of your clip by clicking in the audio channel routing matrix.



You can assign the audio tracks differently for each source name.

5. Click **Set** after you have assigned the audio tracks for each tape name to save the settings.
6. To add material before the in-point and after the out-point of all tape sources, enter the appropriate number of frames in the **Heads** and **Tails** text boxes.
7. Click **Conform** to begin conforming the ALE file.

In the browser, master clips are created for each selected clip. Once the clips have been logged, you can capture the media at any time.



Only source material from tape can be recaptured from clips logged from an ALE file.



Chapter 6 **Editing Audio and Video**



In This Chapter...

This chapter describes how to perform basic editing tasks such as arranging clips on the timeline, performing simple transitions (cuts, dissolves, wipes), and synchronizing clips.

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

1 Locate and prepare media for editing

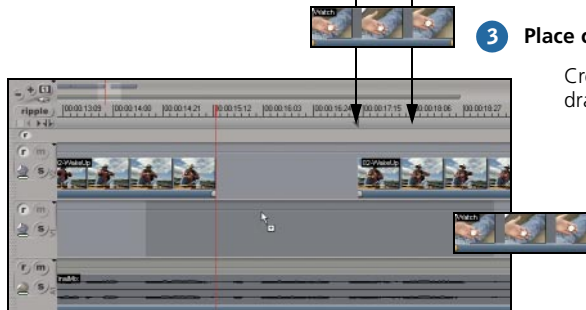


2 Preview and trim your source media in the viewer



3 Place clips on the timeline

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

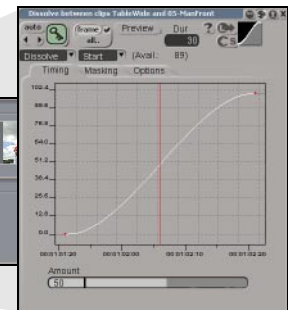


4 Manipulate clips

Move, trim, slip, roll, and nest clips on the timeline

5 Apply transitions

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





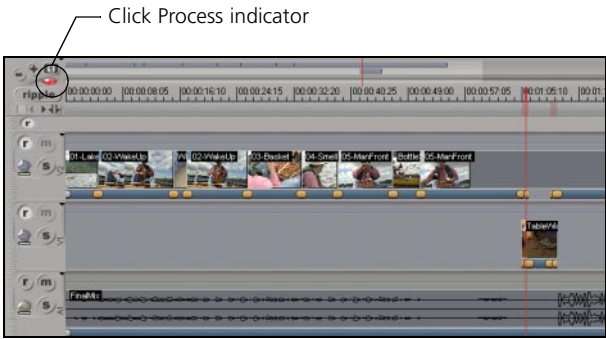
6 Synchronize audio with video

Synchronize video or audio events by using markers.



7 Process the sequence

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





Building 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 you construct your sequence, it's important to realize that edits you make to clips are non-destructive. In other words, you're not actually editing the source media. The clips that you see in the browser and on the timeline are simply references to the media on the disk array.

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 can also use the clip tray to gather and organize your clips before editing them in the viewer or on the timeline. For more information, refer to *The Clip Tray* in the online help.

You may also want to bring in a project from an offline environment into Avid|DS via an edit decision list. You can import an EDL (or OMF) into the browser as logged clips, or onto the timeline as a sequence. For more information, see *Conforming* on page 159.

Preparing Source Clips for Editing

Before you place a clip on the timeline, you can prepare it in the viewer. When you drag a clip to the viewer, it changes into a dual viewer that displays the source and record viewers. The dual viewer lets you view and edit source clips.

To move a clip to the viewer

- Drag a clip from the browser to the viewer.





The source clip is displayed in the source viewer and the record viewer displays the clip (if any) at the current position of the play cursor on the timeline. This lets you compare a source clip with the clip on the timeline where it will be inserted.



Using the dual viewer to preview clips

The dual viewer has its own set of preview and transport controls for manipulating the source clips, timeline clips, or material on an external device. The preview controls under the dual viewer help you prepare your 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 preview controls in the dual viewer, refer to *Preview Controls* in the online 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.



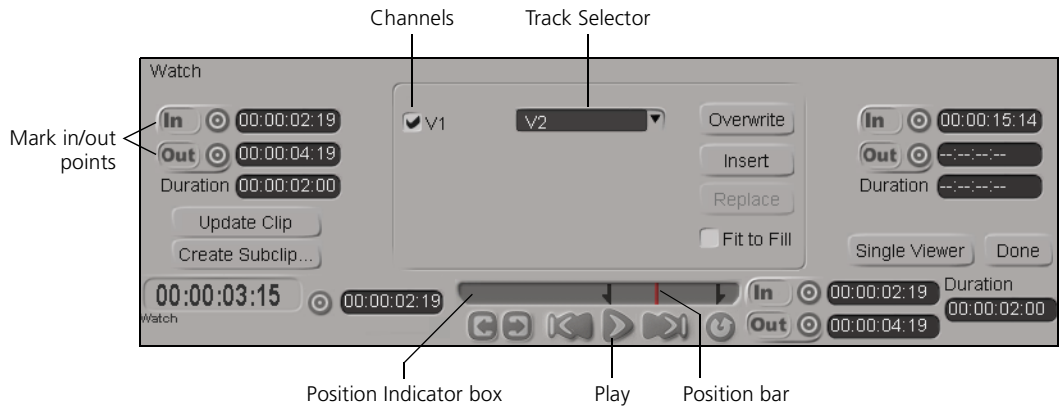
Once you've placed a clip on a track using the dual viewer, that track is selected by default. To change the track on which you place your clips, select another track from the track selector in the dual viewer.

After the clip has been placed on the timeline, you can continue working in dual viewer mode or return to the 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.



The preview controls

To edit a clip for use in your sequence

1. On the transport controls, click Play to play the source clip.
2. Do one of the following:
 - On the preview controls, Click In when the play cursor reaches the desired in-point, or Click Out at the desired out-point.
 - Enter a timecode in the In or Out text box and press Enter.

In and out markers appear in the Position Indicator box. 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 197.

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 the browser.

To create a subclip

1. When you're certain about the position of the in and out markers, click Create Subclip.



2. In the Create Subclip dialog box, enter a name for the subclip and click OK.
The new clip is created and saved in the browser.



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

3. You can continue to adjust the in and out-points. Click **Update Clip** to save the changes to the subclip.
4. When you've finished editing the source clip in the viewer, click **Done** on the lower-right side of the preview controls.

The viewer is reset to the default single viewer and displays only the clips on the 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. As you place clips on the timeline, the tracks stretch to accommodate the clips.

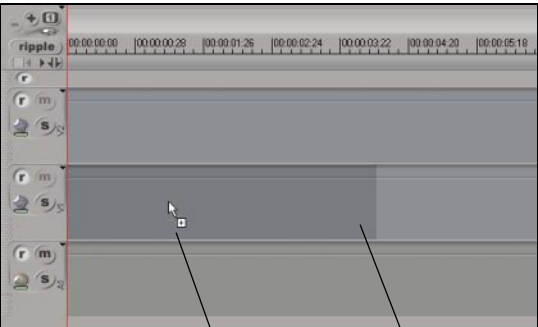
Dragging and dropping clips onto the timeline overwrites any existing clips. If you activate the Ripple mode on the timeline, however, then clips are inserted at the timecode at which they are dropped. Existing clips are moved down the timeline to accommodate the inserted clip.



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, refer to *Ruler* and *Timeline* in the online help.



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



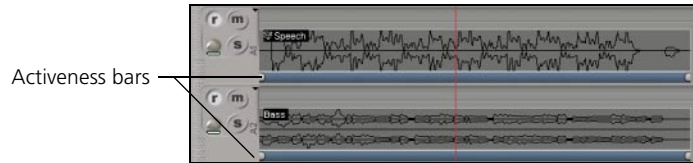
The move cursor

Clip shadow



Clips assume *activeness* when you place them on the timeline. Activeness refers to the sections of a clip that are used in the final production. These active frames are indicated by an activeness bar below a clip.

The behavior of activeness differs between audio and video clips. While only one video clip can be active at any given time, several audio clips can be active simultaneously. This lets you play multiple audio streams at the same time. For more information, see *Changing the Activeness of Clips* on page 216.



Multiple audio clips active at the same timecode

Video clips can be placed only on video 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 tracks.

Placing Multiple Clips on the Timeline

You can select multiple clips from the browser and drag them to the timeline or marker ribbon for editing. This is a quick way to edit several clips together. For example, if you have 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 same order in which you selected them. When you select all the clips in a folder, they appear in the order in which they were sorted.

To place multiple clips on the timeline

1. In the browser, 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, hold down the Shift key and click the clips that you want to select.
2. Drag the selected clips to the timeline.



If the browser is set to Details view, you can select multiple clips by dragging over a region in the Contents view.



Same Track versus Multi-track Editing

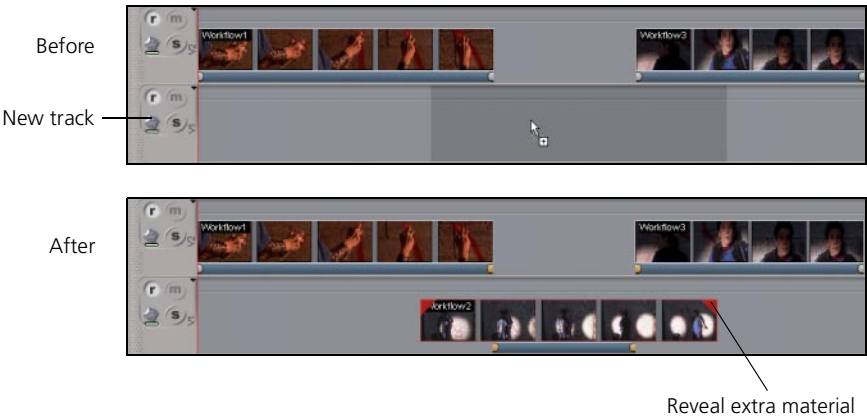
Although you can easily place all your video clips on a single track, working on multiple tracks gives you more flexibility when editing. The active frames determine the sequence of events.

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. For more information, see *Cutting to a Clip* on page 254.

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



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



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 rolling. For more information, see *Revealing Unused Material on Clips* on page 215.



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



Marking In and Out-points on the Timeline

When you create a new sequence, an in-point marker 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 marker moves to the last frame of the clip, ready for you to place the next clip in the sequence.

To mark an in or out-point on the timeline

1. Position the play cursor at the location where you want to place the in or out marker.
2. On the transport controls, click **In** or **Out**.

The in or out markers are displayed on the marker ribbon.

To place in and out markers on a selected region

1. Select a clip, effect, or activeness bar, or drag to define a region where you want to set the in and out markers.



2. On the timeline controls, click the Frame Selection icon.

In and out markers are displayed on the marker ribbon.

Once the markers are set on the timeline, they are labelled with names. You can see the name as you move the pointer over the marker. This also displays its exact timecode. You can change the position of the marker by dragging it along the marker ribbon.

Placing Pre-edited Clips on the Timeline

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



The following instructions apply only when the Ripple button is deactivated on the tracks. For more information, see *Rippling Clips* on page 226.

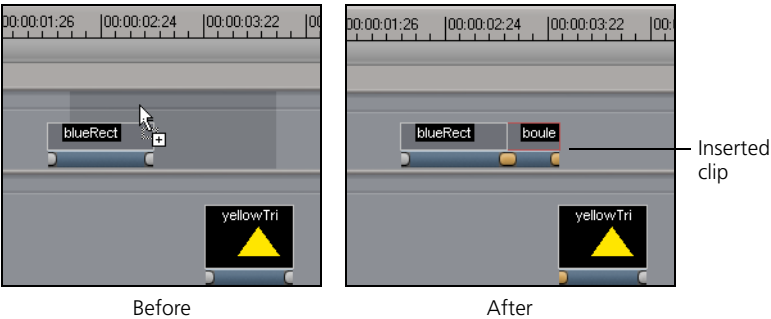
To drag a clip to the timeline

1. Mark an in and/or out-point on the timeline—see *Marking In and Out-points on the Timeline* on page 197.
2. Click the source viewer and drag the clip to a track on the timeline, moving it close to the in marker.
 - To insert the clip, hold down the **V** key.
 - To overwrite the existing clips, hold down the **B** key.

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

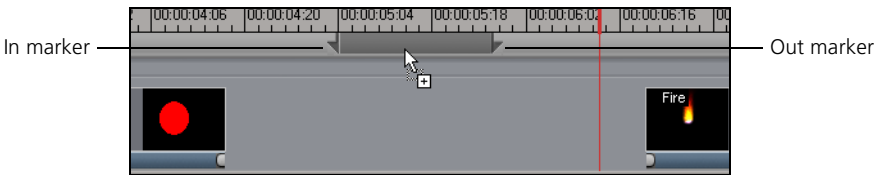


When you drag a clip to the timeline, it becomes active only in areas where there are no other active clips.



Dragging a clip to the timeline

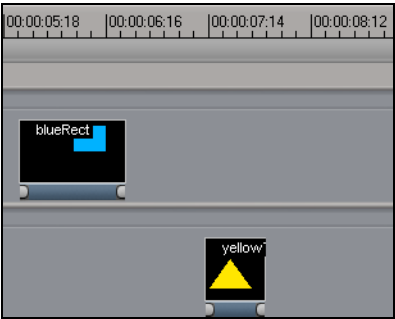
If you want to perform three-point editing, set both an in and out marker on the timeline. As a general rule, the in and out markers on the timeline determine the amount of space inserted into the sequence. For example, if the clip is longer than the marked region on the timeline, the out-point of the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



Placing a clip between marked points on the timeline

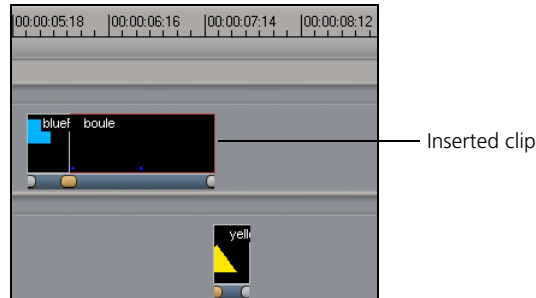
To insert or overwrite a clip on the timeline

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



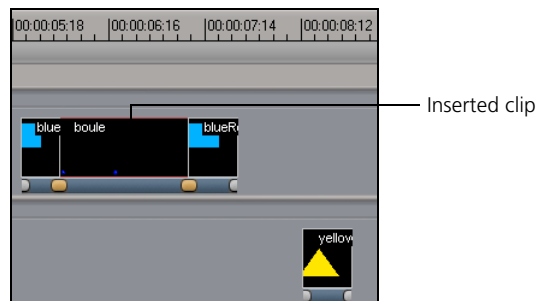


2. In the preview controls, select the track on which you want to place the clip from the Track Selector list. You can place the clip on a new or existing track, or create an overlay track to composite video clips—refer to *Mapping Source Clip Tracks to Timeline Tracks* in the online help.
3. Click or select one of the following:
 - **Overwrite** to place the clip at the in-point and overwrite any existing clips over the section that it covers.



- **Insert** 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, select a clip.
2. In the preview controls, select a channel and destination track where this clip resides.
3. Click **Replace** to overwrite the selected clip with the one that is currently in the source viewer.



You can also replace a section of a clip by marking a region with the in and out markers.

Placing Video Clips on the Timeline

A video clip can consist of live action, graphics, animation, or imported images.

Avid|DS lets you build your sequence easily and efficiently. As you drag clips to the timeline, it detects areas that are occupied, so that you do not overwrite clips that have already been positioned in time. The inserted clip becomes active only in areas where it will not overlap any existing clips.

You can place video clips on the video or overlay tracks on the timeline. Placing clips on the overlay tracks lets you composite over other clips on the tracks below it. Clips on overlay tracks are always active, and are composited in the order in which the overlay tracks appear on the timeline. For more information, see *Simple Overlay Compositing* on page 94.

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 197.
2. Drag a clip from the browser, source viewer, or clip tray to the marker ribbon or video track on the timeline, and align it close to the in marker.

A shadow appears 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 or markers.



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 a new track on the timeline, and becomes active on areas where there are no other active clips on the timeline.

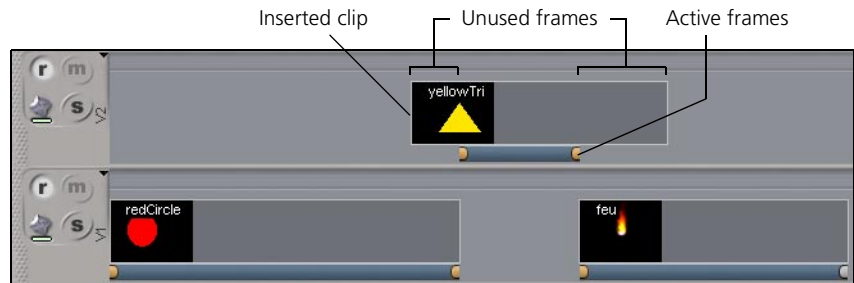


You can also insert or overwrite clips on your tracks and specify the track on which to place a clip. To do this, right-click on a clip and drag it from the browser, source viewer, or clip tray to any the video track. This opens a dialog box from which you can select a video or overlay track.

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 choosing **Display > Display Unused Material** from the menu before placing the clip on the timeline.



Inserted clip showing unused material



Placing Audio Clips on the Timeline

Audio clips are the sound portion of your sequence. They contain things 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. Unlike video clips, multiple audio clips can be active at the same time span, as long as they’re on different tracks.

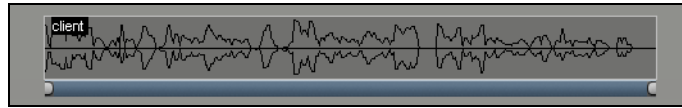


Audio clips that do not have the sample rate specified in the user preferences can still be placed on the timeline. However, you will not be able to hear the clips until you recapture the audio material at the proper sampling rate. For more information, see *Converting the Sample Rate* on page 464.

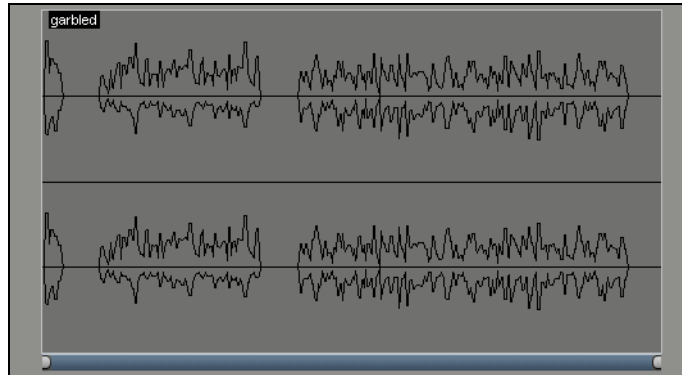
Audio clips can be mono, stereo, quadraphonic, LCRS, 4 Stream, 5.1, 6.1, 7.1, or 8 Stream, depending on how many audio channels they have.

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.



A mono audio clip



A stereo audio clip

Like audio clips, audio tracks can also be mono, stereo, quadraphonic, LCRS, 4 stream, 5.1, 6.1, 7.1, or 8 stream. You can place any kind of audio clip on any kind of audio track. If the clip and the track are not the same type two things happen:

1. The clip appears yellow to indicate that the clip and track formats do not match, and
2. The clip's audio channels are assigned to the track's audio channels, as much as possible.

For example, if you drop 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 drop 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 459.



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 261.



To place an audio 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 197.
2. Drag a clip from the browser, source viewer, or clip tray to the marker ribbon or audio track on the timeline, and align it close to the in marker.

A shadow appears 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 or markers.



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

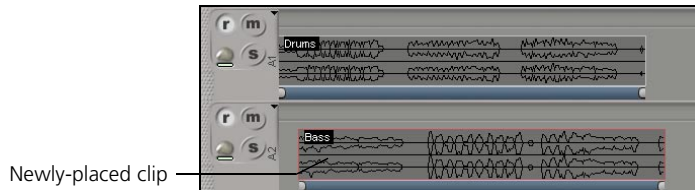
3. If you're satisfied with the location, release the clip.

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



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

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



Adjusting the Timeline

Resetting the zoom factor of the overview area to frame the media on the timeline lets you make better use of the overview area. This is particularly true when your media starts at a timecode other than 00:00:00:00. Avid|DS 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 on the overview area of the timeline and choose **Trim Timeline to Media** from the menu.

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

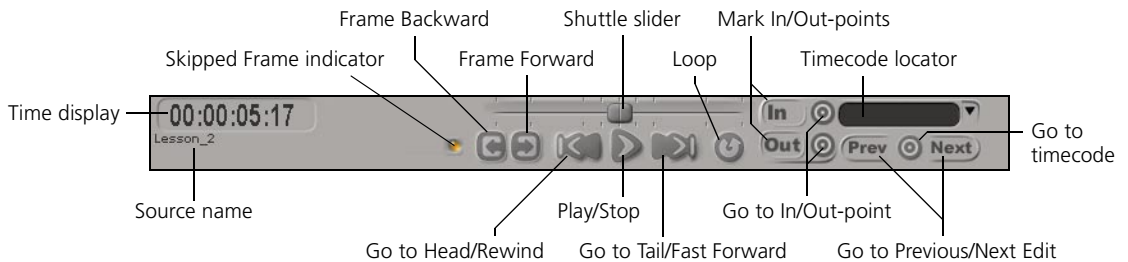


Playing Sequences

Using the transport controls, you can play back your sequence in the viewer or on the external monitor. When you play the sequence, only its active frames are displayed in the viewer (or heard on the speakers), allowing you to view the sequence as it will appear in the final output. While previewing, however, you can play selected tracks of your sequence to isolate some sounds or images.



While playing a sequence, the message “Processing Needed” is displayed in the viewer if clips on which you’ve placed effects, have not been processed. You may also see a “Media Not Available” message if there is no media on the disk associated with a clip. For more information, see *About Video Quality Matching* on page 138.



Transport controls

For more information, refer to *Transport Controls* in the online help.

To play a sequence

1. On the taskbar, click the Top Timeline icon. To play the entire sequence you must be on the top timeline, not in a container clip.
2. On the transport controls, click the Go to Head button to go to the start of the sequence.
3. Click Play or use the shuttle slider to quickly jog through the sequence.



When playing your sequence, watch for a red light on the transport controls. This indicates that a frame has been skipped. Click the Skipped Frame indicator to reset it and play/output the sequence again.

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



To stop playing a sequence

- During playback, do one of the following:
 - On the transport controls, click Play.
 - Click in the viewer.
 - Click the timeline ruler.

The play cursor 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 to play or rewind the clips at your own speed.

To isolate specific tracks when playing the sequence

1. In the track controls, 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.

2. On the transport controls, click Play.

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



Varying the Playback Speed

The markings on the transport controls serve as a visual reference for playback speed. When using the transport controls for editing on the timeline, the markings represent -10, -5, -2, -1, 0, 1, 2, 5, and 10, respectively. The farther from the center that you drag the shuttle slider, the faster the rate of playback.

To shuttle clips on the timeline

- On the transport controls, drag the shuttle slider right or left to fast forward or rewind the clips on the timeline.
- Click the markings on the transport control. The shuttle slider snaps to the play cursor location, and your clips will fast forward or rewind accordingly.
- On the timeline ruler, press Shift and drag the play cursor left or right. The farther left or further right you drag, the faster the playback speed.





Moving to Points on the Timeline

There are two ways to move around on the timeline. You can either move the play cursor manually to any frame in your sequence, or use the transport controls to quickly move to marked points on the timeline.

To move the play cursor

- Do one of the following:
 - Click any point on the timeline.

The play cursor jumps to this position and the viewer displays the frame at this timecode.

- Drag the play cursor right or left while reading the timecode displayed in the transport controls.

The exact position of the play cursor is displayed.

To move the play cursor to a specific timecode

- In the transport controls, do one of the following:
 - Enter a value in the Timecode locator box and press Enter.
 - Select a reference marker from the Timecode Locator list.
 - Click **Locate In-point** or **Locate Out-point** if there are any in or out-markers in the marker ribbon.

The play cursor 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. 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.



2. On the transport controls, click the Loop button.

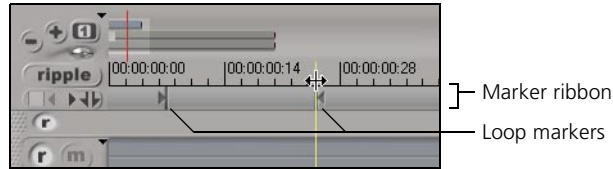
Loop markers are displayed on the marker ribbon at the beginning and end of the selected region or clip.



You can also select an effect bar, transition area, or activeness bar for looping.



3. Adjust the markers by dragging them to the appropriate timecodes.



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

Viewing Unprocessed Frames

While playing a sequence, the message “Processing Needed” is displayed in the 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

1. Press Ctrl and click Play on the transport controls to play your video clip frame by frame.

The playback is slow since Avid|DS needs to process each frame. However, each processed frame is stored temporarily as an interactive cache, so that 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.

2. Click Play again to stop playing the clips.

To preview a clip with an effect

1. From the effect’s property editor, click Preview.

The preview will loop until you stop it. The playback is choppy since Avid|DS drops frames in order to display the effect.



In this mode, the video plays but the audio is muted.

2. Click Stop to stop playing the clip.



Manipulating Clips

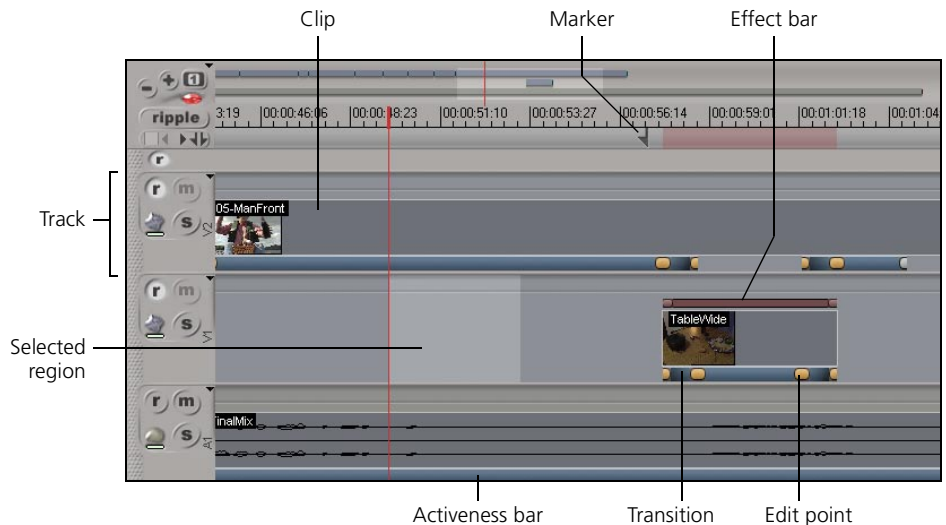
After you've placed all your clips on the timeline, you can begin arranging them to create a rough cut of your sequence. You can then adjust the edit points between clips, as well as move, copy, or delete them.



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 226.

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.



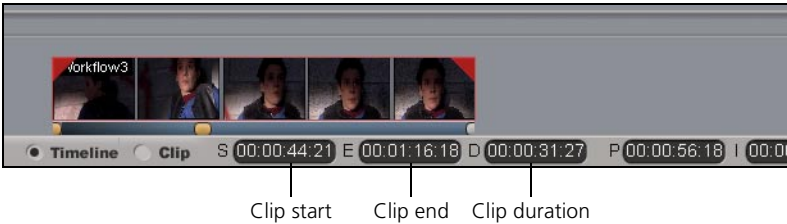
Selectable objects on the timeline

To select clips

- On the timeline, do one of the following:
 - To select a single clip, click a clip.
 - To select multiple clips, click on first clip, press Ctrl, and click any other clips you want to select.
 - To select multiple clips, hold down the Shift key and drag over the clips you want to select.



The selected clip(s) are surrounded by a red border and the timecode boxes on the status bar reflect its start and end positions. The D (duration) text box specifies the length of time between the two points. You can adjust the in, out, and duration timecodes by entering 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. When working with audio clips, however, you can only move mono clips to mono tracks and stereo clips to stereo tracks.

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 268.

When you move a clip, its activeness is lost in the areas where it collides or overlaps with other active clips. This prevents you from altering the edits of established clips.

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. Click a clip to select it.



- A red border surrounds the clip and the pointer changes to a move cursor.
- 2. 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

1. On the timeline, select multiple clips.
2. Press Shift and drag one of the clips in the selection right or left.

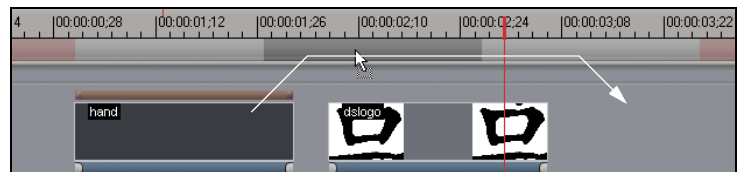
The clips in the selection retain their activeness and change the activeness of any clips with which they collide.

To move one clip past another on the same track

1. Drag a clip to the marker ribbon.

A shadow appears 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.



You can only do this with a single clip and *not* with a multiple clip selection.



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 time scale as a guide, drag a clip to a different track.
If the clip overlaps any other active clips, it loses its activeness in the overlapping areas.

To move a clip to a different track with its activeness

1. Press Shift and click a clip to select it.
2. Using the ruler time scale as a guide, drag the clip to the appropriate track.
If the clip overlaps any other active clips, the other clips lose their activeness in the overlapping areas.

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.

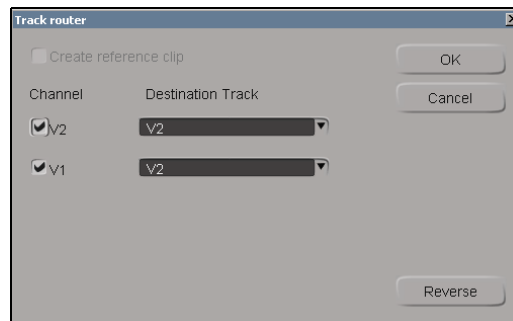
Moving Multiple Clips between Tracks

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. Hold down the Shift 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 specified destination tracks. If the clip overlaps any other active clips, the those clips lose their activeness in the overlapping areas.

To move multiple clips to different tracks and constrain them to the same timeline locations

1. On the timeline, select multiple clips.
2. Hold down 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.

Naming and Adding Comments to Clips

You can rename clips in the browser or on the timeline. Since clips on the timeline are copies of the clips in the browser, renaming a clip on the timeline has no effect on the name of the source clip in the browser. 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 on a clip in the timeline and choose **Properties > Clip Properties** from the menu.
2. In the **Name** text box, edit the name of the clip and press Enter.

The new name appears on the clip in the timeline.

To add comments to clips

1. Right-click on a clip in the timeline and choose **Properties > Clip Properties** from the menu.
2. In the **Comments** text box, enter your notes and press Enter.

When you reopen the clip properties dialog box, the comments are displayed in the Comments box.



Cutting Clips

The Razor tool lets you slice a clip in two. You can then manipulate these pieces independently of each other.

To cut a clip

1. Position the play cursor at the point where you want to apply the cut.
2. Select the clip that is to be cut.
3. From the NLE Tools toolbar, click **Razor**.

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 215.

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*. 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. Select one or more clips to copy.
2. From the Edit menu, choose **Copy**.
3. Position the play cursor at the precise timecode that you want to place a copy of the clip, and click the track.
4. From the Edit menu, choose **Paste**.

A copy of the clip appears at the selected point. You can stretch this new clip out to reveal the necessary frames. The name of the copy is prefixed by "Copy of...".

Deleting Clips

You can delete any clip on the timeline. This removes the clip from the timeline. The master clip in the browser 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 on a clip or a multiple clip selection, and choose **Delete Clip** from the menu.

The clip or selection is removed from the timeline.



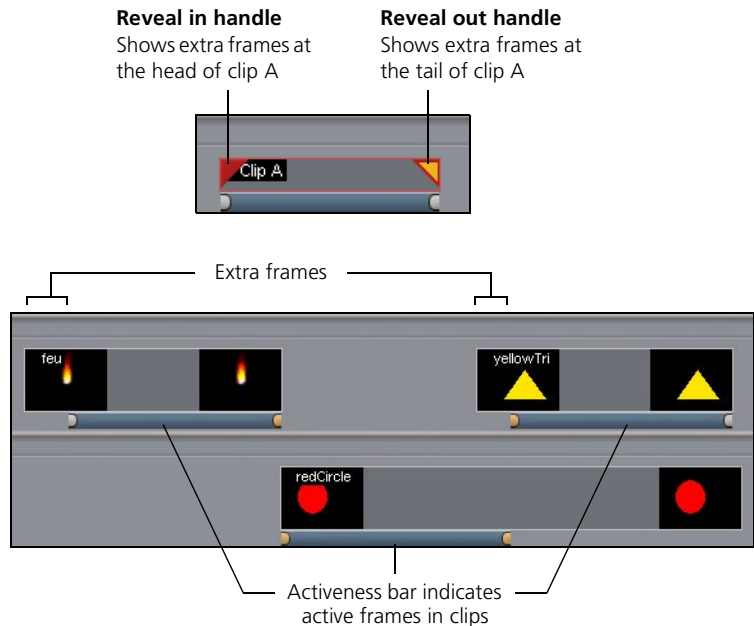
Revealing Unused Material on Clips



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.

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.

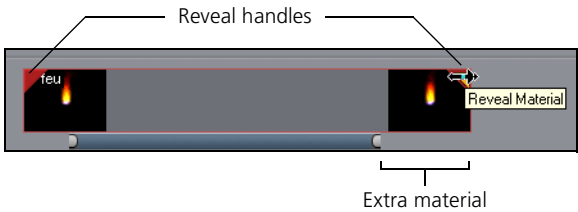


To display unused material

- Right-click on the overview area and choose **Display > Display Unused Material** from the menu.

To reveal or hide frames of unused material on a clip

1. Select a clip.
2. Place the pointer over the reveal handle of a clip.
An arrowhead pointing left or right is displayed.



Dragging the reveal handles to show unused material



You can view extra material only when there is empty space on the track. Editing on multiple tracks gives you this flexibility.

3. 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 used in the final production. 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. Inactive frames still appear in the timeline, but are not seen or heard when the sequence is played.



Activeness bars indicating 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.

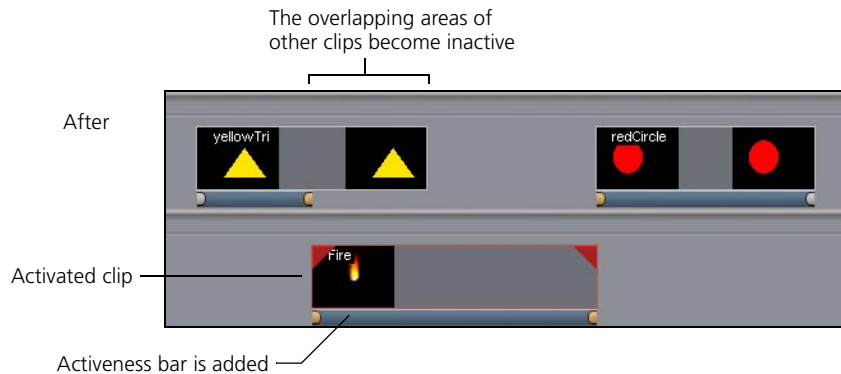
To activate or deactivate the full length of a clip

1. Select a clip.



2. From the NLE Tools toolbar, click one of the following.

- **Activate** to make all the currently displayed frames in the selected clip active. It also removes the activeness on any other clips that overlap it.



- **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.



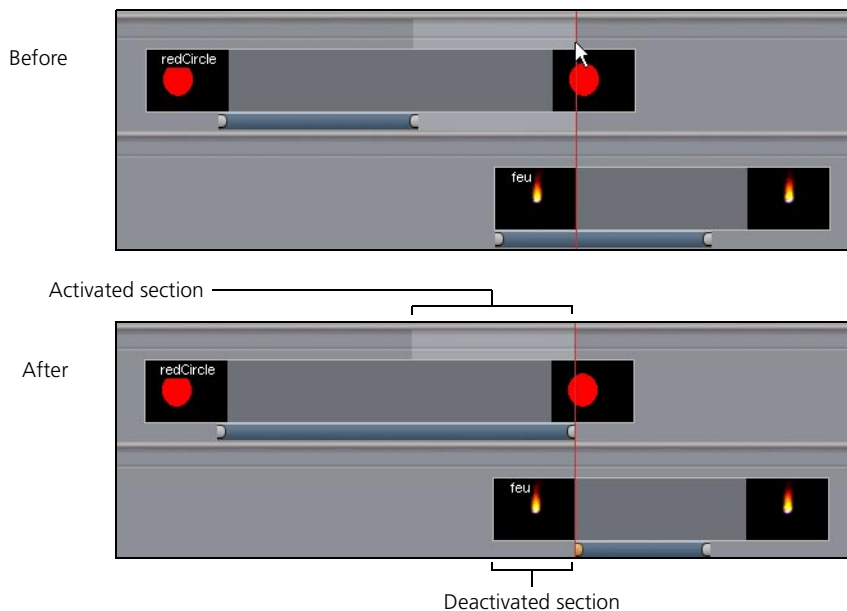
To activate or deactivate a region of a clip

1. Drag over a section of a clip.

The selected region is highlighted.

2. From the NLE Tools toolbar, click **Activate**.

The activeness bar is added to the selected region and removed from any overlapping clips.



You can also right-click on an activeness bar and choose **Delete Activeness** from the menu. This removes its activeness bar.

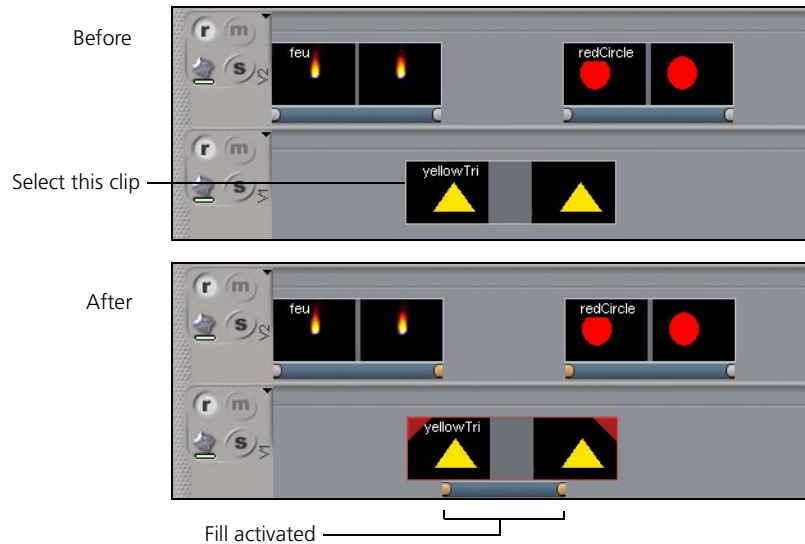
Activeness of clips is not always recalculated when you deactivate clips or move them on the timeline. You can activate any section of a selected clip where it does not overlap other active clips on the timeline, by using the **Fill Activeness** button.



To fill in the activeness of a clip

1. Select the clip that needs to be activated.
2. From the NLE Tools toolbar, click **Fill Activeness**.

The clip becomes active wherever there are no other active clips.





Using Match Frame and Match Bin

You can retrieve additional material from a master clip, a subclip, or subclip's master clip, as well as locate the folder in which you saved your clip.

When you perform a match frame, the master clip or subclip that corresponds to the currently selected clip in the timeline or viewer is located, and the source master clip or subclip is loaded in the 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 the browser.

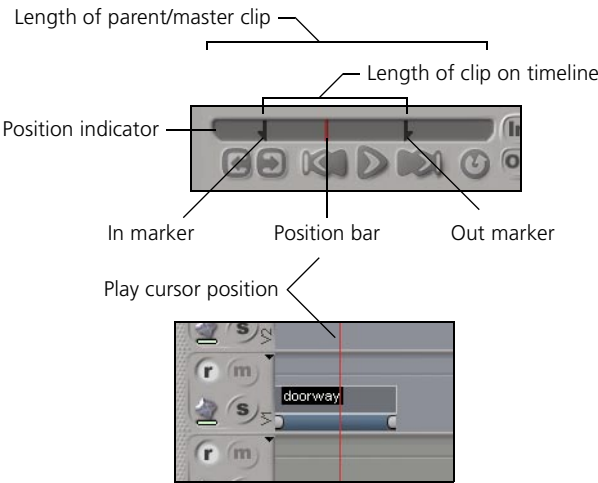
Matching a Frame in a Master Clip or Subclip

You can match a frame on any master clip or subclip on the timeline. 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 clips, select either the audio or video clip, and Avid|DS will locate the corresponding video and audio components of the source media.

To match a frame on the timeline

1. On the timeline, select a clip.
2. From the NLE Tools toolbar, click **Match Frame** or press the backslash (\) key.

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 on the timeline. The position bar is placed at the precise timecode (play cursor position) to match the currently displayed frame on the timeline.



3. If necessary, you can replace frames at this point—see *To replace a clip on the timeline* on page 200.



Matching a Frame in a Subclip Using the Viewer

You can match a frame in a subclip that was derived from another subclip using the source viewer. Avid|DS locates the next corresponding parent or master clip.

To match a frame in a subclip using the viewer

1. From the browser, drag the subclip to the viewer.
The subclip is displayed in the source viewer.
2. Select the source viewer.
3. From the NLE Tools toolbar, click **Match Frame** or press the backslash (\).
The clip's corresponding parent is located and loaded into the source viewer, replacing the subclip. In and out markers are added to indicate the subclip's in and out-points.
4. Click **Match Frame** again to locate the next corresponding parent clip.

Matching Bins for a Clip on the Timeline

As with match frame, you can locate the folders for any clip on the timeline, but 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, select either the audio or video clip, and Avid|DS will locate the corresponding video and audio components of the source media.

To locate the folder of a clip on the timeline

1. On the timeline, select a clip.
2. From the NLE Tools toolbar, click **Match Bin** or press Ctrl+Backslash (\).
The folder containing the clip's corresponding master or subclip is displayed in the browser 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 bar is placed at the precise timecode (play cursor position) to match the currently displayed frame on the timeline.



Extracting Parts of a Sequence

In Avid|DS, 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 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.

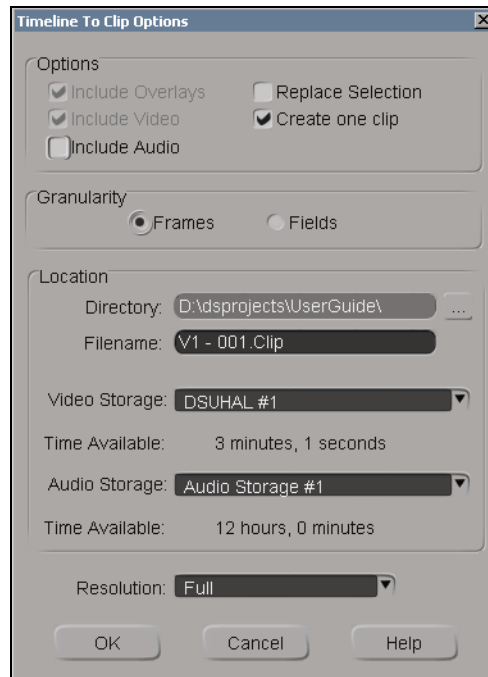
You can also specify what types of tracks to convert from the timeline, and configure limited processing options like granularity and resolution.

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.



Use the Timeline to Clip dialog box to specify how you want to convert timeline material to new clips.



Converting a Timeline Region or Object

You can convert a portion of your timeline or a timeline object, to a master clip.

To convert a region of your timeline or a timeline object to a clip

1. Do one of the following:
 - On the timeline effect track, drag to select a region.
 - Select one or more objects on the timeline.
2. From the NLE Tools toolbar, click **Timeline to Clip**.
3. In the Timeline to Clip dialog box, select the appropriate options and click **OK**.

The new clip is processed saved to the folder you specified.

Click **Help** for more information on the Timeline to Clip properties.



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. Do one of the following:
 - On the timeline effect track, drag to select a region.
 - Select one or more objects on the timeline.
2. From the NLE Tools toolbar, click **Timeline to Clip**.
3. In the Timeline to Clip dialog box, select the appropriate options, making sure to deselect **Create one clip**.

Click **Help** for more information on the Timeline to Clip properties.
4. Click **OK**.

The new clips are processed saved to the folder 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. Do one of the following:
 - On the timeline effect track, drag to select a region.
 - Select one or more objects on the timeline.
2. From the NLE Tools toolbar, click **Timeline to Clip**.
3. In the Timeline to Clip dialog box, select the appropriate options, making sure to select **Replace Selection**.

Click **Help** for more information on the Timeline to Clip properties.
4. Click **OK**.

The new clip is processed saved to the folder you specified. The Timeline to Clip 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

Creating a Master Clip from a Snapshot

Using the Snapshot to Clip and Snapshot to File commands, you can create master clips or image files from the frame currently displayed in the viewer.

You can create a master clip from the image on which the play cursor 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 allows 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 play cursor to the desired frame.
2. From the Viewer toolbar, click **Snapshot to Clip**.
3. In the Save Snapshot dialog box, specify the folder 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 folder you specified.

Creating an Image File from a Snapshot

You can export an image of the frame on which the play cursor is currently positioned. The image is exported as a bitmap image file in one of several formats, and saved in a folder you specify.

To create an image file

1. On the timeline, move the play cursor to the desired frame.
2. From the Viewer toolbar, click **Snapshot to File**.
3. In the Export to File dialog box, specify the folder, file name, and the file type then click OK.

The image file is saved in the folder you specified. You can import the file into Avid|DS or use it in other applications.



Rippling Clips

The Ripple mode is very important in Avid|DS. It 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 any clips following the edit point should move to accommodate the change.



Inserting clips in Ripple mode

You can ripple all tracks (timeline effect, overlay, video, 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 video track, it is also activated on all video tracks. Only the audio and overlay 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

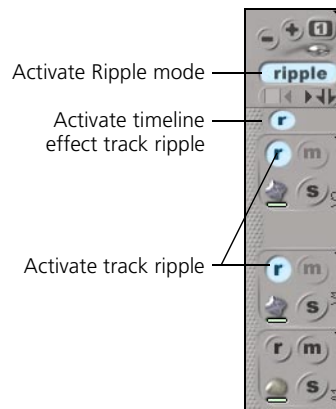
1. From the timeline controls, click the main **Ripple** button.

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.



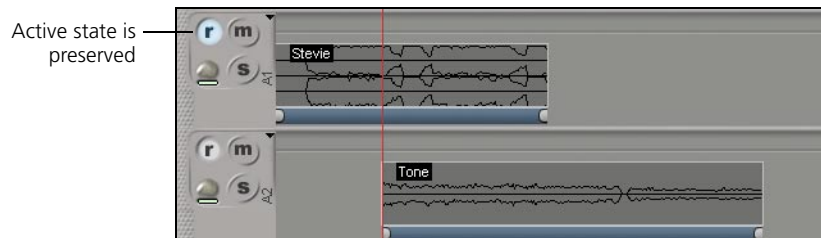
When you activate the Ripple mode on any video track, it is also activated on all video tracks. Only the audio and overlay tracks can be rippled on a per track basis.



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 are preserved even after the Ripple mode is deactivated. Although the buttons are not highlighted in blue, they still appear activated.





This serves as an indicator that you're *inserting* clips from the source viewer to the timeline. The Insert button on the preview controls 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 209.

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 play cursor to the timecode where you want to deactivate Ripple mode.
2. From the NLE Tools toolbar, click **Set Ripple End**.

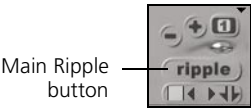
A light blue bar is displayed on the timeline, indicating the end of the ripple zone.

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 **Ripple**.
2. Click the Ripple button on the tracks that you want to ripple forward.

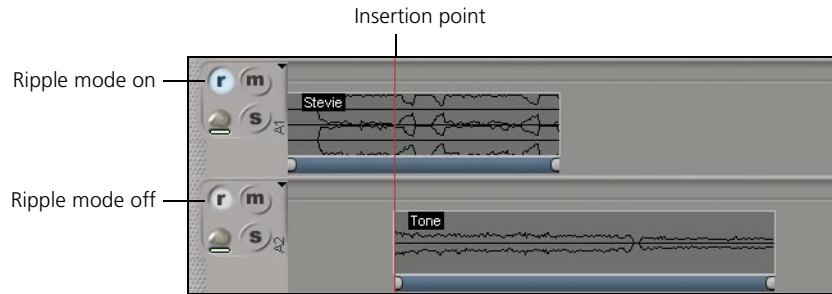


When you activate the Ripple mode on any video track, Ripple is activated on all video tracks. Only the audio and overlay tracks can be rippled on a per track basis.

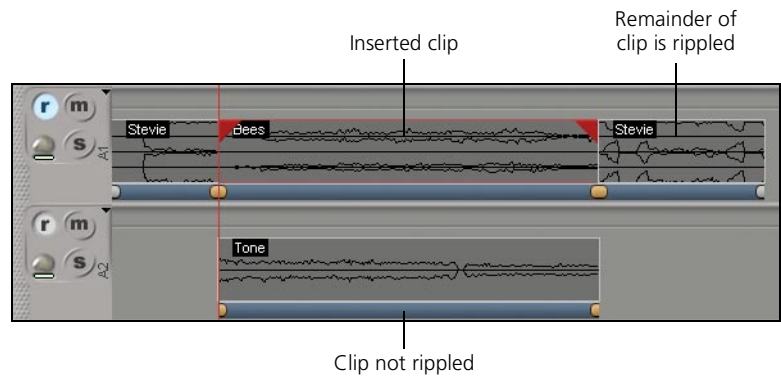
3. Drag a clip from the browser, viewer, or clip tray to the timeline.
All other clips from that timecode on are rippled forward on the tracks where the Ripple mode was activated. If you inserted the clip in the middle of another, that clip is split into two and the new clip is inserted between them.



Holding down 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

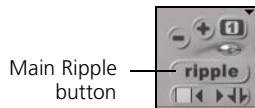
Editing Clips in Ripple Mode

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.



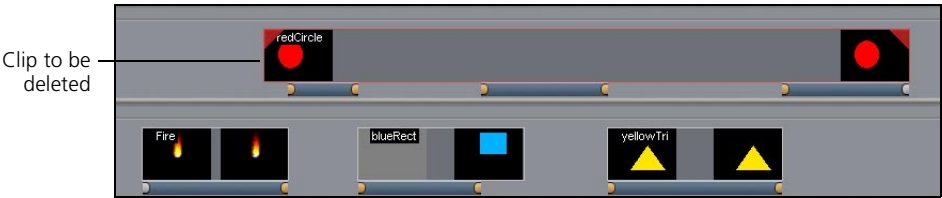
When you activate the Ripple mode on any video track, Ripple is activated on all video tracks. Only the audio and overlay tracks can be rippled on a per track basis.

3. Adjust the clip's edit points as necessary.

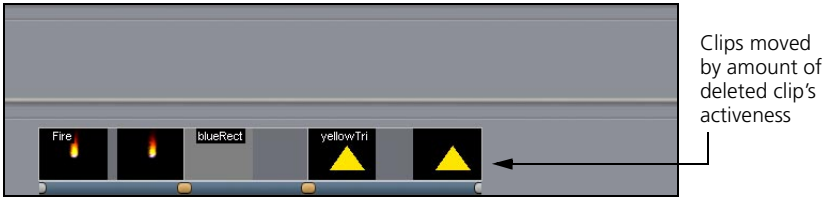
All clips are moved left or right to accommodate the changes on the selected clip.



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

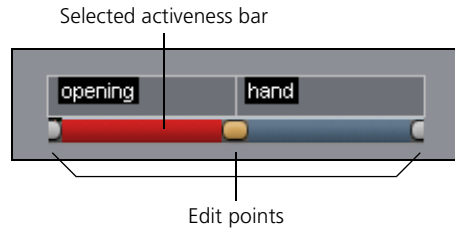


Position of clips after deletion (in Ripple mode)

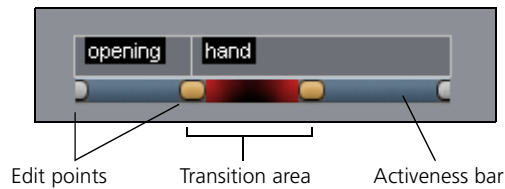


Trimming Clips

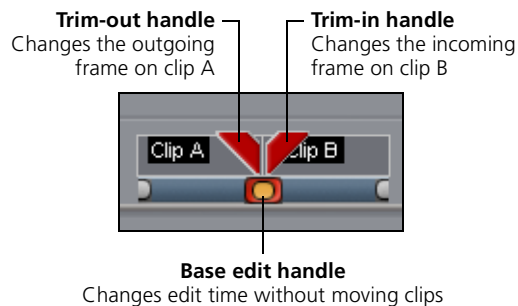
Trimming lets you fine-tune the incoming or outgoing frames at the edit points of a clip. Each clip has elements that you can select and edit; they're the trim handles and edit points. Edit points are located at the ends of the activeness bar of a clip, or where it transitions to another clip.



The activeness bar also displays any transitions 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 254.



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. In Avid|DS 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).



Methods of Trimming

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 215.

In Avid|DS 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 viewer, so that you can search for frames as you trim the clip.

- Using the Trim view

The Trim view lets you view the incoming and outgoing frames at the same time. It also provides more controls for performing trimming tasks.



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 226.

Selecting Edit Points

When you select an edit point on a clip, you're selecting its in or out-point. With video clips, an edit point is shared when one clip intersects with another. If you adjust this edit point, both clips are trimmed simultaneously.

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

- On the activeness bar, click an edit point.

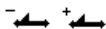
To toggle selection of an edit point

- Press Ctrl and click an edit point to deselect or reselect it.

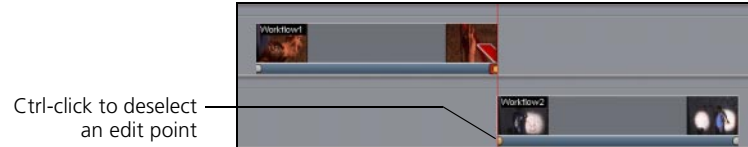
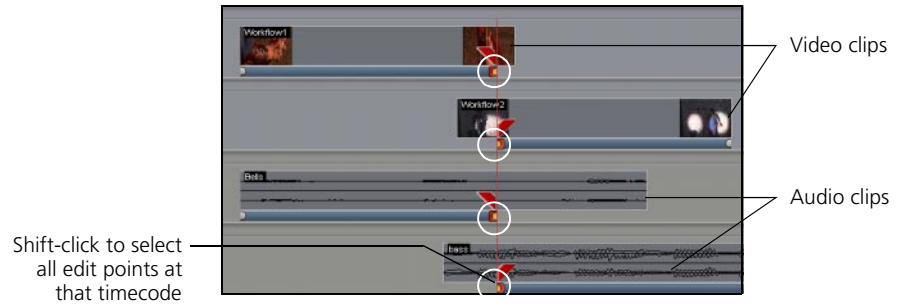
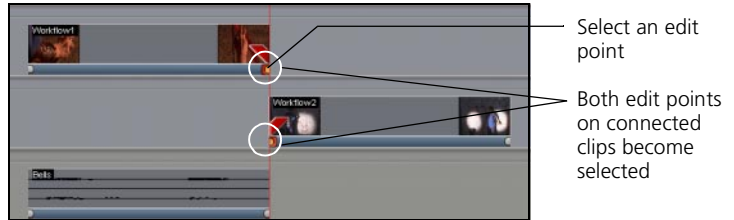
To select edit points on multiple audio and video clips

- Press Shift and click an edit point.

All other edit points at the same timecode are selected regardless of the clip type.



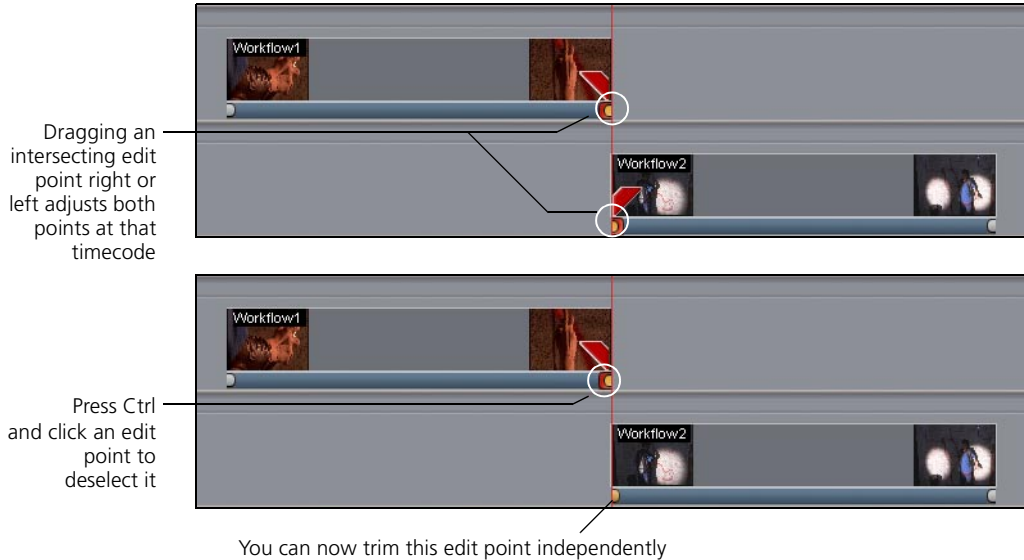
- Press Ctrl+Shift and click an edit point to deselect or reselect all edit points at that timecode.





Breaking Edit Points

When an edit point is selected, all other edit points at that timecode are also selected. Since Avid|DS preserves all edit points between clips in a sequence, you cannot break an edit point by dragging edit points apart.



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 NLE Tools toolbar, click **Break Links**.

You can now trim the clips independently of each other.

To relink edit points at the same timecode

1. Select an edit point.
2. Click another edit point (of the same clip type) at the same timecode.
Both edit points are highlighted.
3. From the NLE Tools toolbar, click **Link Edits**.



Trimming Clips on the Timeline

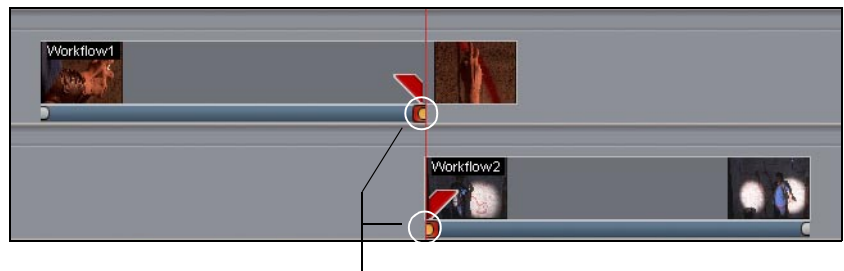
You can trim a clip by dragging its edit handles, dragging its trim handles, or entering new in and out points in the timecode boxes.

To trim clips using the edit handles

- Drag the edit handle left or right if you want to change the start or end time at which a clip is recorded. This also changes the incoming or outgoing frame.



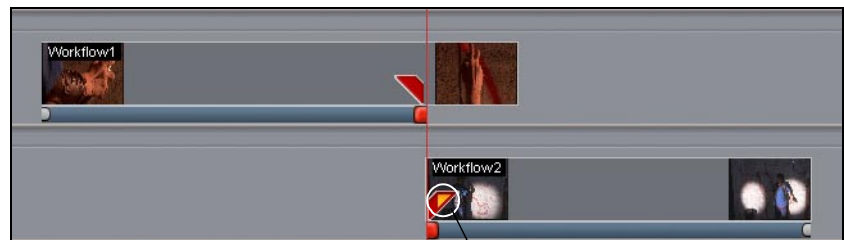
If you want to trim synchronized audio and video clips, you must simultaneously select multiple edit points. For more information, see *Selecting Edit Points* on page 232.



Select one edit point between the intersecting clips.
The edit handles on both clips are automatically selected

To trim clips using the trim handles

- 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.



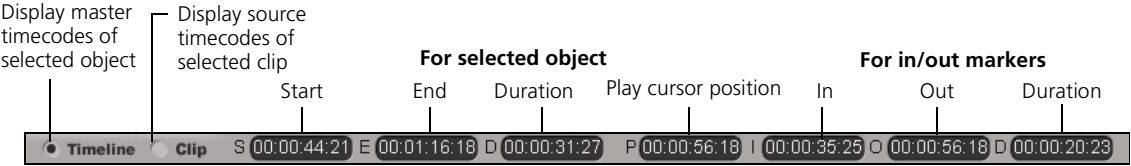
Select a trim handle



When you trim clips by adjusting either the edit or trim handle, the frame at that edit point is displayed in the viewer. This allows you to see the incoming or outgoing frame while trimming.

To trim clips using the timecode boxes

- 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.



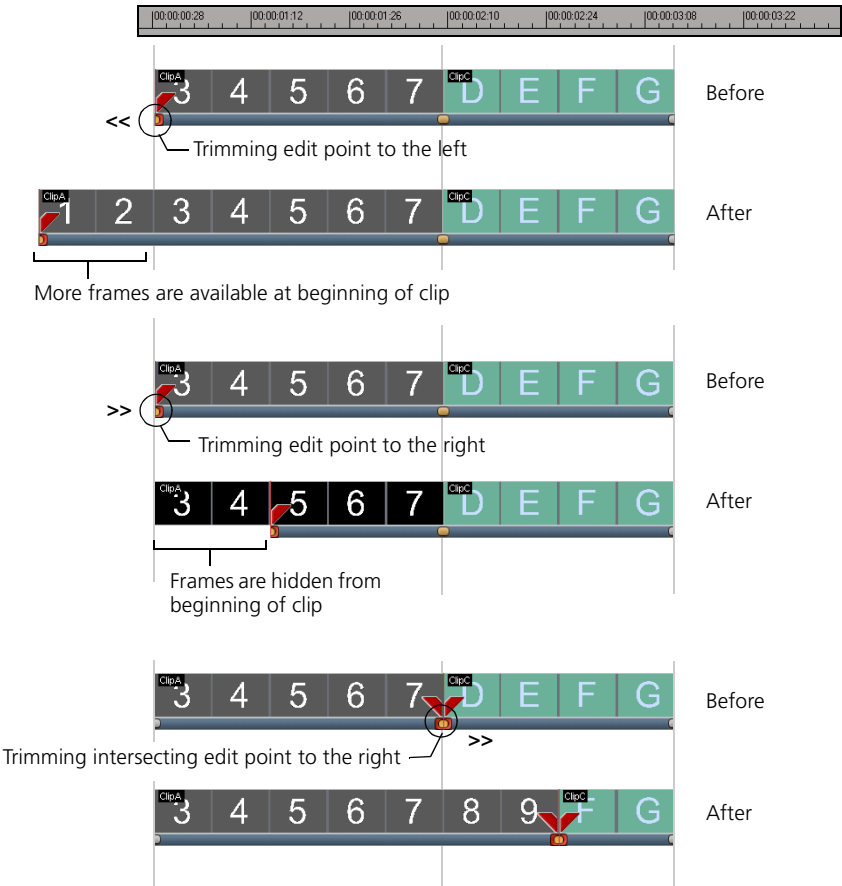
Trimming the Edit Point

When you move the edit handle at an edit point, you are changing the start or end recording time for the clip.



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.

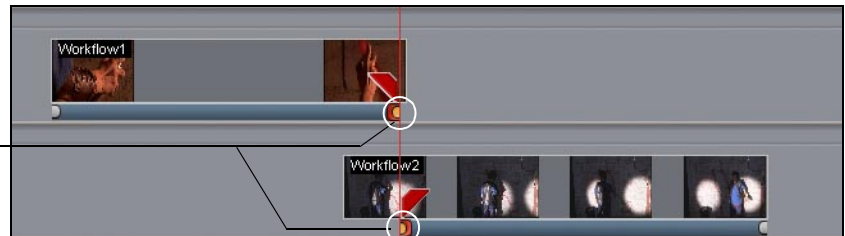
2. Drag the edit point left or right.

As you move the edit point, it reveals more frames on one clip and hides frames on the other.

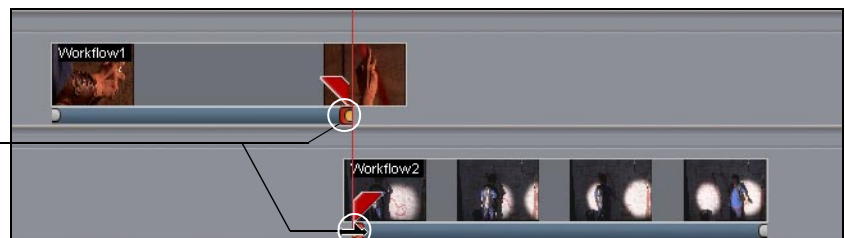


You can also adjust an edit point more precisely by selecting it and entering a value in the S (start) or E (end) timecode boxes on the status bar.

Select one edit point
between the
contiguous clips.
Both points are
automatically selected



Drag edit point
right or left



Both edit points at that timecode
are adjusted

Adjusting the in and out-points 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. 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.

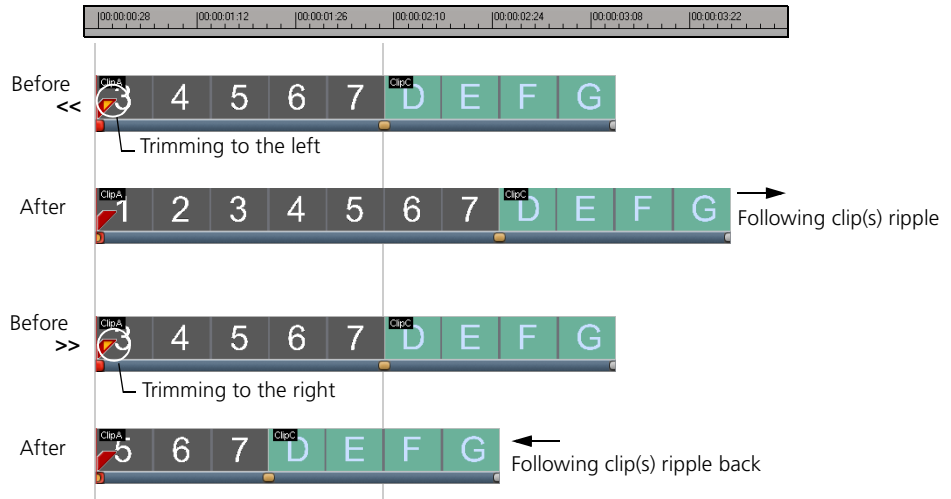


When Ripple mode is activated, trimming clips gives you different results than when it is deactivated. The following illustrations show how clips are affected when you trim them with and without Ripple mode on. The first scenario illustrates what happens when you trim an in-point.

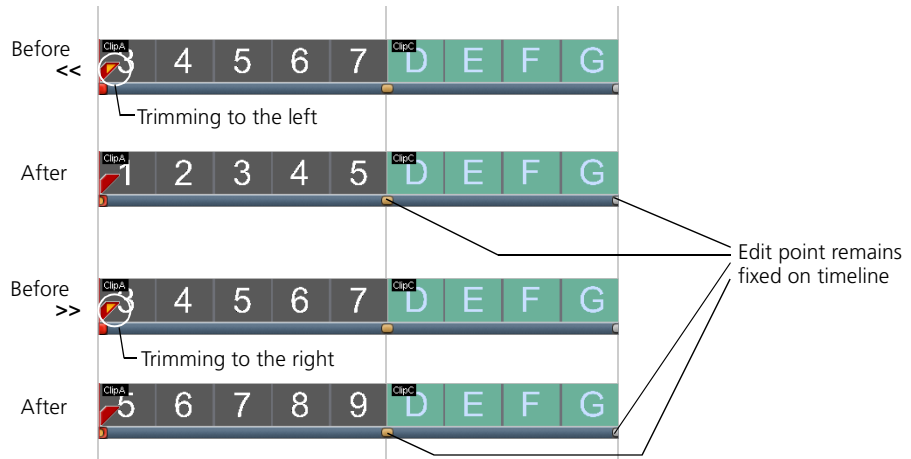


Trimming an in-point

Ripple mode on



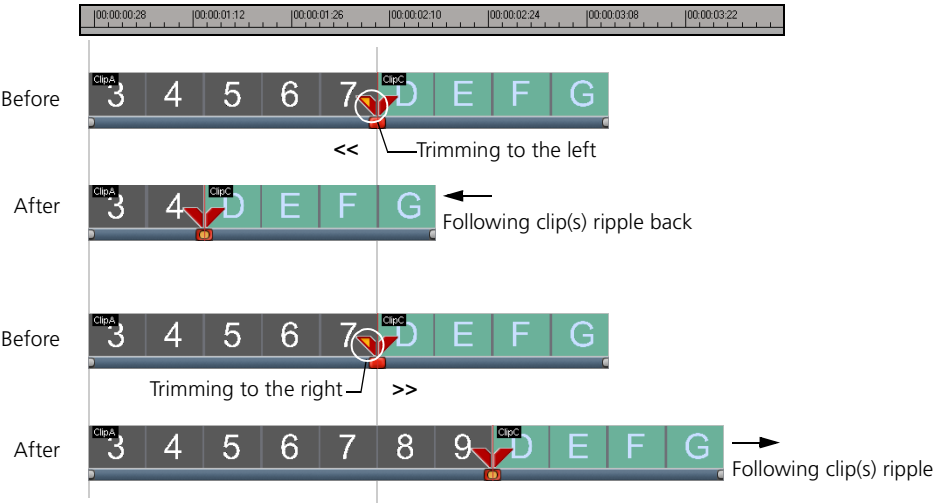
Ripple mode off



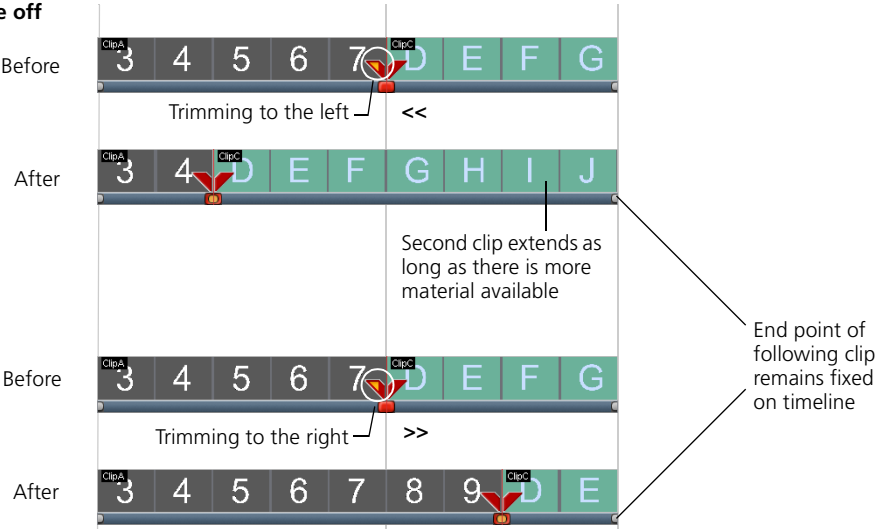


Trimming an out-point

Ripple mode on



Ripple mode off





To adjust the trim handles

1. If you want ripple activated, click the **Ripple** button in the timeline controls. Then, if necessary, click the Ripple button for the individual tracks on which you want the clips to ripple.



Only audio and overlay tracks let you ripple individual tracks.

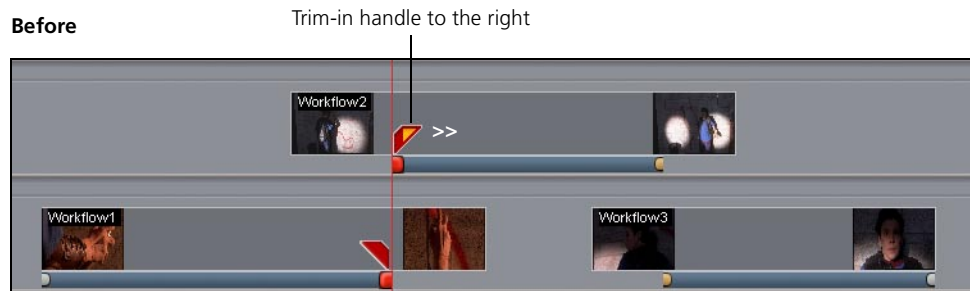
2. Select the edit point on the clip that you want to trim.

The clip's trim handles are displayed just above the edit point.

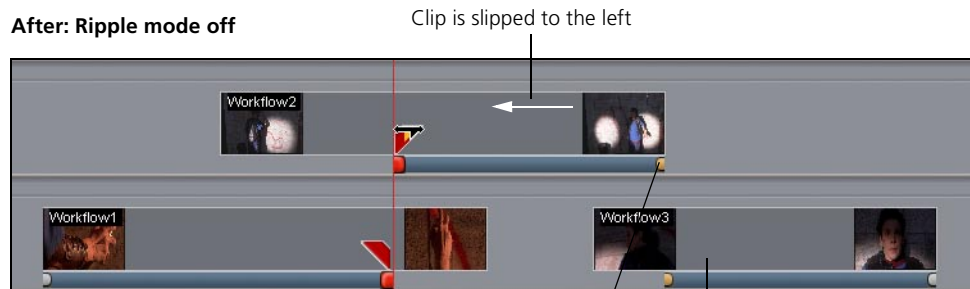
3. Drag the trim handle to the right or left. (The trim handle can only be moved as far as there is extra material available on the clip.)

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.

Before



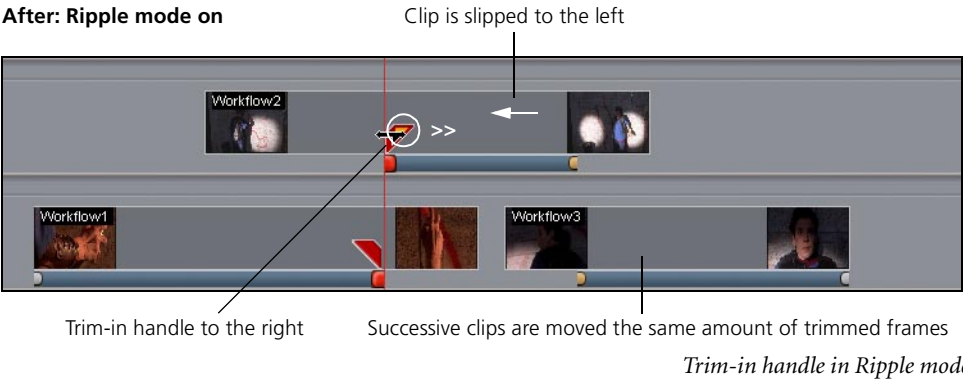
After: Ripple mode off



Opposite end's edit point remains fixed on timeline

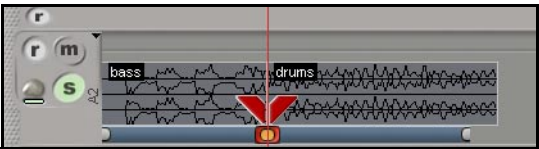
Incoming frame remains the same

Trim-in handle when not in Ripple mode



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.

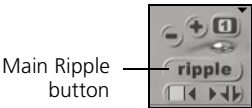


Backtime edits can only be performed when Ripple mode is off.

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.





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 play cursor's position, you can locate the correct frame and then snap the edit point to that frame.

To snap an edit point to the play cursor position

1. Move the play cursor to the desired position.

The transport controls indicate the timecode of the play cursor.

2. Select the clip that contains the in or out-point you want to move.
3. From the NLE Tools toolbar, click 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 Snap In and Snap Out to trim synced clips (for example clips with audio and video content) as long as the clips are of 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 215.

Trimming Clips Using the Trim View

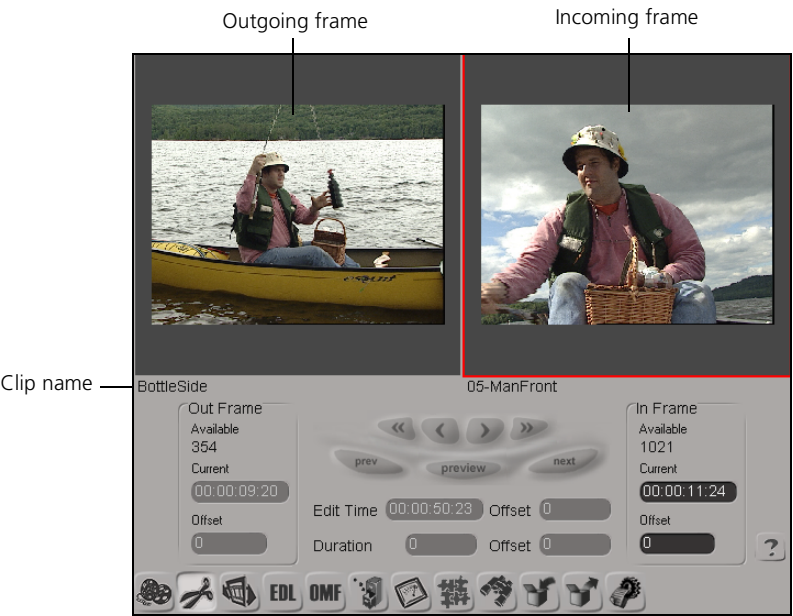
The Trim view provides a close-up view of a clip, so that you can edit the clip on a frame-by-frame basis. The results are the same as if you were dragging the clip's trim handles or edit points on the timeline, except that you are given more tools to work with on the Trim view. For more information, refer to *Trim view* in the online help.

To trim a single clip using the Trim view



1. From the view switcher, click the **Trim** icon.
2. On the timeline, select the edit point of the clip that you want to trim.

The incoming and outgoing frames at that point are displayed in the Trim view. The Incoming frame shows the active frame (if any) before the edit point and the Outgoing frame shows the active frame (if any) after the edit point.

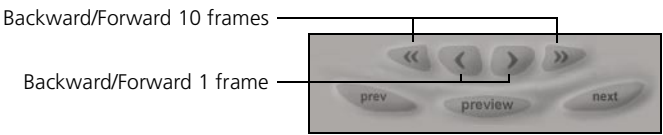


Selected edit point as seen in the Trim view

- A red border surrounding the Incoming and Outgoing frames indicate which clip will be trimmed. By default, both frames are active.
3. If you only need to trim one of the clips, click on its corresponding frame view.

The other view is automatically deactivated.

4. Click the Forward or Backward button to trim the clip.



As you trim the edit point, the frames of the clip are hidden or revealed to reflect the new incoming or outgoing frame.



The plus or minus buttons are dimmed if a clip has already reached its maximum or minimum length. When this happens, the Available field will indicate that zero (0) frames are available for trimming.

You can also enter the number of frames to be trimmed in the **Frames** text box. A positive number moves the edit point forward while a negative number moves it backward.



Previewing Trimmed Clips

After trimming a clip in the Trim view, you can play the results in the viewer.

To preview the results of a trim

1. In the Trim view, click **Preview**.

Loop markers appear on the timeline from the edit point before your current trim to the edit point after your current trim.



2. From the view switcher, click the Editing icon.

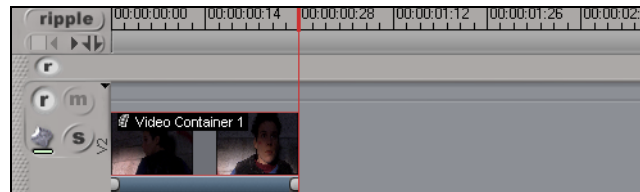
3. Click Play to see the playback in the viewer.

The marked section of the timeline plays until you click Preview again.

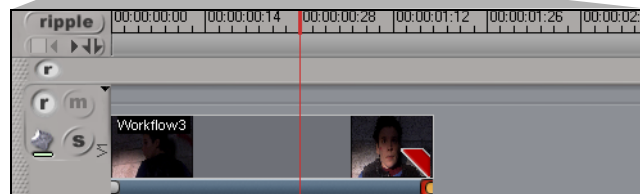
Trimming Container Clips

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 production.

Top timeline



Container clip timeline



Container clip ends at 00:00:01:12, so this portion is not visible in final production



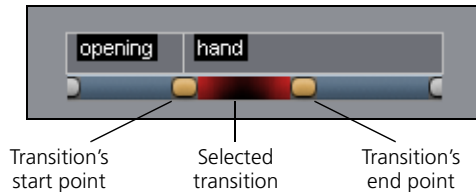
Trimming Transitions

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 trim the transition area

- Do one of the following:
 - Click an edit point at the start or end of the transition, and drag it left or right to trim it.
 - On the activeness bar, select the transition area, and enter a new in, out, or duration in the timecode boxes.
 - On the Trim view, trim the selected edit point using the tools in this view. For more information, see *Trimming Clips Using the Trim View* on page 243.



Slipping and Rolling Clips

In addition to fine-tuning your edits by trimming clips, you can also slip the contents of a clip, or roll the clip to a different location in the sequence.

Slipping lets you change a clip's contents without affecting its position and duration on the timeline. Rolling lets you change a clip's location on the timeline without affecting its content. Instead, the previous and next clips are trimmed to accommodate the operation.

The Slip/Roll view contains tools for slipping or rolling clips. It allows you to manipulate an edit's incoming and outgoing frames on a frame-by-frame basis. It also shows the incoming and/or outgoing frames of the previous and next clip (if any). You can slip or roll a clip by entering new in and out timecodes, or by using the buttons to move the frames incrementally. After slipping or rolling a clip in the Slip/Roll view, you can play the results in the viewer. For more information, refer to *Slip/Roll View* in the online help.

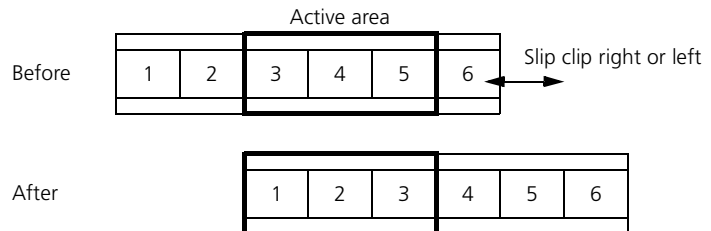


In the special case where the Slip/Roll view is used for manipulating audio clips within an audio container, the Move Backward/Forward buttons (<, <<, >, and >>) will affect the clip in units of time defined by the ruler's display (milliseconds, samples, drop frame, or non-drop frame).

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 rolls 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 active area in the illustration shows the active section of a clip. If you slip the clip, new frames appear in the active area. You can only slip the clip as far as there is available material on the clip. Any clips that precede or follow the slipped clip are not affected.

To slip a clip



1. From the view switcher, click the Slip/Roll icon.
2. On the timeline, select the clip that you want to slip.



You can slip audio and video clips together by sync-locking them. For more information, see *Synchronizing Clips* on page 268.



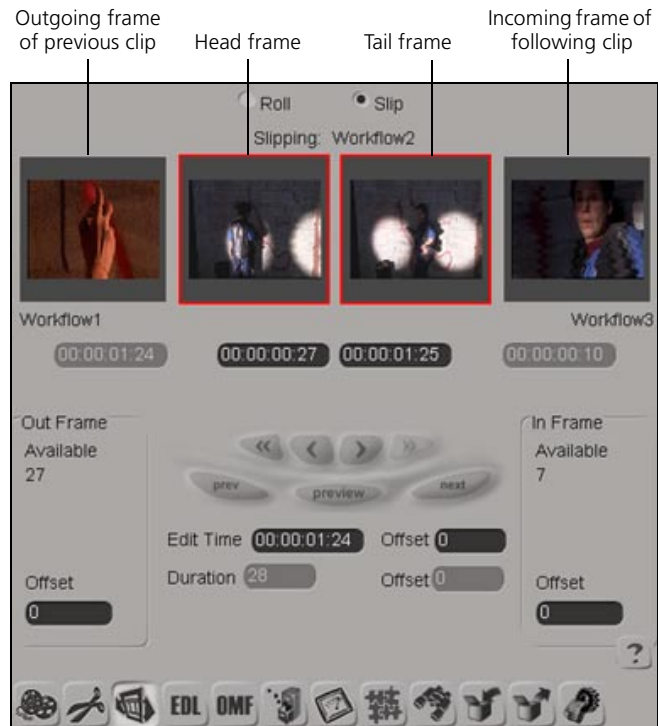
Selected clip

Clips prior to slipping

When slipping clips, you're limited to the extent of available material on the clips, so 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. For more information, see *Revealing Unused Material on Clips* on page 215.

The Slip/Roll view 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 for the selected clip. If there are any clips before or after the selected clip, they're displayed in the Incoming frame or Outgoing frame.



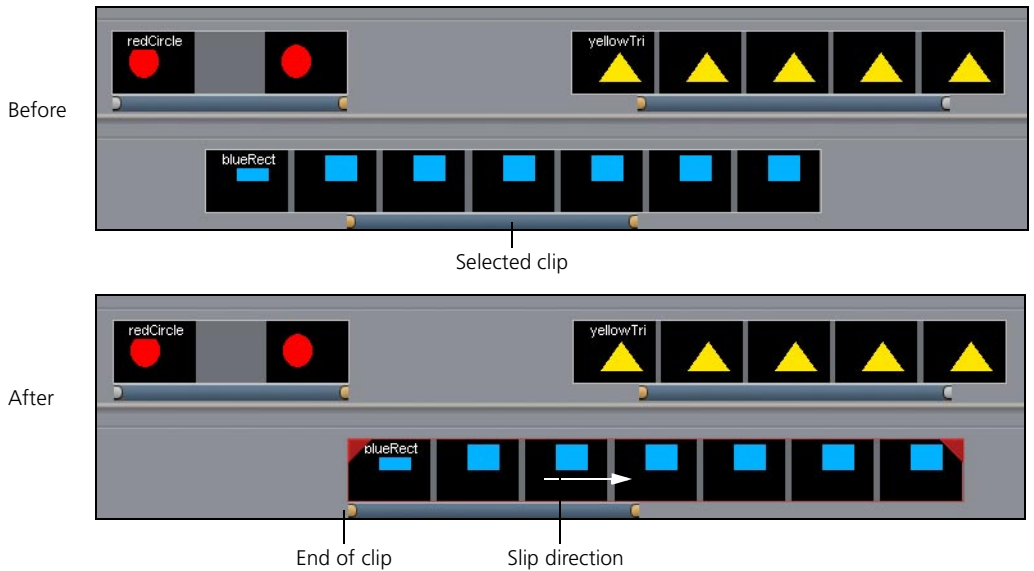
3. From the Slip/Roll view, select the **Slip** option.
4. Click the Forward or Backward buttons to slip the clip.

Backward/Forward 10 frames

Backward/Forward 1 frame



You can also enter the number of frames to be slipped in the **Offset** text boxes. A positive number moves the clip forward while a negative number moves it backward.

*Slipped clips on the timeline*

The slip stops when there are no more frames available on the selected clip. The contents of the clip are moved left or right and the head/tail frame views on the Slip/Roll view change to display the new in and out frames. The frames and edit points on the adjoining clips remain unchanged.

The Incoming and Outgoing frames in the Slip/Roll view also update to show the new in and out frames on the slipped clip.

5. You can continue to slip the clip until there are no more frames available on the selected clip.



The plus or minus buttons become dimmed when no more material remains to be slipped. The Available display will indicate that zero frames are available for rolling.

To preview the results of a slip



1. From the view switcher, click the Slip/Roll icon.
2. In the Slip/Roll view, click **Preview**.

Loop markers appear on the timeline from the edit point before your current trim to the edit point after your current trim. This marked section of timeline plays continuously.

3. Click **Preview** to stop playback.



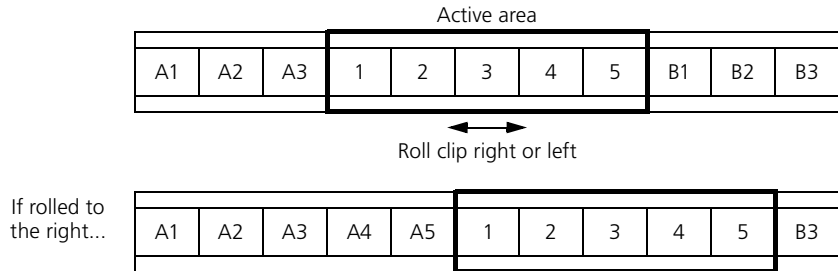
Click the Help icon for detailed information on the Slip/Roll View.



Rolling Clips

Roll refers to moving a clip to change its location on the timeline, while retaining its duration and active frames. Rolling a clip moves it along the timeline with its activeness. As you roll a clip, it trims the activeness of the previous and next clip. You can only roll the clip as far as there is available material on the adjoining clips.

For example, you would roll a clip when your shot has the correct action sequence but needs to be synced with its corresponding audio track. To do this, roll the clip along the timeline until it aligns with its audio clip.



To roll a clip



1. From the view switcher, click the Slip/Roll icon.
2. From the Slip/Roll view, select the **Roll** option.
3. On the timeline, select the clip that you want to roll.

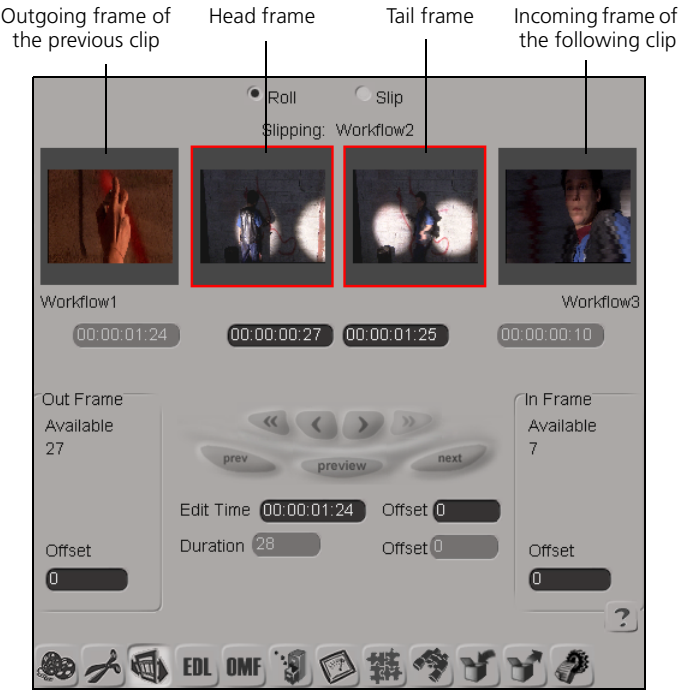


You can roll audio and video clips together by sync-locking them.

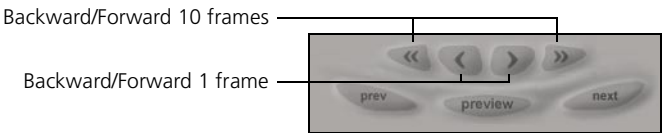
When rolling clips, you are limited to the extent of available material on the clips, so it is useful to see how much extra material you have by displaying the frames past the activeness bar. To do this, you must be in Display Unused Material mode. For more information, see *Revealing Unused Material on Clips* on page 215.

The views in the Slip/Roll view show the frames in the selected clip and any clips to which it is connected.

The Head and Tail frames show the start and end frames of the selected clip. If there are any clips before or after the selected clip, they are displayed in the Incoming or Outgoing frame.

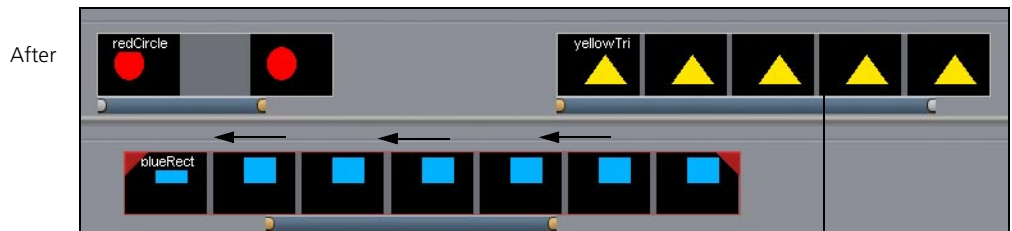
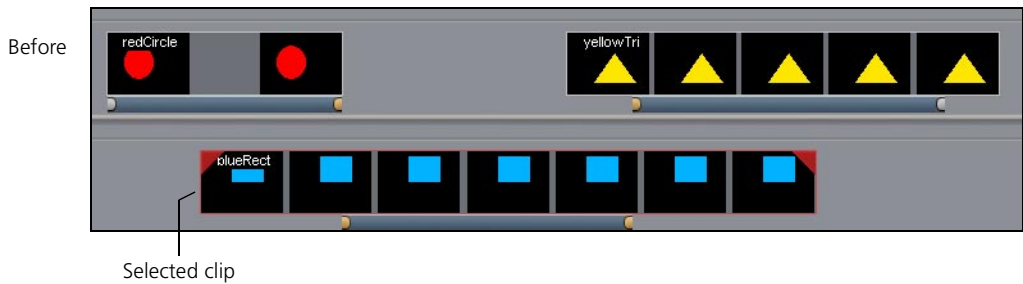


4. Click the Forward or Backward buttons to roll the clip.



 You can also enter the number of frames to be rolled in the Offset text box. A positive number moves the clip forward and a negative number moves it backward.

As you roll the clip, it moves along the timeline with its activeness. It overwrites the activeness of the clip in its path, and stretches out the activeness of the clip behind it.



Roll the clip until there is no more material left on the following clip

The rolled clip on the timeline

The roll stops when there are no more frames available on the attached clips. The Head and Tail frames on the Slip/Roll view remain the same while the Incoming and Outgoing frames of the adjoining clips change.

5. The views on the Slip/Roll view update to display the new in and out frames on the adjoining clips. You can continue to roll the clip until there are no more frames available for either of the attached clips.



The plus or minus buttons appear dimmed when no more material remains. The Available field will indicate that zero frames are available for rolling.

To preview the results of a roll



1. From the view switcher, click the Slip/Roll icon.
2. In the Slip/Roll view, click **Preview**.

Loop markers appear on the timeline from the edit point before your current trim to the edit point after your current trim. This marked section of timeline plays continuously.

3. Click **Preview** to stop playback.



Click the Help icon for detailed information on the Slip/Roll View.



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, or a fade-in or fade-out to audio clips. For more information, refer to *Image Transition Effects* on page 311 of the Avid|DS Compositing & Effects Guide.

Cutting to a Clip

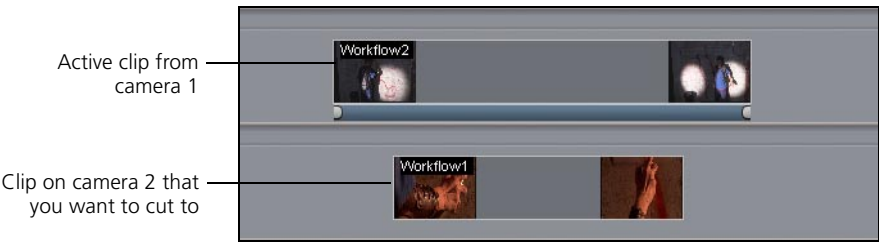
A cut is a jump or sharp transition between two clips. In Avid|DS, the cut transfers activeness from one clip to another. The Cut To transition is especially useful for multi-camera editing when you need to constantly switch between different camera shots to accomplish the desired edit. In this case, 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.



A cut between clips

2. Position the play cursor at the point, on the next clip, at which you want to make a cut.



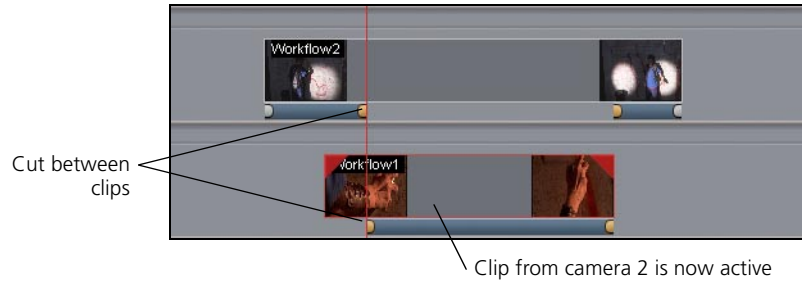
If the clip you are cutting to is inactive, you cannot see its frames in the viewer. To view that clip’s frames, click the Solo button on the track where the clip is located.

3. Select the clip that you want to cut to.

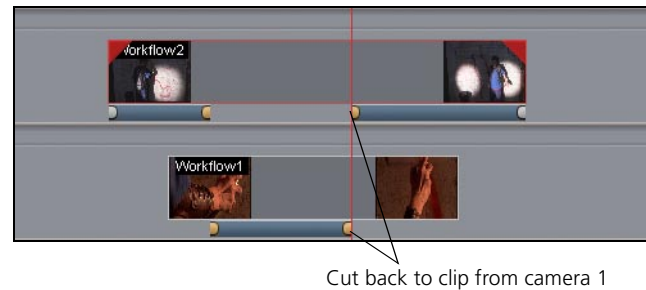


- From the NLE Tools toolbar, click **Cut To**.

The activeness is switched from the first clip to the selected clip at the play cursor position.



- Continue to cut back and forth between the two cameras by placing the play cursor at the appropriate frame, selecting the clip you want to cut to, and then clicking **Cut To** on the NLE Tools toolbar.



Creating One-Sided Transitions

You can apply one-sided transitions to clips on the timeline. One sided transitions are 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

- On the timeline, select a clip.
- Select the clip's in or out-point.
- From the Image Tools toolbar, click **Apply Effect**.
- From the menu, choose **Fade-in**, **Fade-out**, **DVE**, or **Wipe**.



The transition's property editor is displayed, and the transition appears as a gradient on the clip's activeness bar.



You can edit the duration of a one-sided transition the same way you would a transition between clips. Simply drag the edit points.



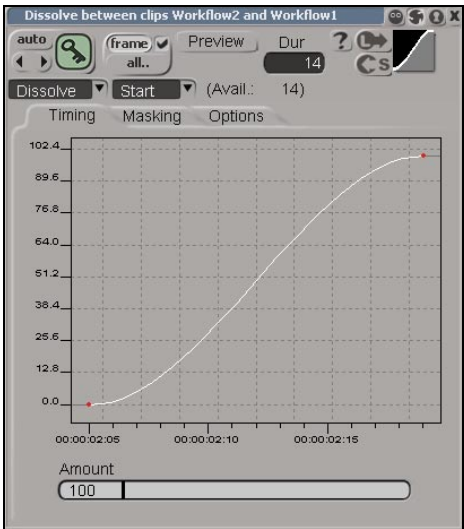
Creating Transitions Between Clips

You can apply transition between clips on the same or different 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, overlap the clips that you need to work with. These clips can be on different tracks or on the same track.
2. Select the edit point between the two clips.
3. From the NLE Tools toolbar, click one of the transition tools: **Dissolve**, **Wipe**, **DVE**, or **Crossfade**.

The transition's property editor is displayed.

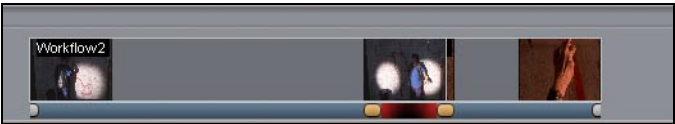


The edit point can be set to be the start, end, or center of the transition. You can also change the type of transition that you've applied. All these options are available in the property editor.



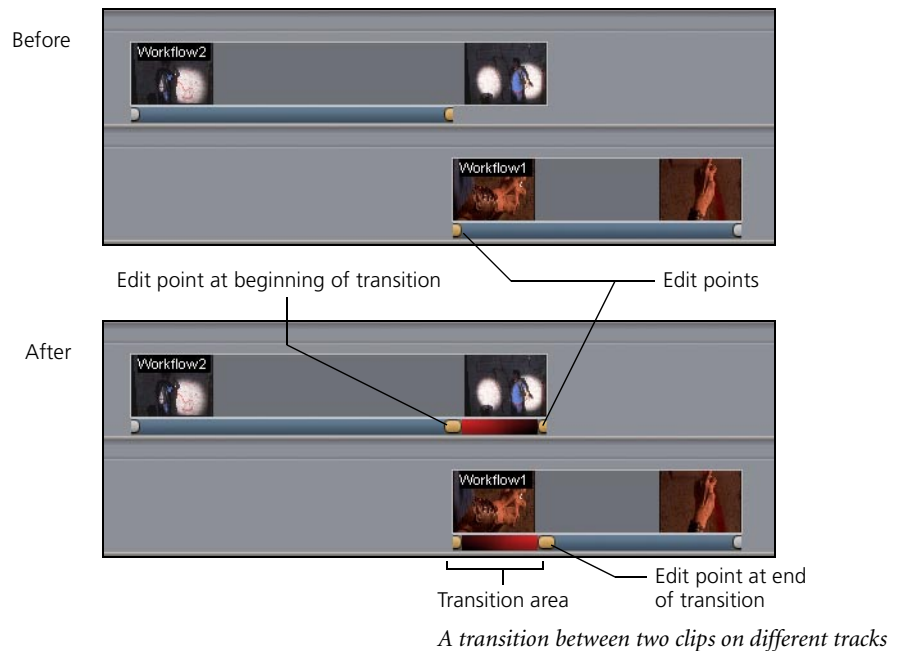
Click the Help icon for detailed information on the transition properties.

Once a transition has been applied between two clips, it is automatically shown as a gradient on the activeness bar.



Transition area

Same-track transitions



Transitions have their own properties with edit points that indicate the beginning 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 a transition.

To change the properties of a transition

1. Do one of the following:
 - Right-click on the transition area of the activeness bar and choose **Properties** from the menu.
 - Double-click on the transition bar.
2. Change the properties in the transition's property editor.

Removing a Transition

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 and press Delete.
 - Right-click on the transition's activeness bar and choose **Delete** (transition type) from the menu.



Using Container Clips

Avid|DS lets you 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.

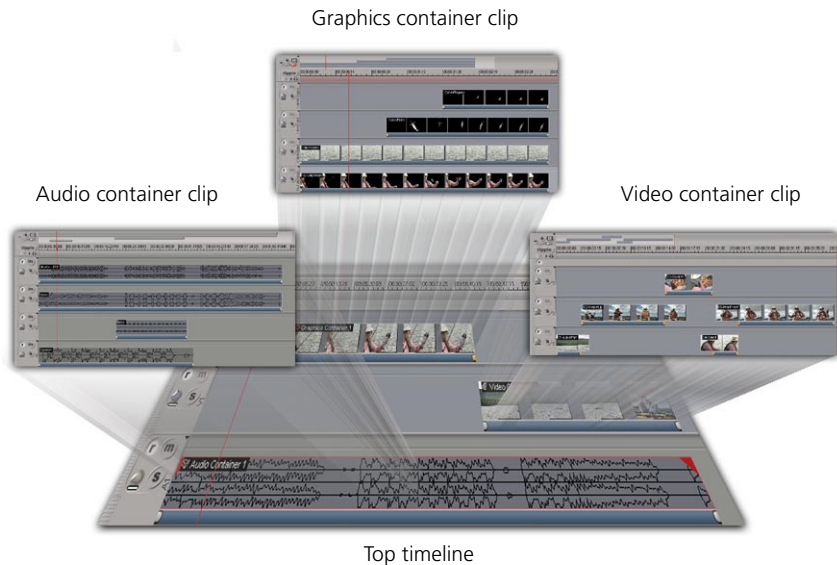
Container clips behave just like any other clip on the timeline. The same rules of activeness, rippling, and other editing functions (trimming, slipping, rolling) apply.

There are three basic types of container clips that you can use:

- **Video container clips** let you edit several video clips together 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.
- **Graphics container clips** lets you layer video clips together to create a composited result.

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 appears as a single clip on the timeline. You can re-open a container clip at any time to add, modify, or delete its components.

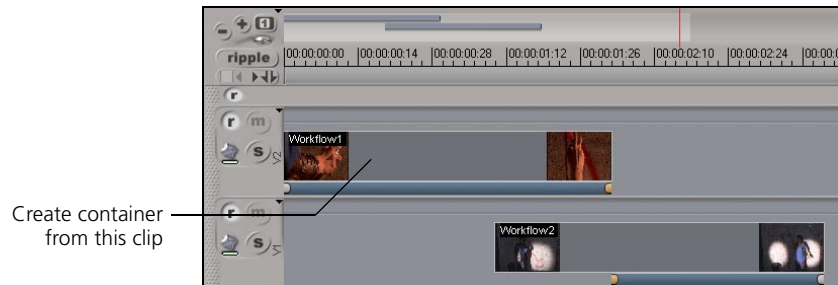


The three basic types of container clips

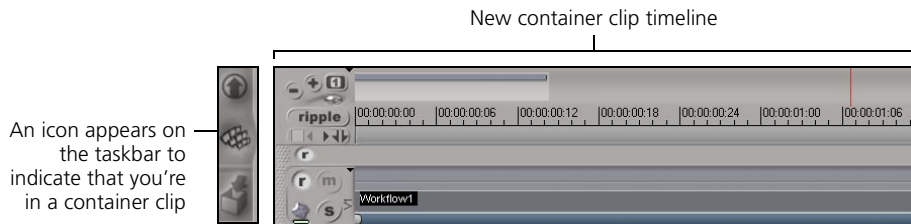


Creating Container Clips

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. By default, the ruler inside the container clip starts at 00:00:00. This lets you build a mini-sequence that is independent of the final sequence on the top timeline.



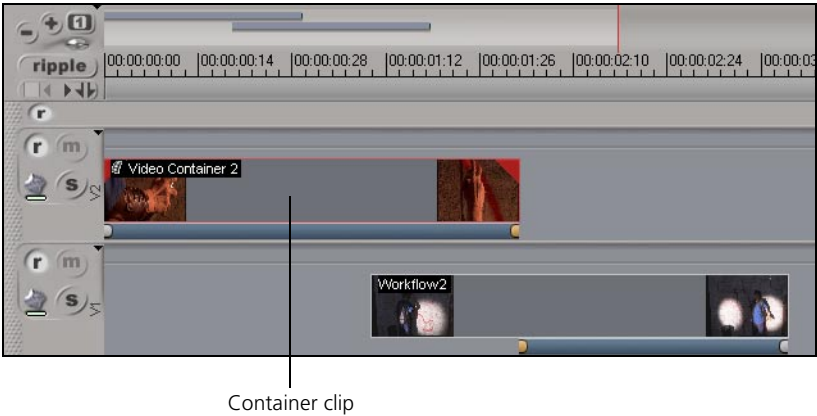
A container clip timeline is nested in the top or parent timeline. When you open a container clip, it displays its contents on this new timeline. When you close the container clip, however, the clip appears relative in time to all other clips on the parent timeline.



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 production.

By default, a container clip is named “Video 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.



Top timeline after container clip is closed

Creating a Video Container Clip

Video container clips let you edit several video clips together, 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 video 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 video container clip

1. On the timeline, select the video clips that you want to use in your 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.



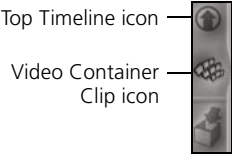
2. On the taskbar, click the **Create Container** icon and choose **Video Container Clip** from the menu.

A container clip timeline opens. You can now place additional clips on the tracks, add effects or transitions, or perform other editing tasks on the clips.

Also, a new container clip timeline icon is displayed in the taskbar to indicate that you are working in a video container clip.

3. Click the **Top Timeline** icon when you have finished editing the clips in this container clip.

The video 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 icon in the title bar of the container clip.



Top Timeline icon
Video Container
Clip icon



Container clip icon



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.

To create an audio container clip

1. On the timeline, select the audio clips that you want to use in your container clip.



To select more than one clip at a time, press Ctrl while clicking on clips.

2. On the taskbar, click the Create Container icon and choose **Audio Container Clip** from the menu.

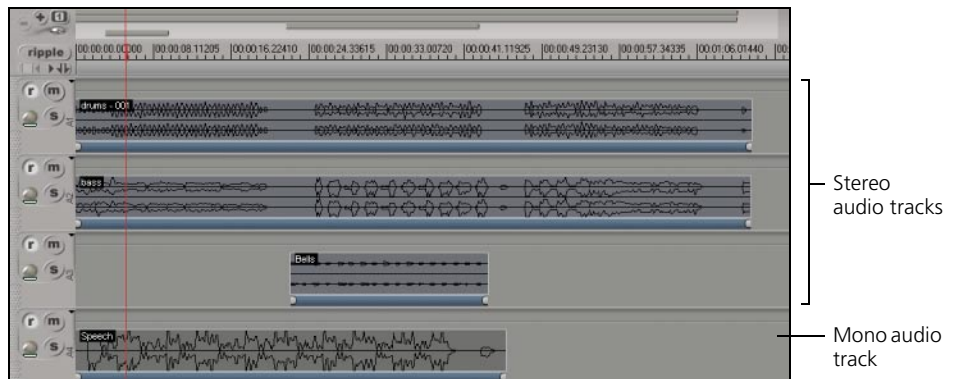


A container clip timeline opens. You can now place additional clips on the tracks, add effects and transitions, and perform other editing tasks to the clips. In the audio container clip, you can set your ruler to display frames or milliseconds, giving you greater accuracy when editing your audio clips.

Audio container clip icon



Also, a new container clip timeline icon appears in the taskbar to indicate that you are working inside an audio container clip.



Audio container clip



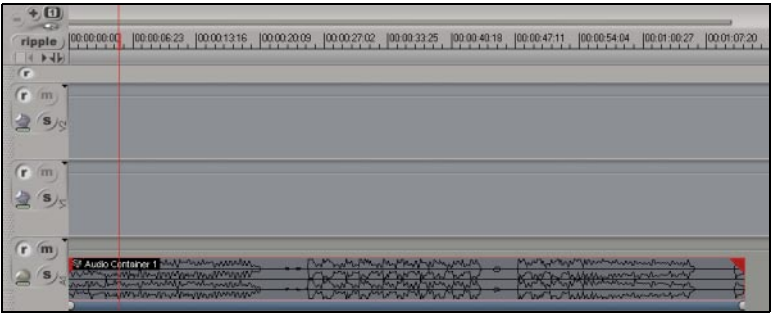
3. Click the Top Timeline icon when you've finished editing the clips in this container clip.



Container clip icon



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 icon in the title bar of the container clip.



A closed audio container clip represented as a single clip on the timeline

Creating a Graphics Container Clip

Graphics container clips let you layer video clips and apply graphics, color correction, keyer, and DVE effects to each layer. You can also create a graphics container clip to draw graphics or add titles to your clips. A graphics 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 *Building a Composite in a Container Clip* on page 100.

To create a graphics container clip

- 1. On the timeline, select the video clips that you want to use in your container clip.



To select more than one clip at a time, press Ctrl while clicking on clips.

- 2. On the taskbar, click the Create Container icon and choose **Graphics Container Clip** from the menu.

A container clip timeline opens. You can now place additional clips on the tracks, add effects, and perform other editing tasks to the clips.

Also, notice that a new container clip timeline icon is displayed in the taskbar to indicate that you're working in a graphics container clip.

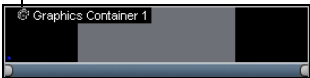
- 3. Click the Top Timeline icon when you've finished editing the clips in this container clip.

The graphics 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 icon in the title bar of the container clip.

Graphics container timeline icon



Container clip icon



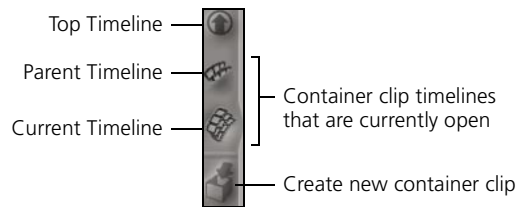


Navigating within Container Clips

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.

You can also create container clips in container clips. A container clip that contains another is called the parent container clip. Each time you create or open a container clip, its corresponding icon appears at the bottom of the taskbar. As you continue to nest container clips, the list of icons on the taskbar continues to grow. These icons provide a quick way of navigating between container clips. The timeline icons in the taskbar indicate how deep the container clip is nested.

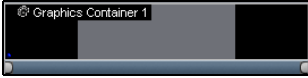


You can identify container clips by the type of icon that appears in the taskbar.

This icon	Represents
	A video container clip.
	An audio container clip.
	A graphics container clip.



Container clip icon



Step In



Opening Container Clips

The icon at the top of the timeline icons in the taskbar represents the top timeline. As you create nested container clips, more timeline icons appear on the taskbar. The type of timeline icons that appear correspond to the opened container clips.

To open a container clip

- Do one of the following:
 - Click on the icon in the container clip.
 - Double-click on the clip.
 - Select the clip and click the Step In icon on the Timeline navigation bar.

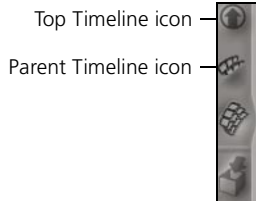
The container clip timeline is displayed. A new container clip icon is displayed in the taskbar, representing the container clip in which you're currently working.

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 icon on the taskbar.

When you click the Top Timeline icon, it closes all of the container clips below it and displays the top timeline.

Similarly, when you click on a parent container clip icon, it closes any nested container clips within it and displays only the contents of the selected container clip.



Step Out



To close a container clip and return to the top timeline

- From the taskbar, click the Top Timeline icon.
- 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:
 - In the taskbar, click any container clip icon (Parent Timeline icon) above the current container clip icon.
 - On the Timeline navigation bar, click the Step Out icon.

The current container clip is closed and the parent container clip's timeline is displayed.



Deleting Container 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 on a clip and choose **Delete Clip** from the menu.

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.
2. Press Shift and select all the clips in the container clip.
3. Press Ctrl+X to copy the clips.
4. Close the container clip.
5. Press Delete to delete the container clip.
6. Position the play cursor 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.



Referencing Sequences

Referencing other sequences lets you place pointers to other sequences on the timeline in the current sequence. These pointers 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 allows you to work on that portion of your sequence separately. Once it's updated, the changes are automatically reflected in sequences that contain this reference clip.

Creating Reference Clips

You can create a reference to any sequence that exists within the current project.



You can only play back the video and overlay tracks of a referenced sequence. Any audio tracks within the sequence will not be heard.

To create a reference to an existing sequence

1. Locate the sequence in the browser.
2. While holding down the Alt key, drag the sequence to the timeline.

The sequence appears as a clip on the timeline.



Once you've created a reference clip, you cannot move or rename the sequence to which it points. If the referenced sequence has been moved or renamed, then the viewer will display a "Referenced sequence not found" message. You can avoid this by placing the sequence back in its original location or changing its name back to the original.

Converting a Container Clip to a Reference Clip

You can lighten the load on your timeline and improve its responsiveness by converting complex container clips to reference clips. This saves the contents of the container clip to disk as a sequence, and leaves a reference to the saved sequence in its place on the timeline.

To convert a container clip to a reference clip

1. Right-click on the container clip and choose **Convert to Reference Clip** from the menu.

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.



Processing Reference Clips



To open a reference clip

1. Select the reference clip.
2. From the NLE Tools toolbar, click **Expand Reference**.

To close a reference clip and return to the top timeline

- From the NLE Tools toolbar, click **Collapse Reference**.

If a reference clip contains any unprocessed material, then the message “Referenced sequence needs processing” is displayed in the viewer during playback.



Processing a reference clip from a master sequence using the Process Reference button does not let you choose processing options.

Avid|DS will process the referenced sequence according to the processing options of that sequence, except that it will change the mode to Minimal.

To process a single reference clip

1. Select a reference clip.
2. From the NLE Tools toolbar, click **Process Reference**.
You are prompted to save the current sequence.
3. Click **Yes** to save the current sequence or click **No** to bypass the save.

Avid|DS 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 Processing toolbar, click **Process TL And Refs**.
You are prompted to save the current sequence.
2. Click **Yes** to save the current sequence or click **No** to bypass the save.

Avid|DS processes the entire timeline, and also opens and processes any reference clips on the top timeline.



Synchronizing Clips

Synchronizing (syncing) clips refers to aligning points on different clips, so that they occur simultaneously. When you synchronize clips in Avid|DS, 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 markers can help you synchronize your video and audio clips. You can place reference markers on the marker ribbon and then drag the clip marker to align it with the reference markers or with other clip markers.

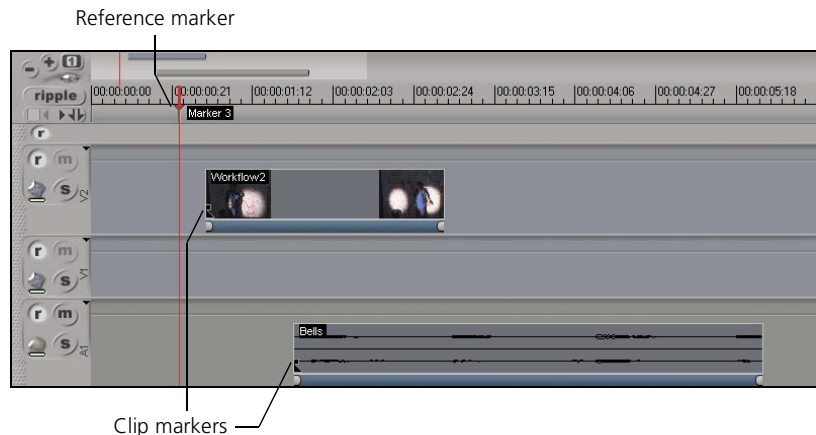
To align a clip at a specific timecode

1. Move the play cursor to the timecode where you want to synchronize the clips.
2. Right-click the timeline effect track and select **Add Marker at Playback Position** from the menu.

This places a local marker on the marker ribbon to define the point at which you align your clips.

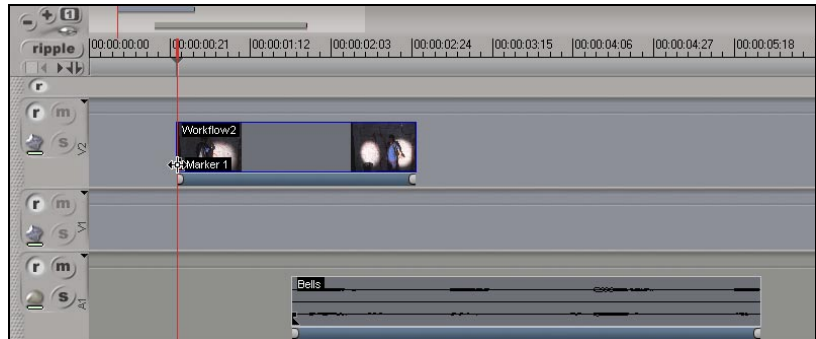
3. Right-click on the clip and choose **Add Marker** from the menu, then choose an appropriate location from the submenu.

A clip marker with a square head is displayed on the clip.



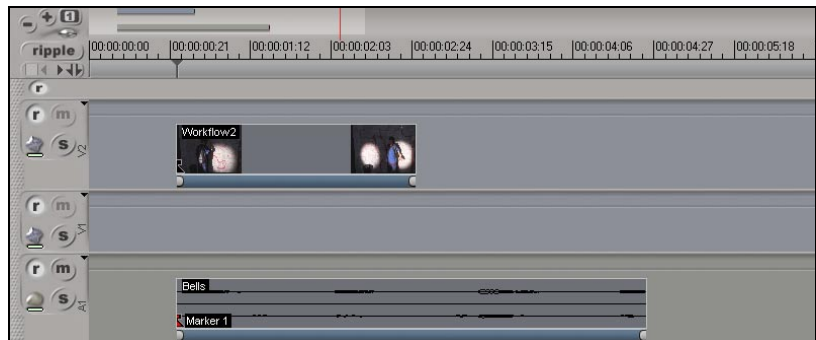
4. Place a marker on each of the other clips that are to be aligned.
5. Drag the square head of the clip marker left or right to align it with the reference marker.

The clip moves with the marker as you drag it. When you get close to the reference marker, the magnetism between the markers helps align the clip.



Audio and video clips aligned at position of reference marker

6. Align the other clips in the same way.



Creating a Sync Group

Once you're satisfied with the way your 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 name of the first selected clip in the group ends with "Master", while the names of all clips selected subsequently end with "Slave". 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. Should 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. Press Ctrl and click at least two clips to lock together.
3. From the NLE Tools toolbar, choose **Sync Lock**.

The name of the first clip that you selected ends with “Master” while the names of the other clips end with “Slave”.



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. Select a clip from the sync group to which you want to add the clip.
2. Press Ctrl and select the clip that you want to add to the sync group.
3. From the NLE Tools toolbar, click **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 source 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. Select a clip from the sync group that you want to combine with another group.
2. Press Ctrl and select a clip from the group that you want to add.
3. From the NLE Tools toolbar, click **Sync Lock**.

The groups are merged into a single sync group. The clips in the added group are appended to the end of the group to which you are adding.

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. Select one or more synchronized clips.
2. Press Ctrl to select more than one clip.
3. From the NLE Tools toolbar, click **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 outlined in red. Other clips in the group are outlined 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 outlined 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 on selecting and moving clips, see *Manipulating Clips* on page 209.



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. Click one clip from the group that you want to select.
2. From the NLE Tools toolbar, click **Select Sync Peers**.

All clips in the sync group are selected. Selected clips have red handles and a brown 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, select the clip that you want to move.
3. Holding down 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 become a new sync group with the same master/slave relationships as the original group. For more information, see *Cutting Clips* on page 214.



Editing Synchronized Clips

The same rules that apply to editing clips on the timeline, apply to all synchronized clips. Synchronized clips can still be moved, rolled, or trimmed.

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. Select an edit point of a clip in the sync group.
2. From the NLE Tools toolbar, click **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 *Trimming Clips Using the Trim View* on page 243.

Resyncing Clips

Offsets 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 *Slipping and Rolling Clips* on page 247.

To resync an offset clip

1. On the timeline, select the offset clip.
2. From the NLE Tools toolbar, click **Resync**.

The clip is slipped until the offset is corrected, or no unused material is left.



In order for offset clips to be resynced properly, do not display unused material on the timeline. For more information, see *Revealing Unused Material on Clips* on page 215.



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 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 select a clip to delete.

A red border surrounds the selected clip.

2. 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. Select one clip from the group that you want to delete.
2. From the NLE Tools toolbar, click **Select Sync Peers**.
3. Press Delete to delete the clip.

The selected group is removed.



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. Avid|DS does not process the results until you ask it to, 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, refer to *Processing Effects* on page 127 of the Avid|DS Compositing & Effects Guide.

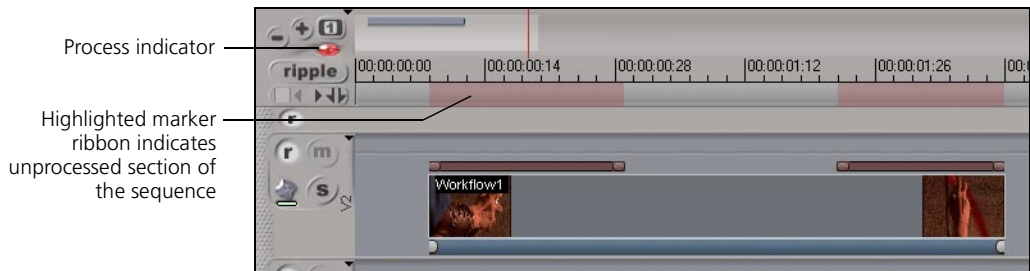


All audio and some video effects and transitions do not need to be processed as they are computed during real-time playback.

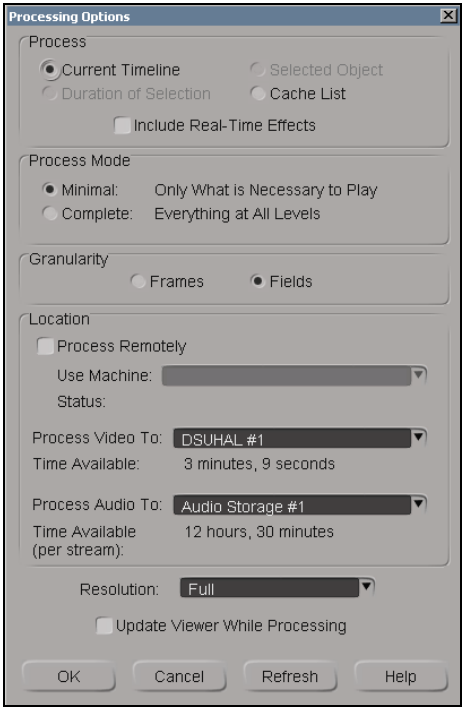
To process a sequence

1. Do one of the following:

- From the Processing toolbar, click **Process**.
- In the timeline controls, click the Process indicator icon.



2. In the Processing Options dialog box, select the appropriate options.



3. Click **OK** to begin processing.

A progress indicator appears on the bottom of the desktop to show the status of the process.



4. Click **Cancel** to stop the process at any time.

Click **Help** for detailed information on the processing options or refer to *Processing Effects* on page 127 of the Avid|DS Compositing & Effects Guide.



Chapter 7 **Painting and Titling**



In This Chapter...

This chapter describes how to create graphics and titles, using vector drawing tools that let you create images or touch up existing clips without losing the original content. You can also retouch images, remove scratches, animate titles, import images, as well as manipulate and rearrange the graphics you create.

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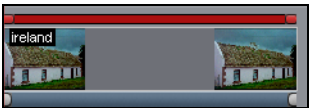
Processing Graphics 349



Workflow: Painting and Titling

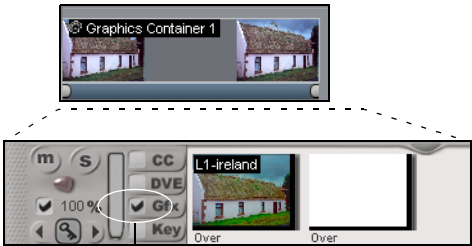
All graphics creation is done in the Graphics layout. Avid|DS has two toolsets for creating graphics: Paint and Titling. They share the same animatable edit tools, color browsers, and paint effects editors. These toolsets let you touch up and add graphics elements to layers, as well as create mattes. All strokes and their properties are vector-based and fully editable, except for when you're working in the raster paint mode.

1 Choose a method to apply graphics



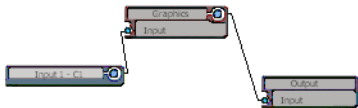
Apply the Graphics effect to a clip.

or



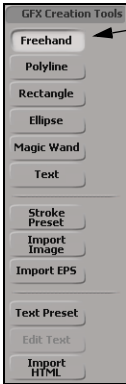
Create a graphics container clip and apply graphics to a layer.

or

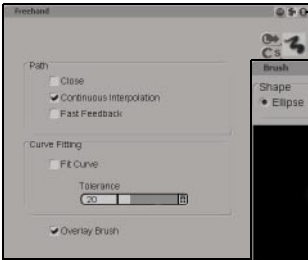


Apply graphics as a node in the Effects Tree.

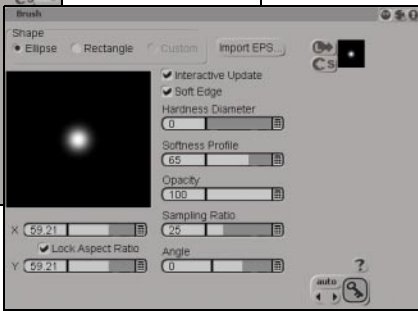
2 Choose a drawing tool



Choose a drawing tool.



Define the tool properties.



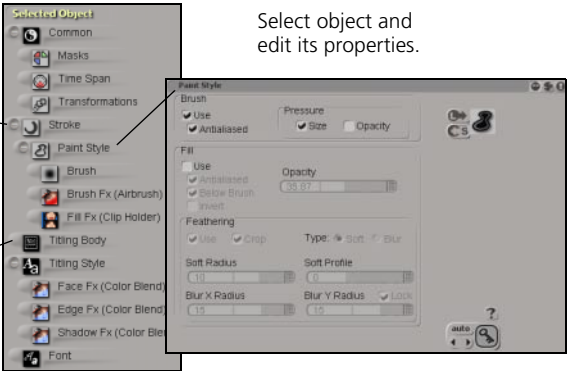


3 Create graphics object

Draw a stroke or add a title.



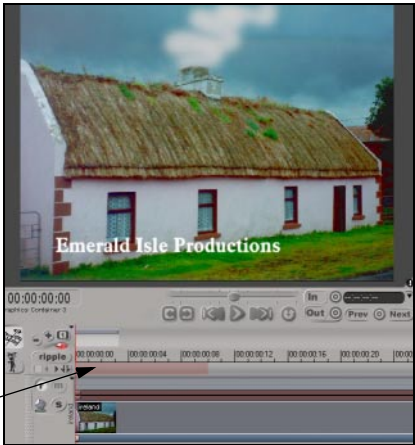
4 Edit individual graphics objects



Select object and edit its properties.

5 Process the graphics objects

Process the frames where the graphics objects were applied.





Playing Real-time Graphics

On a multistream workstation, Avid|DS lets you play the following graphics effects in real time without having to manually process them:

- Airbrush
- Color Blend
- Cutout
- Animations, such as rolls and crawls, when using the above effects

Graphics sessions cannot be played in real time if any of the following conditions are in effect. To help you identify these conditions, a message is displayed at the bottom of the Graphics property editor to indicate why your session can't be played in real time.

Message	Condition
The non-real-time option is selected.	You have switched Avid DS to a non-real-time configuration for this graphics session. All real-time graphics will require processing before output.
The graphics session has objects with complex effects.	Objects in this graphics session contain effects that can't be played in real time. Only the Airbrush, Color Blend, and Cutout effects can be played in real time.
The graphics session has objects with complex transformations.	Animation that moves at different speeds can't be played in real time. Make sure all objects move in the same direction (either X axis only or Y axis only) at the same speed or not at all.
The graphics session has objects with complex animations.	Objects in this graphics session contain animation, such as an animated brush size, that can't be played in real time. Only translations in the X or Y axis can be played in real time.
The graphics session has objects with complex time spans.	Objects in this graphics session with varying time spans can't be played in real time. Make sure all objects span the length of the graphics session, from start to end.
The graphics session has objects requiring an alpha channel.	Objects that use the alpha channel as a matte can't be played in real time. Make sure the Use Alpha option in the Masks property editor is deselected.
The graphics session has objects with inverted fill.	Graphics sessions that contain strokes with inverted fill can't be played in real time.
The graphics session has a single frame duration.	Single-frame graphics sessions can't be played in real time.
The graphics session has a real-time configuration.	It indicates that Avid DS is using the real-time capabilities of your system within this session. This message does not mean there is an error condition.



In some circumstances, workstation configurations and effect properties can demand processing requirements that exceed the system's ability to complete processing on the fly. For example, if there are large graphics objects that cover most of a frame, the system will slow down during playback. In this case, you should process the effect before final output.



You can change your system to non-real-time configuration by selecting the Non Real-time option from the Graphics Properties property editor.



Applying Graphics

When creating graphics or titles, you'll be working in a graphics session. A graphics session is the time span over which graphics objects, such as strokes or titles, appear. You can create a graphics session by applying the Graphics effect to a clip or track, by applying graphics on a layer inside a graphics container clip or as a graphics node in an Effects Tree.

Before you begin a graphics session, you'll have to set up the environment in which you're going to create graphics. This includes setting the working resolution and deciding whether you want to apply graphics as an effect, on a layer in a composite, or as a node in an Effects Tree.

Applying graphics as an effect lets you add graphics to a single clip or on a video, overlay, or timeline effect track, as well as a node in the Effects Tree. You can also paint on a layer in a composite or on a node in the Effects Tree when you want to use graphics as one effect among many. The method you choose depends on the type and complexity of the graphics that you plan to use.

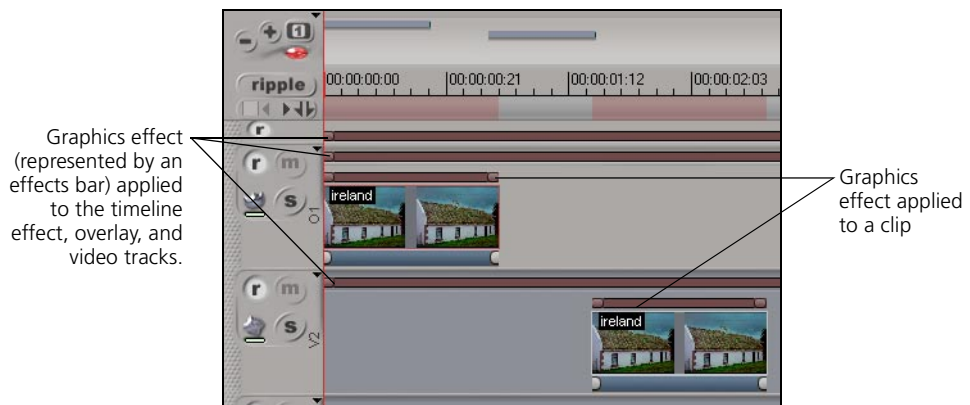
Setting the Working Resolution

Resolution is the amount and degree of detail in a video image. The working resolution that you choose affects the processing speed of your graphics session, as well as the interactivity of the painting and titling process. You can set the working resolution of your graphics session in the Sequence Preferences dialog box.

To set the working resolution

1. From the File menu, choose **Sequence Preferences**.
2. In the Sequence Preferences dialog box, select the **Video** property page.
3. In the Working Video Settings box, set the working resolution—see *Setting the Working Video Quality* on page 136.

Click **Help** for detailed information on the Sequence Preferences properties.





Applying Graphics on the Video or Overlay Tracks

On a video track, you can apply graphics over all or part of a clip, as well as a series of clips on the same track. An overlay track is where you can apply graphics over all the video tracks on the timeline. You can apply a graphics effect to a clip or track. For more information, refer to *Applying Effects to Tracks* on page 36 of the Avid|DS Compositing & Effects Guide.

To apply the Graphics effect on a video track

1. Select the clip or track on which you want to apply graphics.
2. Right-click on your selection and choose one of the following from the menu:
 - **Add Clip Effect** if you selected a clip.
 - **Add Track Effect** if you selected a track.
3. In the Load Preset dialog box, browse through the folders and select the **Graphics** effect from the Image Effects folder.

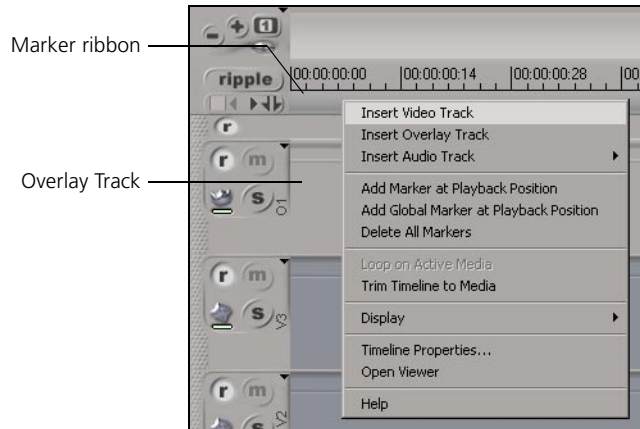
The Graphics effect is applied to the selected clip or track, the play cursor moves to the first frame of the clip or track, and the Graphics layout is displayed.

4. You can now paint or create titles on the viewer.

To apply the Graphics effect on the overlay track

1. Right-click on the marker ribbon and choose **Insert Overlay Track** from the menu.

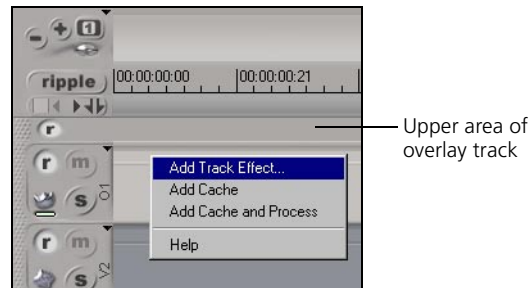
An overlay track is created above all the video tracks.



2. Select the overlay track or a clip on the overlay track and do one of the following:
 - Right-click on the clip and choose **Add Clip Effect** from the menu.



- Right-click on the upper area of the track and choose **Add Track Effect** from the menu.



3. In the Load Preset dialog box, select the **Graphics** effect from the Image Effects folder.

The Graphics effect is applied to the selected clip or track, the play cursor moves to the beginning of the track/clip, and the Graphics layout is displayed.

4. You can now paint or create titles on the viewer.

Applying Graphics on the Timeline Effect Track

The timeline effect track is used to apply effects on top of all other effects on the video and overlay tracks. This track is useful for applying graphics without creating a graphics container clip. For example, a title that was created as a graphics effect in the timeline effect track can be moved, scaled, and overlapped with other titles without modifying the underlying tracks.

To apply the Graphics effect on the timeline effect track

1. On the timeline effect track, drag to select a region.



2. Right-click on the highlighted area and choose **Add Timeline Effect** from the menu.

3. In the Load Preset dialog box, select the **Graphics** effect from the Image Effects folder.

The Graphics effect is applied to the selected region, the play cursor moves to the beginning of the region, and the Graphics layout is displayed.

4. You can now paint or create titles on the viewer.



Applying Graphics on a Layer

Painting on a layer is useful when you want to create complex effects where paint is used with other tools, and then apply the effects to several layers independently. Here are some of the effects you can apply to a layer:

- Color correction effects
- DVEs for creating effects, such as transformations
- Graphics for creating travelling mattes
- Keyers for creating a matte to reveal underlying layers

Creating a Composite

To apply graphics to the layers of a composite, you must first create a graphics container clip, which is created from the selected clip on which the play cursor is positioned.

To create a graphics container clip

1. Move the play cursor over the clip that you want to use in the composite.
2. Do one of the following:



- From the taskbar, click the Compositing layout icon.
- From the taskbar, click the Create Container Clip icon and choose **Create Graphics Container Clip** from the menu.
- Right-click on the clip and choose **Create Graphics Container**.

A graphics container clip is opened and the Compositing layout is displayed. The selected clip is automatically placed in a layer in the Layers view. If the Layers view is not displayed, click the Layers icon from the view switcher to display the layers in your composite.

3. If desired, you can add more clips to the composite.
4. Click the **Gfx** button of the layer on which you want to paint.



The Graphics layout is displayed.

5. You can now paint or create titles in the viewer.



Applying Graphics in an Effects Tree

Opening an Existing Composite

All composited clips are represented as a single container clip on the timeline. To make any changes to the composite, you must open the container clip to adjust the individual layers.

To open a graphics container clip

1. On the timeline, move the play cursor over the container clip that holds the composited clips. By default, its name is “Graphics Container...”
2. Do one of the following:
 - Click the container clip icon.
 - Double-click on the container clip to open it.
 - From the taskbar, click the Compositing layout icon.

The container clip opens and the layout you last used is displayed. If the Layers view is not displayed, click the Layers icon from the view switcher to display the layers in your composite.

Applying graphics in an Effects Tree is similar to applying graphics on a layer. However, with an Effects Tree you can add multiple graphics effects to any input or effect node.

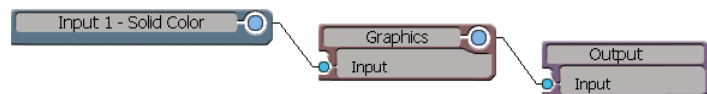
To apply graphics in an Effects Tree

1. Right-click on a layer in the Compositing layout and choose **Effects Tree (layer)** from the menu.

The Effects Tree view for the layer is displayed.

2. Right-click on the Effects Tree and choose **Add Effect** from the menu.
3. From the Load Preset dialog box, select **Graphics** from the Image Effects folder.

A Graphics effect node is added to the Effects Tree.



4. Connect the Graphics effect node input and output—refer to *Connecting and Disconnecting Nodes* on page 49 of the Avid|DS Compositing & Effects Guide.
5. Double-click on the **Graphics** effect.

The Graphics layout is displayed. You can now create the graphics you require. For more information, see *Working with Graphics* on page 304.



Using Presets

A preset is a customized set of properties for a graphics session, drawing tool, property, stroke, or text body. You can use the presets that come with Avid|DS, or you can create your own by saving the properties that you have already set and reusing them in other graphics sessions. Either way, presets let you work more efficiently.

Most graphics-related presets are in the \Dspresets\Paint folder. Graphics session presets are in the \Dspresets\Image Effects\Graphics Sessions folder.

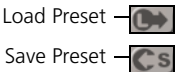
In the Graphics layout, there are presets for:

- Graphics sessions
- Drawing tools (Freehand, Polyline, Rectangle, Ellipse, Magic Wand, and Text)
- Graphics (strokes and text bodies)
- Paint Style (Brush, Brush Fx, and Fill Fx)
- Titling Style (Face Fx, Edge Fx, and Shadow Fx)
- Masks
- Time Span
- Transformations

Loading and Saving Presets

There are several ways to load and save presets. You can use the property editors, toolbars, Graphics property editor, or the Stroke Preset or Text Preset tools in the GFX Creation Tools toolbar. You can also load a preset by using the pop-up menu in the graphics property tree.

To load or save a preset using a property editor



1. In the graphics property tree, click a property icon.
2. In the property editor, click the Load Preset or Save Preset icon.
3. In the Load Preset dialog box, do one of the following:
 - To load a preset, select a preset.
The graphics property tree displays the properties of the preset you selected.
 - To save a preset, enter a name for the preset you're saving.
The preset you saved appears in the folder in which you saved it.

To load a preset using the toolbars

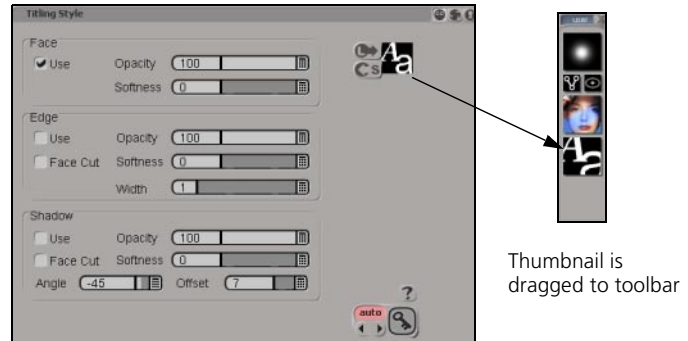
1. Do one of the following:
 - From the General toolbar, click **Select** and select an object on which to apply the preset.
 - From the GFX Creation Tools toolbar, click a drawing tool to set the preset as the default properties before painting.
2. In a toolbar, click a preset button.



If you selected a graphics object, the preset is applied to it. If you selected a drawing tool, the preset's properties are loaded into the graphics property tree. When you paint on the viewer, these preset properties will be applied to the graphics you create.

To save a preset using the toolbars

1. In a property editor, drag the thumbnail to a toolbar.



2. In the **Save Preset As** dialog box, enter a name and description for the preset in the corresponding text boxes.

A toolbar icon is created in the toolbar.

To load a preset using the pop-up menu

- From the graphics property tree, right-click on a property icon and do one of the following:
 - Choose a preset from the menu.
 - Choose **Load** from the menu, navigate through the folders and select a preset.

The preset is loaded into the graphics property tree.



Using Stroke or Text Presets

A stroke or text preset is a stroke or title that you saved along with all of its properties. Using a preset lets you instantly apply the settings of a stroke or title of any complexity to the current image without having to define any of its properties. Once applied, the stroke or title behaves as a regular graphics object - you can select and edit its properties.

To load a stroke or text preset

1. From the GFX Creation Tools toolbar, click **Stroke Preset** or **Text Preset**.



2. In the Load Stroke Preset dialog box, browse through the folders and select a preset.

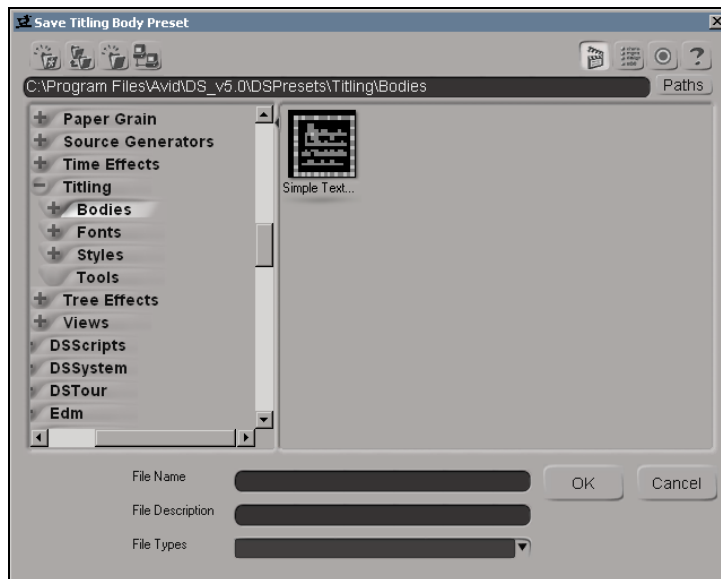
The preset is applied to the current frame in the viewer.

To save a stroke or text preset

1. In the viewer, select an object.
2. In the graphics property tree, do one of the following:
 - Click the Stroke property icon if you selected a stroke.
 - Click the Titling Body property icon if you selected a text body.



3. In the property editor, click the Save Preset icon.



4. In the **File Name** text box, enter a name.
5. In the **File Description** text box, enter a description.

The preset is saved under the file name you specified, and can be accessed at any time by clicking the Stroke Preset or Text Preset button in the GFX Creation Tools toolbar. Stroke presets are saved in the Strokes folder and Titling Body presets are saved in the Bodies folder.



Setting Drawing Tool Properties

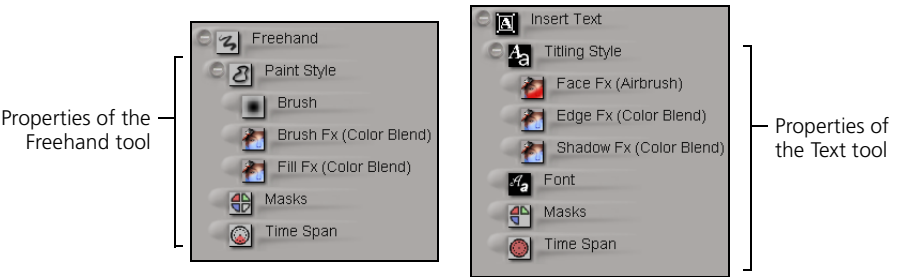
Before you create graphics or titles, you must define how the brush strokes or titles will appear. Using the property editors in the graphics property tree, you can set individual brush or text properties.

Each time you select a drawing tool from the GFX Creation Tools toolbar, its properties are displayed in the graphics property tree. When you click any of the property icons in the graphics property tree, its corresponding property editor is displayed.

You can set the default properties of the drawing tool before creating an object. When you do this, the new settings become the default properties that are applied to the objects you create. These properties remain in effect until you change the properties of any of the drawing tools. If you decide to create an object before setting its properties, you can select the object you created and then modify its properties. When you do this, only the properties of the selected object are modified.



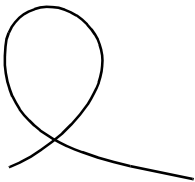
Click the Help icon for detailed information on the graphics property tree.



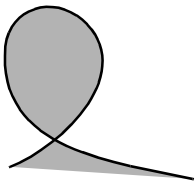
Graphics property trees

Setting the Paint Style

The paint style properties let you define the *artistic* style of the graphics you create. In the Paint Style property editor, you can specify whether to paint with a brush or a fill, or both.



Brush only



Brush and fill

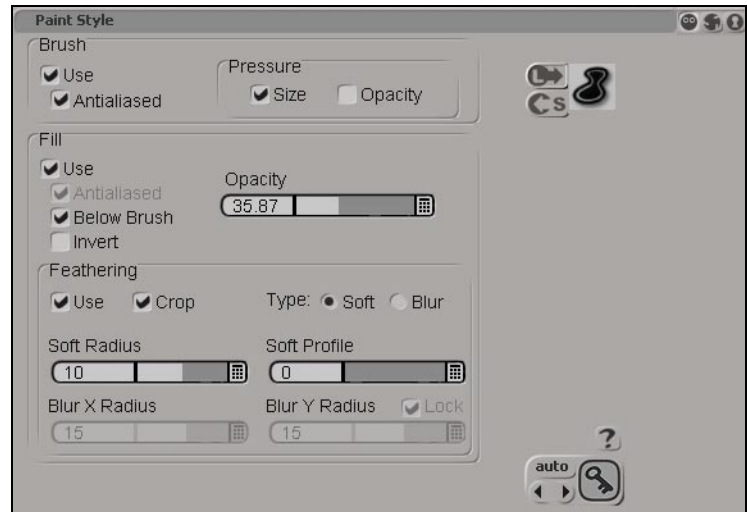
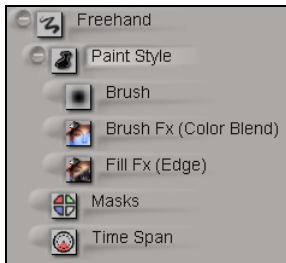
You can also set the fill opacity and appearance of its boundary. If you're using a pen and graphic tablet, you can vary the amount of pressure you apply to the pen. This affects the brush opacity and size.



Make sure your pen is adjusted for pressure sensitivity. For more information, refer to your graphics tablet documentation.

To define the paint style

1. From the GFX Creation Tools toolbar, click one of the following drawing tools: **Freehand**, **Polyline**, **Rectangle**, **Ellipse**, or **Magic Wand**.
2. From the graphics property tree, click the **Paint Style** property icon.



3. On the **Paint Style** property editor, select the **Use** option from the **Brush** box to create strokes and apply effects to them.
4. Select the **Antialiased** option to smooth the jagged edges along the lines and curves of strokes.
5. If you're using a pen, select the **Size** and/or **Opacity** options from the **Pressure** box.

The opacity and width of strokes respond to the amount of pressure you apply to the pen.

6. In the **Fill** box, select the **Use** option to fill the object with the effects you specify.

Freehand and polyline strokes are automatically closed and filled. If you deselect the **Fill** option, the curve is open.

7. Select the **Below Brush** option to place the fill behind the stroke edge.

If you deselect this option, the fill is superimposed over the inside edge of the stroke.



8. Select the **Invert** option to invert the fill. When creating a stroke, the area outside of the stroke is filled.
9. Use the **Opacity** controls to adjust the fill transparency.
10. In the Feathering box, select the **Use** option to feather the edges of the fill.
11. Select the **Crop** option to confine the feathered area within the stroke.
12. Adjust the **Soft Radius** controls to define how far inside and outside the stroke edge the feathered area extends.
13. Adjust the **Soft Profile** controls to adjust the fall off rate for the fill.
14. Adjust the **Blur X and Y Radius** controls to adjust the blur in the horizontal and vertical directions.
15. You can now paint or create titles on the viewer.

The strokes you create are displayed with the properties you specified.



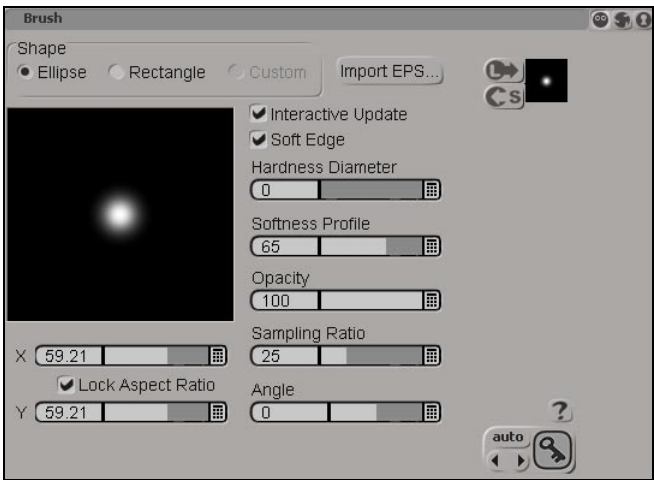
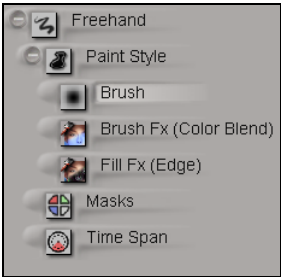
Click the Help icon for detailed information on the Paint Style properties.

Setting Brush Properties

The brush properties define the brush’s size, shape, smoothness, softness, and opacity. For example, you can simulate a calligraphic stylus by specifying a rectangular brush shape with a slight angle. Or you can simulate an airbrush using the opacity controls to create a round brush with a solid center and a transparent edge.

To define the brush properties

1. In the GFX Creation Tools toolbar, click one of the following drawing tools: **Freehand**, **Polyline**, **Rectangle**, **Ellipse**, or **Magic Wand**.
2. From the graphics property tree, click the **Brush** property icon.





3. In the Brush property editor, select a brush shape from the **Shape** box.

The brush shape is displayed in the preview box.

4. Use the **X** and **Y** controls to set the width and height of the brush.



When using the freehand tool, you can interactively resize the brush by pressing **Ctrl** and dragging in the viewer.

5. Select the **Lock Aspect Ratio** option to link the **X** and **Y** controls, so that when you adjust one, the other increases or decreases proportionally.
6. Select the **Soft Edge** option for a soft brush edge. Deselecting this option gives you a hard brush edge.
7. Use the **Hardness Diameter** controls to adjust the proportion of the brush diameter that is solid.
8. Use the **Softness Profile** controls to adjust the gradient fall-off rate.
9. Use the **Opacity** controls to define the transparency of the brush.
10. Use the **Sampling Ratio** controls to set the distance between each brush stamp in a stroke. The default sampling ratio is 25 for optimum interaction speed.



If you deselect the **Continuous Interpolation** option in the **Freehand Tool** property editor, the sampling ratio has no impact on the stroke.

11. Use the **Angle** controls to adjust the rotational angle of the brush.

The brush's new angle of rotation is displayed in the preview box.

12. You can now paint in the viewer.

Any strokes that you create use the properties you specified.



Click the **Help** icon for detailed information on the Brush properties.



Creating Custom Brushes

You can create custom brushes using a closed stroke or an Adobe Illustrator EPS file (created with version 8.0 or earlier). You can also save your custom brush as a preset and then reuse it. For more information, see *Importing Encapsulated PostScript (EPS) Files* on page 348.

To create a custom brush using a stroke

1. From the General toolbar, click **Select** and select a stroke or group of strokes from the viewer.



To create a custom brush, the stroke must be a closed shape. You can do this by holding down the C key while drawing the stroke. For more information, see *Drawing Freehand Strokes* on page 306.

2. From the General toolbar, click **Make Brush**.

The brush is loaded with the custom shape. Using one of the drawing tools, you can begin creating strokes in the viewer.



To see the shape of the brush, choose a drawing tool and look in the Brush property editor.

To create a custom brush with an EPS shape

1. From the GFX Creation Tools toolbar, click a drawing tool.
2. From the graphics property tree, click **Brush**.
The Brush property editor is displayed.
3. Click **Import EPS**.

In the Open dialog box, select an EPS file to use as your brush.

The brush is loaded with the EPS shape. Using one of the drawing tools, you can begin creating strokes in the viewer.



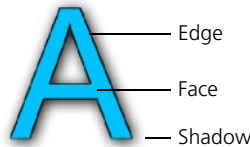
Not all versions of EPS files are supported.



Setting the Titling Style

The titling style properties let you define the *artistic* style of graphics. By adjusting these properties, you can define the appearance of a character's face, edge, and shadow. You can also apply numerous visual effects including soft-colored edges, cloned faces, inverted shadows, etc.

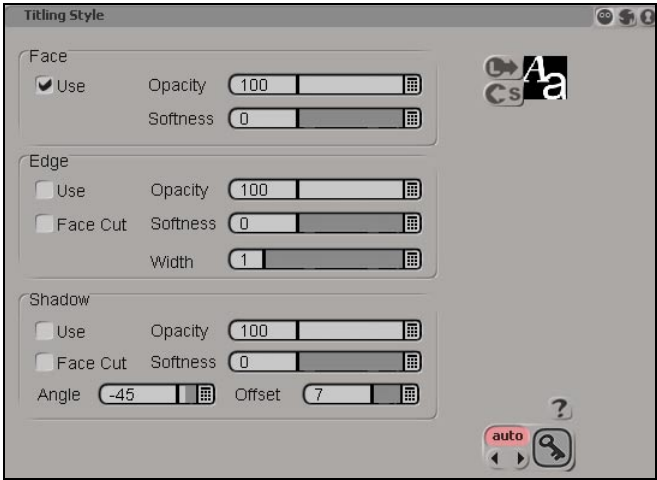
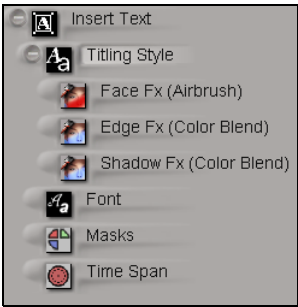
Certain properties apply to the entire text body, and others apply only to the words or characters that you select in a text body. You can define the character edge, face, and shadow, and then use masks on the titles you create. A variety of fonts, and text formats lets you enhance the appearance of titles. Many of the properties you assign to text can be animated.



Close-up of a character

To define the titling style

1. From the GFX Creation Tools toolbar, click **Text**.
2. From the graphics property tree, click the **Titling Style** icon.



3. In the Titling Style property editor, set the face, edge, and shadow properties.
4. You can now create a title on the viewer.

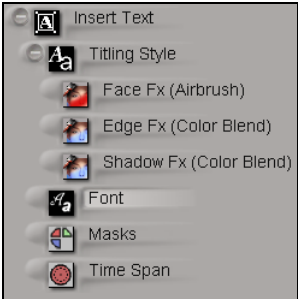
The face, edge, and shadow of each character in the text body changes according to the properties you specified.



Click the Help icon for detailed information on the Titling Style properties.



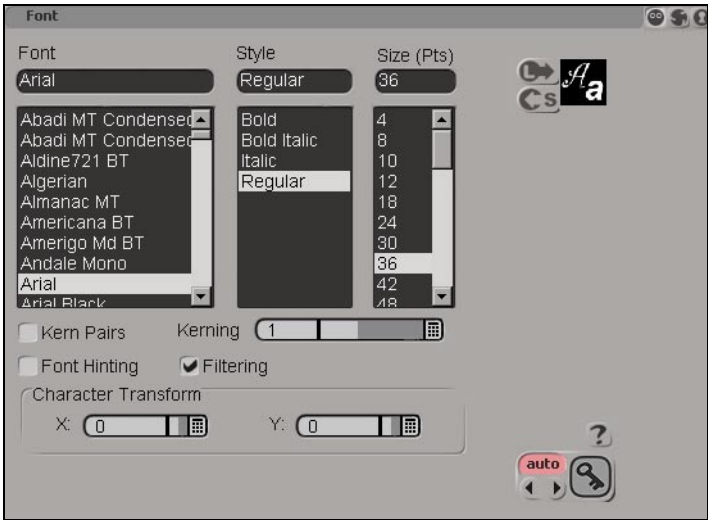
Setting the Font Properties



The font properties define the font, style, and size of individual text characters and text in a text body, as well as set kerning and hinting options. Avid|DS comes with a selection of TrueType fonts. Other fonts that are in the Fonts folder of your operating system are also available for use. For more information, refer to the *Avid|DS Installation and Administration Guide*.

To define the font properties

1. From the GFX Creation Tools toolbar, click **Text**.
2. From the graphics property tree, click the **Font** property icon.



3. In the Font property editor, select a font, style, and size.
4. Select the **Kern Pairs** option to move a character closer to the previous character in the same word to improve the appearance of the text. (This applies only to certain font types.)
5. Select the **Font Hinting** option to control the display of artifacts, such as blurry edges, when processing. When this option is selected, redraw information is provided to prevent these artifacts from appearing in the viewer and rendered output. This option is not recommended when animating the text.
6. In the **Kerning** box, you can set the amount of horizontal space between characters, expressed as a percentage of the current font size. You can select individual characters or part of the text body and set the kerning individually. The default value is 1.
7. You can now create a title in the viewer.



Click the Help icon for detailed information on the Font properties.



Setting the Masks Properties

The masks properties let you create graphics using a matte (stencil) or a paper grain, and choose the channel(s) on which you will create graphics. You can use any of the R, G, B, and alpha channels. If you select only the red channel, for example, only the red component of the image is modified when you paint on it. By using only the alpha channel, you can create a matte, which is a grayscale image that defines the transparency of an image when it's composited over another.

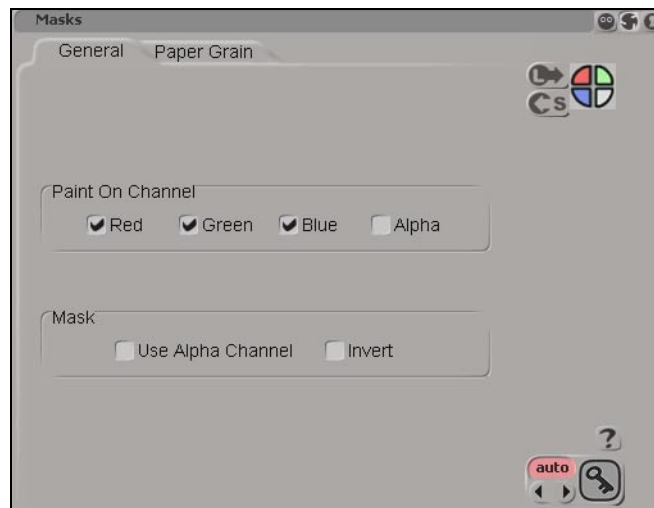
You may want to use a mask when applying graphics to clips. A mask is an image, portion, or component of an image. A matte is defined by the alpha component of an image, and is used differently in the Graphics and Compositing layouts:

- In the Graphics layout, a matte is used as a stencil to protect portions of the image. Where alpha is 0, no paint is applied.
- In the Compositing layout, a matte determines the transparent portions of a layer. Wherever alpha is 0, the image is transparent. Wherever alpha is 100 the image is opaque.

For example, if an object from one clip must appear over a background from another clip, you place the clips on two different layers in the Compositing layout, and then draw a matte on the top layer. The matte defines an opaque object on an otherwise transparent layer. For more information, refer to *Compositing* on page 87 of the Avid|DS Compositing & Effects Guide.

To define the masks properties

1. In the GFX Creation Tools toolbar, click one of the following drawing tools: **Freehand**, **Polyline**, **Rectangle**, **Ellipse**, **Magic Wand**, or **Text**.
2. From the graphics property tree, click the Masks property icon.





Setting the Time Span Properties



3. On the General property page, select the channels on which you want to paint from the Paint on Channel box.
4. In the Matte box, select the **Use Alpha Channel** option to use the alpha channel as a matte.



The Alpha and Use Alpha Channel options cannot be used simultaneously.

5. Select the **Invert** option to invert the alpha channel.

Click the Help icon for detailed information on the Masks properties.

The time span properties define the duration of graphics. You can define the start and end time of an object before you create it. This duration becomes the default time span and is applied to all subsequent objects you create. Or you can create graphics using the default time span, and then change its start, end, or duration time later on.

In the Time Span property editor, the timecode refers to the graphics session time. That is, 00:00:00:00 is the beginning of the graphics session regardless of its position on the timeline.

To define the time span properties

1. In the GFX Creation Tools toolbar, click one of the following drawing tools: **Freehand**, **Polyline**, **Rectangle**, **Ellipse**, **Magic Wand**, or **Text**.
2. From the graphics property tree, click the Time Span property icon.





3. In the Time Span property editor, specify the duration by clicking one of the following:

- **This Frame Only** to make the time span one frame.
- **This Frame to End** to make the time span start at the current frame and end at the last frame of the graphics session.
- **Start to End** to make the time span start at the first frame and end at the last frame of the graphics session.
- **Start to this Frame** to make the time span start at the first frame and end at the current frame of the graphics session.
- **Custom** to specify a custom time span in the Out and Duration timecode boxes. All values must be expressed in SMPTE timecode.



If you're setting the default time span, the In text box is dimmed because Avid|DS defines the start time.

If you're editing the time span of a selected object, the Custom button is always highlighted.

4. If you're editing the time span of a selected object, you can select the **Lock** option to lock the duration.



If you're defining the default time span properties before creating an object, the Lock option is deselected. You must select an object before using this option.



Click the Help icon for detailed information on the Time Span properties.



Defining Color

In Avid|DS, color is considered to be an effect that you can apply to an image using the brush or fill properties of a stroke, or the face, edge, or shadow properties of a title. Like any other effect, the Color Blend effect can be substituted for other effects, such as Noise or Smear.

To define colors, you can pick a color from the default palette or from the color wheel, use the color picker to select a color from an existing image, or use other color palettes that are available in the Palettes folder. If a color is not displayed on the color palette, you can create it by adjusting the RGB values of another color to obtain the exact color you want. You can also create your own color palettes and save them for use on other projects.

You can apply color to selected strokes or you can define the color properties before you draw a stroke. These properties then apply to all the subsequent strokes you create.

For more information, refer to *Color Blend Effect* on page 426 of the Avid|DS Compositing & Effects Guide.

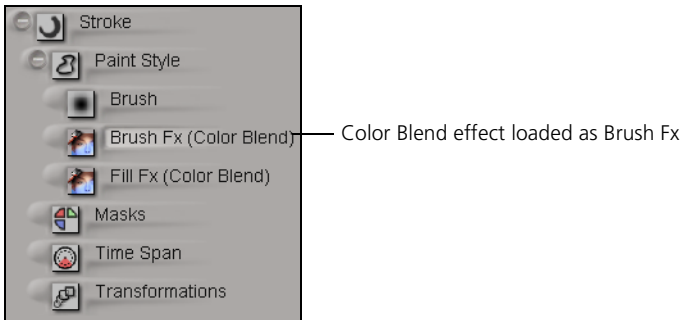
To open the Color Blend property editor

1. Do one of the following:
 - From the General toolbar, click **Select** and select an object from the viewer.
 - From the GFX Creation Tools toolbar, click a drawing tool to create a new object.

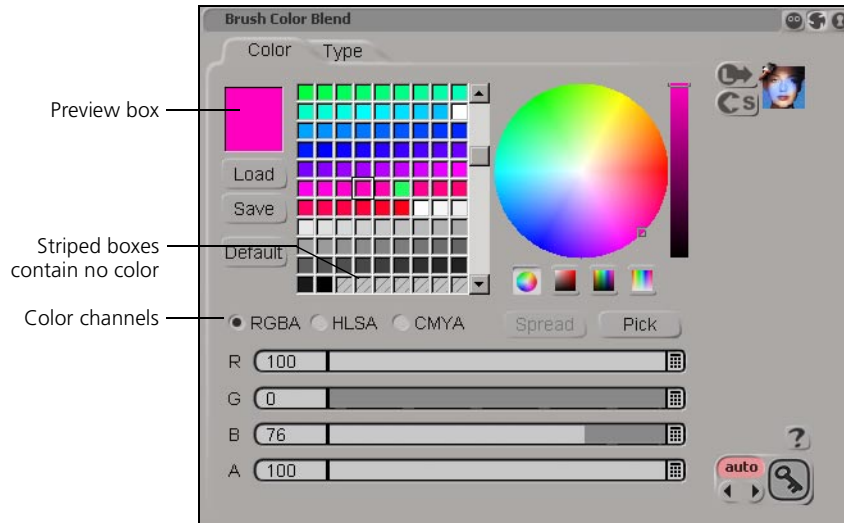
The graphics property tree is displayed.

2. From the graphics property tree, right-click on one of the following property icons and choose **Color Blend** from the menu:
 - For paint strokes: Brush Fx or Fill Fx.
 - For text bodies: Edge Effect, Face Effect, or Shadow Effect

The Color Blend effect is loaded in the property icon that you selected from the graphics property tree.



- From the graphics property tree, click the Color Blend property icon.



A quick way to apply color is with the Pick Color tool. Once you have chosen your drawing tool, hold down 6. The pointer turns into an eyedropper. Pick a color from the image in the viewer. You can now paint with this color until you decide to load another color.



Click the Help icon for detailed information on the Color Blend properties.



Working with Graphics

The drawing tools in the GFX Creation Tools toolbar let you create different kinds of graphics objects including freehand, polylines, rectangles, ellipses, and Magic Wand strokes. You can then edit the graphics you create.

You can control the appearance of graphics by using the property editors in the graphics property tree. Property editors let you define characteristics, such as the brush, fill, edge, face, and shadow. When you start to paint in the viewer, the graphics you create are displayed with the default properties.



If the edges of graphics appear jagged, right-click on the viewer and choose **Square Pixels** to make them appear smooth.

Wireframe Mode

While painting, you can activate the wireframe mode to easily see the outline of the strokes you create. This lets you precisely edit and manipulate strokes without being distracted by any of the effects defined for it. Working in wireframe mode also increases the speed of interaction because wireframe objects are not processed.



Freehand object



Freehand object in wireframe mode

To activate or deactivate wireframe mode

- In the General toolbar, click **Wireframe** or press Ctrl+W.

Strokes in the viewer appear in wireframe mode.



Text bodies cannot be displayed in wireframe mode.

Wireframe Preview

When you work with animated graphics objects, you may want to preview the results of the animation without having to process the sequence. This lets you work more quickly and eliminates processing time. When previewing graphics animation, the clip plays back and graphics objects are processed in wireframe over a black background.



Drawing Polylines

To view animated objects in wireframe mode

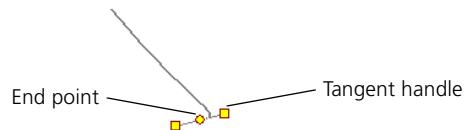
- In the General 2 toolbar, click **Wireframe Preview** or press Ctrl+Shift+W.

The sequence plays back and the animated graphics objects appear in wireframe mode. When the clip is finished, the play cursor moves to the first frame at which the preview started.

The Polyline tool lets you draw straight lines, Bézier curves, or a combination of the two.

To draw a polyline

1. From the GFX Creation Tools toolbar, click **Polyline** or press **Q**.
2. In the graphics property tree, use the property editors to define the characteristics of the polyline.
3. Depending on the type of curve you want, do one of the following:
 - Click the viewer as many times as needed to add straight line segments to the polyline.
 - Constrain a polyline to a 45 degree angle by holding down the Alt key.
 - Drag a vertex to display and adjust the tangent handles.



4. When you're done, do one of the following:
 - Press Esc to end the polyline.
 - Press Ctrl and click to close the polyline.

A polyline is displayed in the viewer with the properties you specified.



Once a polyline is ended, you cannot undo polyline segments. You can undo segments only as you are creating the polyline.

5. From the General toolbar, click **Select**.

The stroke is selected.

6. Press Enter or **Edit Shape** to edit the stroke geometry.

The stroke's control points are displayed.



To constrain polyline segments to a 45 degree angle, hold down the Alt key.



Drawing Freehand Strokes

The Freehand tool lets you draw open or closed freeform strokes, and simulates the feeling of drawing with a pencil on paper. Use this tool when you want to create a hand-drawn look or quickly sketch on your image.

As you draw freehand strokes, you're imprinting a series of stamps onto your image. By defining the appearance of the brush stamps, you can create a continuous stroke or a stroke with discrete brush stamps.

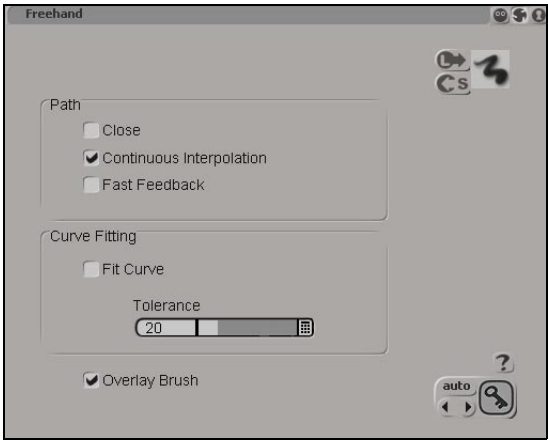
To draw a freehand stroke

1. From the GFX Creation Tools toolbar, click **Freehand** or press **W**.
2. In the graphics property tree, use the property editors to define the characteristics of the freehand stroke.
3. From the property tree, click the Freehand property icon.
4. In the Freehand property editor, select the **Close** option if you want to create a closed freehand stroke.



To create a closed freehand stroke quickly, hold down the **C** key before beginning to draw the stroke.

5. Select the **Continuous Interpolation** option to draw a continuous path. The number of brush stamps is based on the sampling ratio defined in the Brush property editor.
6. Select the **Fast Feedback** option to view an outline of the stroke as you draw it, instead of applying the specified effect. This also increases the interaction speed.
7. In the Curve Fitting box, select the **Fit Curve** option to create a freehand stroke with the minimum number of control points.
8. Use the **Tolerance** controls to specify the number of control points the redrawn curve will retain from the original curve.

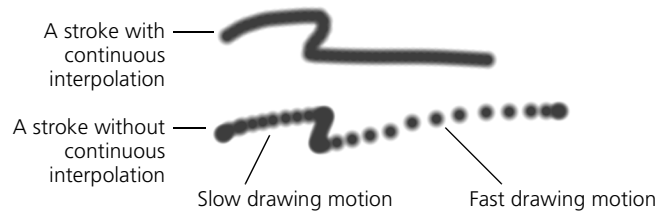




The Curve Fit option is usually used after the stroke is drawn by selecting the stroke, editing the shape, and selecting the Curve Fit option in the Edit Shape property editor.

9. Select the **Overlay Brush** option to show or hide the outline of the brush while you paint.
10. Create a stroke in the viewer by dragging on the viewer.

Once you release the mouse or pen, the stroke is complete. The freehand stroke is displayed in the viewer with the properties you specified. If you selected the Fill option in the Paint Style property editor, the freehand stroke is closed and filled.



11. From the General toolbar, click **Select**.

The stroke is selected.

12. Press Enter or **Edit Shape** to edit the stroke—see *Editing the Shape of a Stroke* on page 316.

The stroke's control points are displayed.

Using the Express Tools

The Express tools let you access a set of freehand tool brush effects quickly and easily. By holding down a key that has been assigned to a freehand tool brush effect, you can erase or paint with one keystroke. When you release the key, the previous tool is reactivated. By default, the Express tools represent the Erase, Blur, and Color Blend effects, but you can assign your favorite freehand tool brush effects as well. This is very useful when cleaning up a matte, since you can access the Erase tool without having to change your current tool.

The keys assigned to the Express tools are the numbers 1 through 5 on the upper-left of your keyboard.

To use the Express tools

1. In the Graphics layout, hold down the key assigned to the Express tool you want to activate.

A freehand tool brush effect is loaded.

2. While continuing to hold down the key, work in your graphics session.



Drawing Rectangles and Ellipses



3. Release the key.

The tool you were using previous to the Express tool is reactivated.

To customize the Express tools

1. In the Graphics layout, hold down one of the keys on the upper-left of the keyboard (numbers 1 to 5).
2. Right-click on **Brush Fx** from the graphics property tree and load a paint effect, such as Color Blend or Erase.
3. Release the key.

The key is assigned to the selected freehand tool brush effect.

Click the Help icon for detailed information on the Freehand Tool properties.

The Rectangle tool lets you create rectangular and square shapes. The Ellipse tool lets you create oval and circular shapes. After creating a square or round shape, you can edit them to create unique shapes.

To draw a rectangle or ellipse

1. From the GFX Creation Tools toolbar, do one of the following:
 - Click **Rectangle** or press **R**.
 - Click **Ellipse** or press **E**.
2. In the graphics property tree, use the property editors to define the characteristics of the rectangle or ellipse.
3. Create a stroke in the viewer by dragging in the viewer. To maintain the aspect ratio, press Shift and drag.

A rectangle or ellipse is displayed in the viewer with the properties you specified.

4. From the General toolbar, click **Select**.

The rectangle or ellipse is selected.

5. Press Enter to edit the stroke—see *Editing the Shape of a Stroke* on page 316.

The stroke's control points are displayed.



To view and move the tangent handles on the control points of a rectangle, press **H** while selecting the control point in Edit Shape mode.



Using the Magic Wand Tool

Using the Magic Wand tool, you can create a stroke that has the same shape as a selected area of an image. The selection is based on RGBA or HSLA values of an image. Once created, you can edit the stroke.



A shape based on RGB values

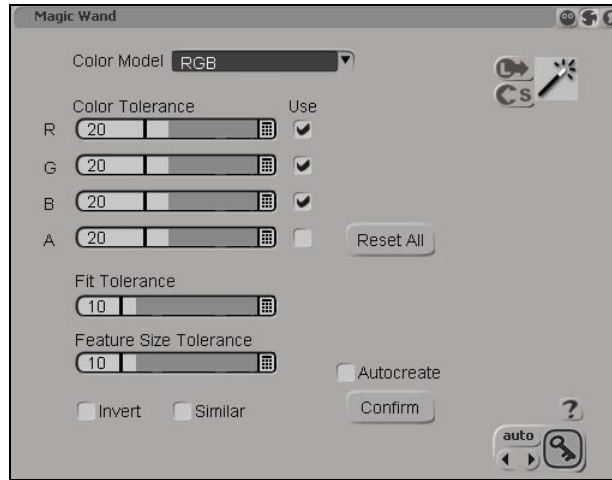
To define a stroke

1. From the GFX Creation Tools toolbar, click **Magic Wand** or press Y.
2. In the graphics property tree, use the property editors to define the characteristics of the shape.
3. Click the viewer.

A shape is created corresponding to the selected area. Control points are visible along the shape.

4. From the graphics property tree, click the Magic Wand property icon.





5. In the Magic Wand property editor, select a color model from the **Color Model** list.
6. In the **Color Tolerance** controls, select the channels that you want to use to control the range of pixel values included in the selected area.
7. Adjust the **Color Tolerance** controls to set the range of color values for each channel. Continue refining the settings until the desired shape is obtained.
The shape changes according to the new settings.
8. Use the **Fit Tolerance** controls to adjust the way the edges of the selection are determined.
9. Select the **Invert** option to invert the selection.
10. Select the **Similar** option to select all of the pixels in the color range of the specified range.
11. Select or click one of the following:

- **Autocreate** to automatically create the stroke when you click the viewer.
- **Confirm** to create the stroke defined by the shape.

A stroke is created with the desired shape, and is displayed using the properties you specified.

12. From the General toolbar, click **Select**.

The stroke is selected.

13. Press Enter to edit the shape—see *Editing the Shape of a Stroke* on page 316.

The shape's control points are displayed.



Click the Help icon for detailed information on the Magic Wand properties.



Selecting Graphics Objects

You must select an object before you can move it or edit its properties or shape. You can move an object around in the viewer, as well as select single or multiple graphics objects. When you select an object, the graphics property tree displays the properties of that object.

To select graphics objects

1. From the General toolbar, click **Select**.
The graphics object you last created is automatically selected.
2. In the viewer or the Graphics Object View (GOV), click an object to select it.
A yellow bounding box surrounds each selected object, and the graphics property tree displays its properties.



When working with many graphics objects, you can hide their bounding boxes by clicking the Show/Hide Bounding Box icon or pressing Ctrl+H. The object is still selected and you can edit the properties of the graphics object.

3. Do any of the following:
 - Press the comma (,) key to select the previous graphics object.
 - Press the period (.) key to select the next object.
 - Press Shift and click each additional object.
 - Press Shift+comma (,) and keep pressing the comma to select multiple objects in descending order.
 - Press Shift+period (.) and keep pressing the period to select multiple objects in ascending order.

By default, a yellow bounding box surrounds each selected object.



Drag on the viewer to make a rectangular selection. All graphics within the rectangle are selected.

To select all objects

- Do one of the following:
 - From the General toolbar, click **Select All**.
 - From the Edit or Graphics menu, choose **Select All**.
 - Press Ctrl+A.

In the viewer, all objects are selected. Objects whose time span do not cover the current frame will not be selected.



The Select All command in the Edit menu is not available when using the Edit Text tool.



Locking Graphics Objects

To select objects in Edit Shape mode

1. From the General toolbar, click **Edit Shape**.
2. Press Alt and click a stroke to select or deselect it.

When you're working with overlapping graphics objects, it's useful to lock some of the graphics objects on which you don't need to work. Once an object is locked, you can't select or modify it in any way. Locked objects remain locked when a sequence is closed and reopened. Also, locked objects cannot be selected or edited in the GOV—you can only unlock them. When a graphics object is locked, its bar in the GOV changes to a light gray color.



To see a wireframe outline of locked objects, position the pointer over the graphics bars in the GOV and the shape of the locked objects will be displayed in wireframe in the viewer.

You can also lock/unlock a graphics object by right-clicking on its corresponding bar in the GOV and choosing a menu command.

To lock graphics objects

- Select the graphics objects that you want to lock and do one of the following:
 - From the Graphics menu, choose **Objects > Lock**.
 - Click the Lock icon on the toolbar.
 - Right-click on the graphics object in the GOV and choose **Lock** from the menu.



Locked objects are now represented by a light gray bar in the GOV and are automatically deselected.



You can multi-select graphics objects by holding down the Shift key.

To unlock graphics objects

- Do one of the following:
 - To unlock all graphics objects on the current frame, choose **Objects > Unlock All - Frame** from the Graphics menu or click the Unlock All - Frame icon in the toolbar.
 - To unlock all graphics objects in the current graphics session, choose **Objects > Unlock All - Session** from the Graphics menu or click the Unlock All - Session icon in the toolbar.



All locked graphics objects are unlocked.



Hiding Graphics Objects

When you're working with overlapping graphics objects that clutter the viewer, you can hide some of the graphics objects on which you don't want to work. This makes objects temporarily invisible and may improve performance when working on large or complex projects.

Once an object is hidden, you cannot select or modify it in any way, except for trimming. Hidden objects remain hidden when sequences are closed and reopened.

When a graphics object is hidden, its bar in the GOV changes to a light purple color.



To see a wireframe outline of hidden objects, position the pointer over the graphics bars in the GOV and the shape of the hidden objects will be displayed in wireframe in the viewer.

You can also hide/show graphics objects by right-clicking on its corresponding bar in the GOV and choosing a menu command.

To hide graphics objects

Select the graphics objects that you want to hide and do one of the following:



- From the Graphics menu, choose **Objects > Hide**.
- Click the Hide icon on the toolbar.
- Right-click on the graphics object in the GOV and choose **Hide** from the menu.

Hidden objects are represented by a light purple bar in the GOV and are automatically deselected.

To show graphics objects

Do one of the following:

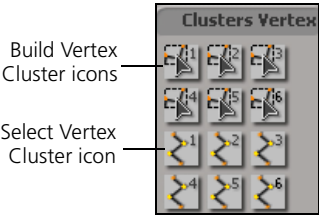
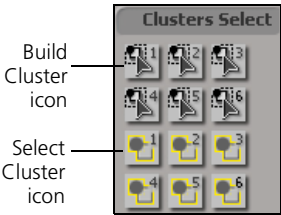


- To show all graphics objects on the current frame, choose **Objects > Show All - Frame** from the Graphics menu or click the Show All - Frame icon in the toolbar.
- To show all graphics objects in the current graphics session, choose **Objects > Show All - Session** from the Graphics menu or click the Show All - Session icon in the toolbar.

All hidden graphics objects are shown and selected. Any previously selected objects are deselected.



Creating Clusters of Graphics Objects and Vertices



Hiding Bounding Boxes

Hiding the bounding boxes of graphics objects makes it easy for you to see the effect of any adjustments you make to its parameters. You can still select and edit the graphics objects after hiding the bounding boxes.

To show/hide bounding boxes

- Click the Show/Hide Bounding box icon in the toolbar or press Ctrl+H.

Multiselecting graphics objects or vertices can be very convenient when you want to reuse a specific selection. You can build presets of one or more selected graphics objects or vertices.

To create a cluster of graphics objects

1. In the General toolbar, click Select and select the graphics objects you want to add to the cluster.
2. On the Clusters Select toolbar, click one of the Build Cluster icons.

The graphics objects are assigned to a cluster icon.

To recall a graphics object cluster

- From the Clusters Select toolbar, click the corresponding yellow Select Cluster icon.

The graphics objects assigned to this cluster number are selected in the viewer.

To build a cluster of vertices

1. In Edit Shape mode, select the vertices you want to add to the cluster.
2. Click one of the Build Vertex Cluster icons.

The group of vertices is assigned to the cluster icon.

To recall a vertex cluster

- From the Clusters Vertex toolbar, click the corresponding yellow Select Vertex Cluster icon.

The vertices assigned to this cluster number are selected in the viewer.



Aligning Graphics Objects

Graphics alignment tools allow you to align graphics objects with respect to other graphics objects or the safe action/title area. Absolute alignment tools allow you to align graphics using the safe action/title area as a reference. Relative alignment tools allow you to align graphics object using other selected graphics objects as a reference.



When using the alignment tools, it's useful to display the guides. Right-click in the viewer and choose **Viewer Properties**. On the Guides property page, select the **Safe action/title** option.

To align graphics objects

1. In the viewer, select the objects you want to align.
2. From the **Absolute Align** or **Relative Align** toolbar, click the alignment tool you want to use.

The selected objects are aligned in the viewer.

Use this	To
Absolute Align Bottom	Align the bottom edge of the bounding box of selected graphics objects to the bottom edge of the safe action/title area.
Absolute Align Vertical Center	Align the vertical center of selected graphics objects to the vertical center of the safe action/title area.
Absolute Align Left	Align the left edge of the bounding box of selected graphics objects to the left edge of the safe action/title area.
Absolute Align Horizontal Center	Align the horizontal center of selected graphics objects to the horizontal center of the safe action/title area.
Absolute Align Right	Align the right edge of the bounding box of selected graphics objects to the right edge of the safe action/title area.
Absolute Align Top	Align the top edge of the bounding box of selected graphics objects to the top edge of the safe title/action area.
Relative Align Bottom	Align all selected graphics objects relative to the bottom edge of the bounding box of the bottom-selected graphics object.
Relative Align Vertical Center	Align all selected graphics objects relative to the vertical center of the collective bounding box of all the selected objects.
Relative Align Left	Align all selected graphics objects relative to the leftmost edge of the bounding box of the left-selected graphics object.
Relative Align Horizontal Center	Align all selected graphics objects relative to the horizontal center of the collective bounding box of all the selected objects.
Relative Align Right	Align all selected graphics objects relative to the right edge of the bounding box of the right-selected graphics object.
Relative Align Top	Align all selected graphics objects relative to the top edge of the bounding box of the top-selected graphics object.



Editing the Shape of a Stroke

The shapes of all the strokes created by the Freehand, Polyline, Rectangle, Ellipse, and Magic Wand tools are determined by line segments and vertices that indicate a change in line direction. Each vertex in an object has a control point, which you can use to alter its shape. Before you can edit the shape of a stroke, you must select it.

To edit the shape of a stroke

1. From the General toolbar, click **Select**, and click a stroke in the viewer.

The selected stroke is surrounded by a yellow bounding box, and the graphics property tree displays the stroke's properties.

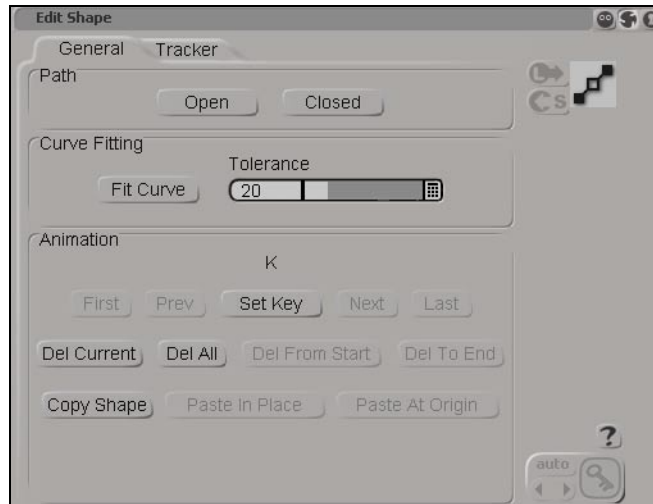
2. From the General toolbar, click **Edit Shape** or press Enter.

The stroke's contour and control points are displayed, and the Edit Shape tool is activated.



To select or deselect a shape while in Edit Shape mode, press Alt and click a stroke.

3. From the graphics property tree, click the Edit Shape property icon.



4. In the Path box, click:
 - **Open** to open a closed curve.
 - **Closed** to close an open curve.
5. In the Curve Fitting box:
 - Click **Fit Curve** to sample all the control points of the original curve.
 - Use the **Tolerance** controls to set the number of controls points that the redrawn curve retains from the original.



6. In the Animation box, use the buttons to set, delete, and navigate between keyframes.



Click the Help icon for detailed information on the Edit Shape properties.

Selecting Control Points

When you select control points on a stroke, they remain selected between frames. You can edit the shape of single or multiple strokes by dragging the control points.

To select control points

1. From the General toolbar, click **Select**, and click a stroke in the viewer.

The selected stroke is surrounded by a yellow bounding box, and the graphics property tree displays the stroke's properties.

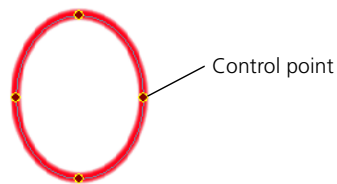
2. From the General toolbar, click **Edit Shape** or press Enter.

The stroke's contour and control points are displayed, and the Edit Shape tool is activated.

3. Do one of the following:

- Click a control point to select a single control point.
- Hold down the Shift key and click a control point, and then click each subsequent control point.
- Drag to make a rectangular selection in the viewer, and select multiple points simultaneously.

The selected control points are highlighted in yellow.



To edit a control point

- Press A and click the line or curve segment between two control points to add a control point.
- Click a control point to select it and drag to move it.
- Click a control point and press Delete to delete control points.

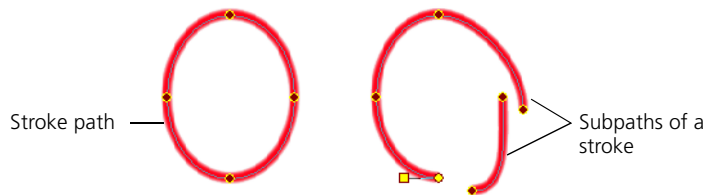


To move a control point

- To move 1 pixel: Press an arrow key on the keyboard number pad.
- To move 10 pixels: Hold down the Ctrl key and press an arrow key on the keyboard number pad.

Breaking and Unifying Strokes

A stroke's path can be broken into any number of subpaths, which you can later reunify. Subpaths remain part of the stroke and cannot be unified with the subpaths of other strokes.



To break or unify a stroke

- Hold down K and drag a control point.
The stroke path is broken and a subpath is created.
- Hold down U and drag one control point and drop it over another.
The subpaths are unified.

Combining and Separating Strokes

You can combine multiple strokes to create a single compound stroke. Similarly, you can separate compound strokes into individual strokes.

To combine strokes

1. From the General toolbar, click **Select**, and select the strokes you want to combine.

The selected strokes are surrounded by yellow bounding boxes and highlighted in yellow in the GOV.

2. From the General toolbar, click **Combine Strokes**.

The selected strokes are combined and surrounded by one bounding box, and are shown in the GOV as one compound stroke.



When strokes are combined, they're assigned the properties of the first selected stroke. If you want to retrieve the properties of an individual stroke before it was combined, use the undo operation.



To separate a stroke

1. From the General toolbar, click **Select**, and select the stroke you want to separate.

The selected stroke is surrounded by yellow bounding boxes and is highlighted in yellow in the GOV.

2. From the General toolbar, click **Separate Strokes**.

The combined stroke is separated into individual strokes.

Morphing Strokes

You can select strokes which exist at different frames and automatically interpolate between them to create interesting effects.



You can also copy shapes and paste them between the start and end frames of the morph. For more information, see *Copying and Pasting Shapes* on page 334.

To morph strokes

1. Using the transport controls, go to the first frame that contains the stroke you want to use at the beginning of the morph.
2. From the General toolbar, click **Select** and select the stroke that you want to morph.
3. From the General toolbar, click **Morph Start** to begin the morph.
4. Using the transport controls, advance to the frame that contains the next stroke you want to add to your morph.
5. From the General toolbar, click **Select** and select the stroke.
6. From the General toolbar, click **Morph Add**.

The stroke is added to your morph.

7. Continue adding selected strokes to your morph using the **Morph Add** command.
8. When you're about to add the last stroke, click **Morph End** in the General toolbar to end your morph.

The resulting morphed stroke has an animated shape.



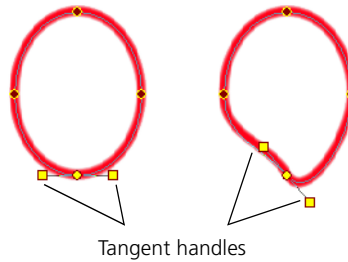
Changing the Slope of a Curve

At any control point, you can change the slope of a curve by changing the length and direction of its tangent handle. You can also create discontinuity in a curve by breaking the tangent handle at a control point.

To change the slope of a curve

1. Drag a control point or press **H** to give selection priority to the handles instead of the control point. The tangent handles may sometimes lie under the control point.
2. Drag the tangent handle.

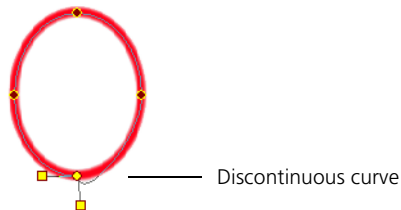
The shape of the curve changes on both sides of the control point.



To create a discontinuous curve

1. Click a control point to display its tangent handles.
2. Hold down the **B** key and drag a tangent handle.

The tangent handle breaks in the center, and the slope of the curve changes on one side of the control point.





Reshaping a Stroke

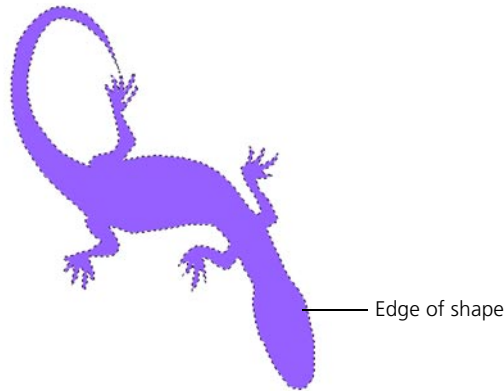
There may be times when you want to edit the shape of a stroke using a “freehand” approach. This is especially useful for rotoscoping and animating shapes.

With the Reshaper tool, you can modify the geometry of a stroke without being constrained to the shape’s control points. By tracing the edge of a shape, you can interactively reshape a stroke.

In addition, you can chop, scale, rotate, skew, stretch, and move a shape, as well as adjust its opacity. When reshaping a stroke, keyframes are automatically set.



Since it’s difficult to reshape overlapping strokes, you can hide or lock graphics objects that clutter the viewer. For more information, see *Locking Graphics Objects* on page 312 and *Hiding Graphics Objects* on page 313.



To trace a shape

1. Do one of the following:
 - In the General toolbar, click **Reshaper** or press **P**.
 - From the Graphics menu, choose **Tool > Reshaper**.
2. To trace, do any of the following:
 - Drag along the edge of the stroke.
 - To trace a straight line, hold down the **Alt** key and trace along the edge of the shape.
 - To trace without moving existing control points, hold down the **Shift** key while you trace.



To trace more quickly, make sure the shape has a minimum of control points. To reduce the number of control points, use the **Fit Curve** option in the Edit Shape property editor.



3. Press Esc to exit the Reshaper tool.

Chopping Control Points

If a shape contains a segment that you'd like to eliminate, you can always chop out the unwanted control points.



Before



After: A finger is chopped off.

To chop control points

- Hold down C and drag along the edge of the shape that you want to chop.
The area is chopped from the shape.

Moving a Shape

You can move the entire shape to a new location.

To move a shape

- Hold down A and drag the shape to a new location.

Scaling, Rotating, and Skewing a Shape

When scaling, rotating and skewing a shape, you must first position the point of origin, which is represented by a small red circle in the viewer.

To position the origin

1. Hold down one of the following keys:
 - S to scale
 - D to rotate
 - F to skew
2. Drag the origin to a new location.
3. To center the origin, right-click on the shape.

The origin is positioned at the center of the stroke's geometry.

To scale a shape

- Hold down S and drag the shape to scale it.



To scale proportionally, press Shift+S.



To rotate a shape

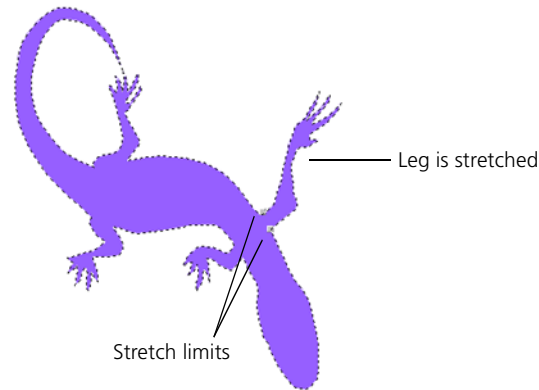
- Hold down D and drag the shape to rotate it.

To skew a shape

- Hold down F and drag the shape to skew it.

Stretching a Shape

Stretching lets you extend portions of a shape, while maintaining the rest of it. When stretching a shape, you must first position the stretch limits on the edge of a shape. The stretch limits are represented by two small gray squares in the viewer.



To stretch a shape

1. Hold down G to access the stretch tool.
2. Place each stretch limit at the desired location along the edge of the stroke.
3. Drag the edge of the shape between the stretch limits.

The segment between the two stretch limits is stretched. The other parts of the shape remain unchanged.

Changing the Opacity of a Stroke

When performing rotoscoping, it's sometimes helpful to see what's in the image underneath the stroke. This makes it easier to reshape the stroke from one frame to the next.

To change the opacity of a stroke

- Hold down O and drag the stroke in the viewer.



When changing the opacity, the stroke fill and brush opacity is changed, if they were used. If the opacity is animated, a temporary value is set. If the opacity is not animated, a value is set but a key is not created.



Working with Titles

A text body is a graphics object that consists of a group of words, lines, and paragraphs. You create, edit, and select titles using text bodies in the Edit Text mode.

By default, word wrapping is on when using the Text tool. When the edge of a text body is reached, the text continues on to the next row.

There is no automatic word hyphenation. Line breaks always occur at the end of a word. If a word is longer than the text body, the word breaks at the edge. To prevent the word from breaking, increase the width of the text body.

To create a title

1. From the GFX Creation Tools toolbar, click **Text** or press T.
2. In the graphics property tree, use the property editors to define the properties of the title.
3. Click the viewer.
A text box is displayed.
4. Begin entering text in the text body.
5. From the General toolbar, click **Select**.
The text body is selected and displays the title with the properties you specified.
6. Press Enter or click **Edit Text** to return to Edit Text mode.
The text body in Edit Text mode is displayed.

Using Text From Other Applications

You can cut, copy, and paste text to and from all other text generation applications that use the Windows Clipboard. Because Avid|DS uses a Rich Text Format (RTF) compatible text engine, you can exchange text with an application, such as Microsoft Word. Not only is the text itself exchanged, but also much of its formatting. Not all formatting remains intact when you import text into Avid|DS. Some formatting may be displayed while editing text, but not used when the text is processed.



Graphics, such as strokes or clip art, cannot be imported or exported from Avid|DS.

To use text from an external application

1. In the external application, cut or copy the text.
The text is copied to the Clipboard.
2. From the General toolbar, click **Text**.
3. Click the viewer and press Ctrl+V.
The text is pasted in a text body.



To copy text to an external application

1. From the General toolbar, click **Edit Text**.
2. In a text body, highlight the text to be copied and press Ctrl+C.
The text is copied to the Clipboard.
3. In the external application, place the pointer at the insertion point and press Ctrl+V.
The text is pasted in the external application.

Importing HTML Text

You can import an HTML file and convert it into a text body. As many text properties as possible are retained, such as font, size, and color. This is very useful when setting up rolls and crawls with different styles for headers and names, since you can set the text up before working in Avid|DS.

To import HTML text

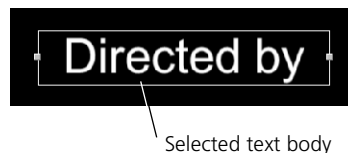
1. From the GFX Creation Tools toolbar, click **Import HTML**.
The Open dialog box is displayed.
2. Select a file to import and click **OK**.
The text is imported as a text body.

Selecting and Editing Text

After you create a text body, you can select and edit the text it contains, as well as its format properties. You can edit the properties of the entire text body or individual characters within the text body.

To select a text body

1. From the General toolbar, click **Select** and select a text body.
The selected text body is surrounded by a yellow bounding box.
2. From the General toolbar, click **Edit Text**.
You can now edit the text body properties.





To select individual text characters

1. From the General toolbar, click **Select** and select a text body.
The selected text body is surrounded by a yellow bounding box.
2. From the General toolbar, click **Edit Text**.
3. In the text body, select the character that you want to edit by clicking and dragging over it.



A selection bar appears at the bottom of the selected character.

4. You can now edit the properties of the individual characters.

To select text characters with the same fonts or styles

1. From the General toolbar, click **Select**, and select a text body.
The selected text body is surrounded by a yellow bounding box.
2. From the General toolbar, click **Edit Text**.
3. Hold down the Ctrl key, drag over a character possessing the style or font you want to select.



You can set your user preferences for titling selection in the User Preferences dialog box. You can choose to select characters that share the same titling style, titling font, or both when you hold down the Ctrl key and select.

4. You can now edit the properties of the selected text.

To edit the font and kerning

1. In Edit Text mode, select the text body or individual text.
2. In the graphics property tree, click the Font property icon.
The Font property editor is displayed.
3. Select the **Font**, **Style**, and **Size** you want to apply to your text.
4. Select the **Kern Pairs** option to move a character pair closer to each other.
This applies to certain fonts only.
5. Select the **Font Hinting** option to prevent blurry artifacts from appearing after processing.

This option is not recommended for animated titling sequences.



Aligning Text

6. To adjust the horizontal spacing between characters, enter a value in the **Kerning** box. The default value is 1.
7. Select the **Filtering** option to reduce the flickering perceived when the text is viewed on an interlaced screen.
8. Adjust the **Character Transform** controls to transform characters in X and Y.

You can specify a justification for a selected text body. By adding character tabs, you can also justify character tabs within a text body.

To justify a text body

1. With the text body selected in Edit Text mode, right-click on the left margin of the text body and choose a justification from the list.



The text body is aligned as specified.

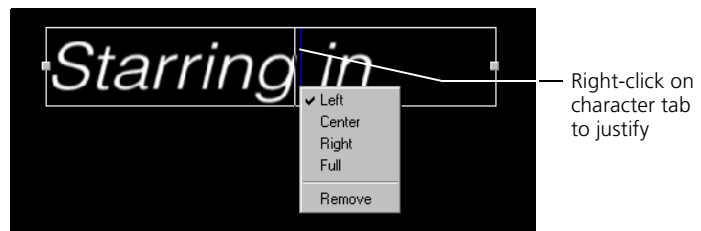
To add a character tab to the text body

- With the text body selected in Edit Text mode, hold down the Ctrl key and double-click inside the text body at the point where you want to insert a tab.

A tab is inserted in the text body. You can move the tab around by clicking on it and dragging. To remove them, choose **Remove** from the menu.

To justify a character tab

- With the text body or individual text selected in Edit Text mode, right-click on the character tab, and choose a justification from the list.





Converting Text to Strokes

You can convert a text body into individual strokes that you can then edit individually. You can animate the strokes, edit the characters to create a custom “font”, or use the stroke to create a custom brush.

To convert strokes to text

1. From the General toolbar, click **Select** and select a text body.
2. From the General toolbar, click **Text to Strokes**.

Each character is surrounded by a yellow bounding box and appears as a separate stroke in the GOV.

Searching for Text

When working with large text files, such as credit rolls, it may be difficult to locate text. You can search through a text body for keywords.

To search for a keyword in a text body

1. With the text body selected in Edit Text mode, click in the text body at the position where you want to begin the text search.
2. Press Ctrl+F.
3. In the Find dialog box, enter a keyword in the **String to Find** text box.

The keyword is located and underlined with a selection bar.

Creating Rolls and Crawls

A roll or crawl typically contains the titles or credits of a program. You can create a traditional roll in which a title moves from the bottom of the screen to the top, or a traditional crawl in which a title moves from the right of the screen to the left. Single or multiple titles can be used for a roll or crawl.

You create rolls or crawls by using the Graphics property editor. This lets you quickly and easily create standard rolls or crawls that involve few titles. When you do this, the time span of the titles change to match the duration of the graphics session.

You can also create the animation manually by using the Animation Key icon to set individual keyframes. This lets you create a complex roll or crawl that involves many titles that start and end in different locations. You can also include paint strokes in a roll or crawl.



When you create a roll or crawl using the Graphics property editor, the entire duration of the clip is used.

Also, rolls and crawls are real-time effects so you can view the results upon playback without having to first process them.



In rare cases, real-time effects may require processing to ensure that no frames are skipped. For more information, refer to *Working with Real-time Effects* on page 79 of the Avid|DS Compositing & Effects Guide.



To create a roll or crawl

1. From the GFX Creation Tools toolbar, click **Text** to create a text body.
2. From the graphics property tree, open the **Font** property editor and specify the font type, style, and size.
3. Click the viewer and type in some text.
4. When you're done, select the text body.
5. From the General 2 toolbar, click **Graphics Properties**.
6. In the Graphics property editor, select one of the following options from the Motion box:
 - **Roll** to create a roll.
 - **Crawl** to create a crawl.
7. In the Start Position box, select one of the following options:
 - **Onscreen** to start the roll or crawl on the screen.
 - **Offscreen** to start the roll or crawl off the screen.
8. In the End Position box, select one of the following options:
 - **Onscreen** to end the roll or crawl on the screen.
 - **Offscreen** to end the roll or crawl off the screen.
9. To guarantee optimal quality when building rolls/crawls, select the **Standard Speed** option.
10. Click **Build Motion**.

The title's transformation is animated.
11. To apply an automatic fade, roll, and crawl animation to selected graphics objects only, select the **Apply to Selection** option.
12. To modify the transformation properties of the title, select the title, and do one of the following:
 - From the graphics property tree, open the **Transformations** property editor, and modify the values.
 - From the View menu, choose **Views > Animation Editor**. Select the Transformation property and adjust the function curve.

Creating a Fade

You can automatically create fades by using the Graphics property editor. When you apply a fade to a graphics object, its time span changes to match the duration of the graphics session. In addition, the existing opacity settings for a stroke (brush and fill) and text body (edge, face, shadow) are overwritten with the new fade values.



Creating Handwritten and Type-On Animation



To fade an object

1. From the GFX Creation Tools toolbar, select a drawing tool.
2. In the graphics property tree, define the properties for your tool.
3. Create an object in the viewer.
4. Move the object to the desired fade-in position.
5. From the General 2 toolbar, click **Graphics Properties**.
6. In the Fade box, set the **In** and **Out** values in frames.
7. Click **Build Fade**.

The object's opacity properties are animated.

8. To modify the opacity properties of the object, select the object and adjust the **Opacity** controls on the **Paint Style**, **Brush**, and **Titling Style** property editors.

Click the Help icon for detailed information on the Graphics properties.

You can create animated, scrolling text effects that simulates handwriting or a typewritten effect.

You can generate a handwritten type of animation on a single or combined stroke, which is useful for simulating the look of a pen writing across the screen.

You can also generate an animated typewritten effect based on a selected text body, giving it the appearance of a typewriter typing each character. You can specify the direction, beginning, and end of the animation, as well as adjust the spacing of the text body.

To create a handwritten animation

1. In the GFX Creation Tool toolbar, click one of the following drawing tools: **Freehand**, **Polyline**, **Rectangle**, or **Ellipse**. Create the graphics object on which you want to apply the handwriting animation.
2. Draw a single stroke or multiple strokes in the viewer. Make sure you're using the brush.



Use the Combine Strokes command in the General toolbar to combine multiple strokes. For more information on combining strokes, see *To combine strokes* on page 318.

3. From the General toolbar, click **Select** and select the stroke to which you want to apply the handwritten animation.

The stroke is selected and surrounded by a yellow bounding box.

4. In the graphics property tree, set the time span.



You can only create handwritten animation for strokes that have a duration that's longer than one frame.

5. Do one of the following:
 - From the General toolbar, click **Handwriting**.
 - In the graphics property tree, click **Stroke**.
6. In the Handwriting property editor, click one of the following:
 - **Forward** if you want the handwriting animation to begin with the first brush stamp, and move towards the last.
 - **Backward** if you want the handwriting animation to begin with the last brush stamp, and move towards the first.
 - **Center** if you want the handwriting animation to begin in the center of the stroke, and move outwards towards the first and last brush stamps.
7. Use the **Custom Settings** if you want the animation to begin or end at a specific point. The default is 0 for the head setting and 100 for the tail.



Click the Help icon for more information on the Handwriting properties.

To create a type-on animation

1. From the General toolbar, click **Select** and select the text body to which you want to apply the type-on animation.
The text body is selected and surrounded by a yellow bounding box.
2. Do one of the following:
 - From the General toolbar, click **Type-On**
 - From the graphics property tree, click **Titling Body**
3. In the Type-On box, click one of the following:
 - **Forward** if you want the type-on animation to begin with the first text character entered, and move towards the last.
 - **Backward** if you want the type-on animation to begin with the last character entered, and move towards the first.
 - **Center** if you want the type-on animation to begin in the center of the text body, and move outwards towards the first and last characters drawn.
4. Use the **Head** and **Tail** settings if you want the animation to begin or end at a specific point. The default is 0 for the Head setting and 100 for the Tail.



Click the Help icon for more information on the Type-On properties.



Manipulating Graphics

Before you can edit an object, you must select it. Then you can use the transformation tools to change the rotational angle, size, and skew of a graphics object. The shape of individual strokes and the contents of a text body can also be modified. Other tools let you reorder selected objects by moving them in front of or behind other objects. Selection tools speed up the editing process since you can simultaneously select, deselect, and delete multiple objects.

Editing Graphics Properties

After you've created graphics, you can edit any of its properties. You can edit the properties of a single object or multiple objects simultaneously. When you edit the properties of a selected object(s), only its properties are changed. The default properties for the drawing tools are not changed.

To change the properties of a single object

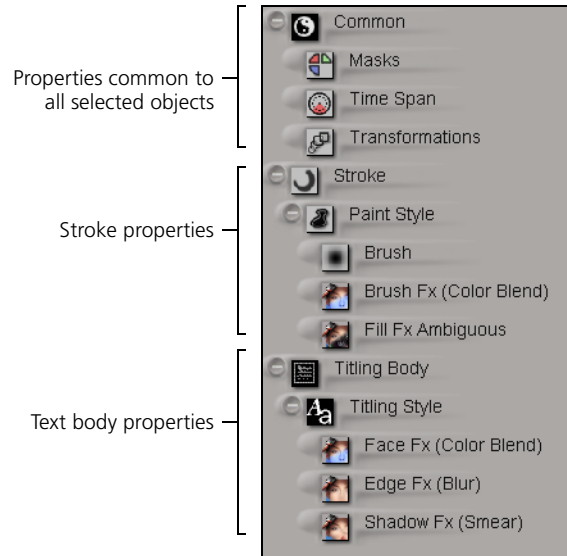
1. From the General toolbar, click **Select** and click an object in the viewer.
The graphics property tree displays the object's properties.
2. From the graphics property tree, click a property icon.
The property editor is displayed.
3. Adjust the desired properties.
In the viewer, the object displays the properties you specified.

To change the properties of multiple objects

1. From the General toolbar, click **Select** and click an object in the viewer.
The graphics property tree displays the object's properties.
2. Hold down the Shift key and click the objects you want to select.



The graphics property tree displays the properties of the selected objects.



3. In the graphics property tree, click a property icon.

- If you clicked the Masks, Time Span, or Transformations property icon, its property editor displays the properties that are common to the selected objects.
- If you clicked a stroke property, its property editor displays the properties that are common to the selected strokes.
- If you clicked a text body property, its property editor displays the properties that are common to the selected text bodies.



When you open additional property editors, they're displayed one on top of the other. Drag the property editor to another location to view multiple property editors simultaneously.

4. In the property editor, modify the properties.

The selected objects display the properties you specified.



Cutting, Copying, and Pasting Graphics

You can cut or copy objects in the viewer and paste them on the same frame or on another frame. Cut or copied objects are placed on the Clipboard in the system memory and remain there until you perform another cut, copy, or paste operation.

To cut, copy, or paste an object

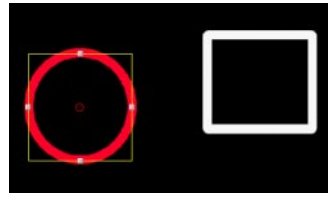
1. From the viewer, select an object.
The object is surrounded by a yellow bounding box.
2. From the Edit menu, choose:
 - **Cut** or press Ctrl+X to cut an object.
 - **Copy** or press Ctrl+C to copy an object.
 - **Paste** or press Ctrl+V to paste an object.

Copying and Pasting Shapes

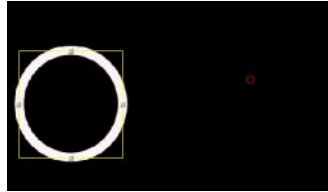
You can copy the shape of a stroke and apply it to another stroke. The new stroke is deformed into the new shape, but retains its original properties, such as color and time span information. You can only copy and paste one stroke shape at a time.

To copy a stroke's shape

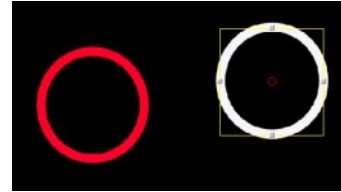
1. Select the stroke with the shape you want to copy.
2. Do one of the following:
 - From the General toolbar, click **Copy Shape**.
 - In the Edit Shape property editor, click **Copy Shape**.
 - Press Alt+C.
3. Select the stroke to receive the shape.
4. Do one of the following:
 - To paste the shape on top of the first selected stroke, click **Paste at Origin** from the General toolbar.
The shape of the first stroke is applied to the second stroke and is positioned over the first stroke.
 - To paste the shape on top of the second selected stroke, click **Paste in Place** from the General toolbar.
The shape of the first stroke is applied to the second stroke and is positioned over the second stroke.



Original strokes



After the Paste at Origin command is applied, the rectangle takes the shape of the circle, but retains its color information. The new shape is pasted on top of the first circle.



After the Paste in Place command is applied, the rectangle takes the shape of the circle, but retains its color information. Note that the new shape is pasted on top of the rectangle.

Duplicating Graphics

Duplicating an object lets you copy an object and its associated properties, including the time span. Duplicating an object differs from copying an object in that duplicating takes place within the same graphics session, whereas copying an object lets you copy and paste objects between different graphics sessions or layers. A duplicate of the object is pasted on the viewer, whereas a copy of an object remains in the system memory until you paste it on a frame.

To duplicate an object

1. From the viewer, select an object.

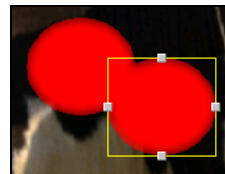
The selected object is highlighted by a yellow bounding box.

2. From the General toolbar, click **Duplicate** or press Ctrl+K.

The selected object is duplicated and placed on top of the original object. To see the two objects, you must select the duplicate and move it.



Original object



Duplicate object (surrounded by a yellow bounding box)



Deleting Graphics

You can delete graphics objects one at a time or delete them all simultaneously. Objects are deleted over their entire duration. For example, if an object in the current frame has a duration of 5 frames, all 5 frames are deleted.



Once an object is deleted, it cannot be retrieved except by choosing the **Undo** command from the Edit menu.

To delete an object

1. From the viewer, select an object.

The object is surrounded by a yellow bounding box.

2. Do one of the following:

- Press Delete.
- From the Edit menu, choose Clear.

The object is deleted.

To delete all objects that intersect on the current frame.

- In the General toolbar, click **Delete All - Frame** or press Ctrl+Delete.

All objects in the current frame are deleted.

To delete all objects in a graphics session

- In the General toolbar, click **Delete All - Session**.

Changing the Order of Graphics

Each time you create a graphics object, it's added to the existing graphics session. You can change the order of objects by using the Front, Raise, Lower, and Back tools. The last object you create is placed on top of all other objects.



Graphics applied on layers in a container clip are all part of the same compositing layer.



Reordering three strokes

To reorder objects

1. From the viewer, select an object.

The object is surrounded by a yellow bounding box.



2. In the General toolbar, click any of the following:

- **Bring to Front** or press Shift+Pg Up (number pad) to move the object in front of all other objects.
- **Raise** or press Pg Up (number pad) to move the object up by one level.
- **Lower** or press Pg Dn (number pad) to move the object down by one level.
- **Send to Back** or press Shift+Pg Dn (number pad) to move the object to the back of all other objects.

Transforming Graphics

You can transform an object by moving, scaling, rotating, or skewing it. When you do this, objects are surrounded by a yellow bounding box and handles are displayed at its corner and sides. You can manipulate these handles to transform objects.



For interactive updates while moving, scaling, rotating and skewing graphics objects, press Ctrl while you drag a handle.

Moving Objects

To move graphics objects, you must use the Select tool.

To move an object

1. In the General toolbar, click **Select**.
2. In the viewer, click an object to select it.

A yellow bounding box surrounds the selected graphics object and the graphics property tree displays its properties.

3. Do one of the following:

- Drag to move the selected object
- Use the arrows on the number pad to move the object by 1 pixel.
- Hold down the Ctrl key and use the arrow keys on the number pad to move the object by 10 pixels.

Scaling Objects

You can modify the height and width of strokes and titles using the Scale tool. The height and width are scalable as independent values or proportionally.

To scale an object

1. In the General toolbar, click **Scale**.
2. In the viewer, click an object.

A bounding box with handles surrounds the object, and a red circle marks the object's center.



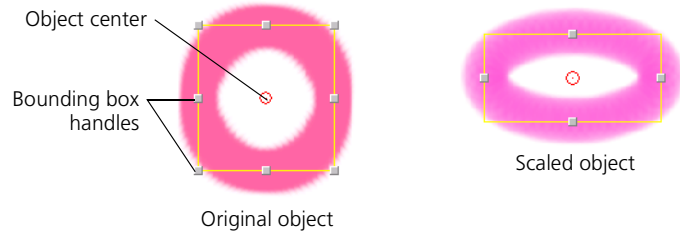
3. Drag one of the handles.



Press Shift and drag to increase or decrease the height and width of the object proportionally.

Press Ctrl and drag. One or more of the opposite handles are pinned in place while you drag.

By default the object is scaled according to its center and its transformation properties are set in the Transformations property editor, where you can edit them.



Rotating Objects

You can rotate selected objects around their rotation point. The Rotate tool lets you modify the rotational angle of an object. By default, an object rotates around its center. You can move this center to any position in two-dimensional space. This lets you rotate an object around its corner or around another object in the image.

To rotate an object

1. In the General toolbar, click **Rotate**.
2. In the viewer, click an object.

A bounding box with handles appears at each corner of the bounding box, and a red circle marks the object's center.

3. Drag a handle clockwise or counterclockwise.

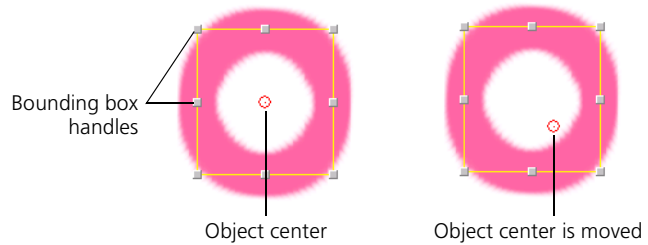
The object rotates around its center and its transformation properties are set in the Transformations property editor, where you can edit them.

To move an object's center

1. In the General toolbar, click **Select**.
2. In the viewer, click an object to select it.

A yellow bounding box surrounds the selected graphics object and the graphics property tree displays its properties. The object's center is displayed as a small red circle.

3. Press Shift and drag the center to a new location.



Skewing Objects

The Skew tool lets you slant an object according to the angle you specify.

To skew an object

1. In the General toolbar, click **Skew**.
2. In the viewer, click an object.

A bounding box with handles surrounds the object.

3. Drag the handles left or right until the required slant is reached.

The bounding box handles for skewing appear on each edge of the bounding box. The object is skewed and its transformation properties are set in the Transformations property editor, where you can edit them.

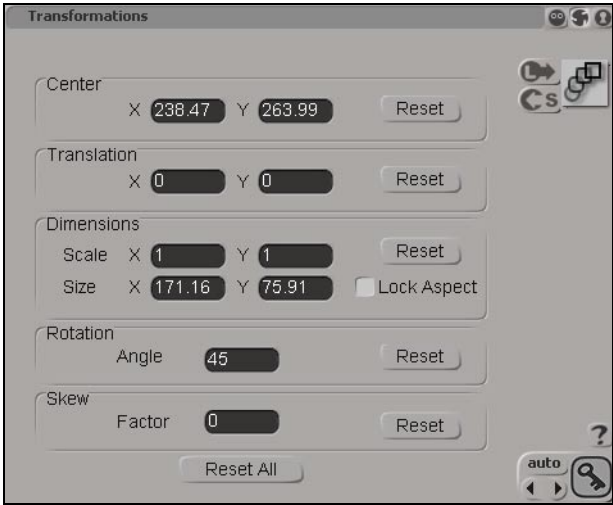


Setting the Transformation Properties

The transformations properties let you apply transformations, such as translating, scaling, skewing, rotating, and centering the objects you create. The transformation properties appear in the graphics property tree when you select an object.

To define the transformations properties

1. From the General toolbar, click **Select**, and select an object from the viewer.
2. From the graphics property tree, click the Transformations property icon.



3. In the Transformations property editor, set the Center, Translation, Dimensions, Rotation, and Skew properties.

The selected object is transformed according to the transformation properties you defined.



Click the Help icon for more information on Transformation properties.



Tracking Graphics Objects

Tracking graphics objects can be very useful in rotoscoping tasks. You can track the transformation of a graphics object over time, as well as track the deformation of shapes. To choose an appropriate tracking method, you'll have to decide if it's more effective to track an entire graphics object or its vertices. For more information, refer to *Tracking* on page 451 of the Avid|DS Compositing & Effects Guide.

Transformation Tracking

You can transform a stroke or a text body by applying one or two trackers directly to the entire stroke or text body. When applying only one tracker, the stroke or text body will only translate over time. When applying two trackers, the stroke or text body can undergo translation, rotation, and scaling.

To transform a graphics object using the tracker

1. From the GFX Creation Tools toolbar, select a drawing tool.
2. Draw a shape that defines the region you want to track.
3. Select the graphics object.
4. From the General toolbar, click **Tracker**.
The Select (Tracker) property editor is displayed.
5. You are now ready to position the trackers, set the tracker options, and begin tracking—refer to *Using the Shape Tracker* on page 476 of the Avid|DS Compositing & Effects Guide.



To help you position and view the trackers, click **Hide Gfx** to hide the graphics object.

Tracking Vertices

You can deform the shape of a stroke by applying trackers to vertices.

To deform a shape using the tracker

1. From the GFX Creation Tools toolbar, select a drawing tool.
2. Draw a shape defining the region you want to track.



You can use any drawing tool, but the Polyline tool gives you distinct control points. When using other drawing tools, select the **Curve Fit** option in the Edit Shape property page to reduce the number of control points.

3. From the General toolbar, click **Select** and select the graphics object.
4. In the General toolbar, click **Edit Shape**.
5. In the Edit Shape property editor, select the **Tracker** tab.
6. You are now ready to position the trackers, set the tracker options, and begin tracking—refer to *Using the Shape Tracker* on page 476 of the Avid|DS Compositing & Effects Guide.



Working in Raster Mode

Raster mode (also known as *destructive mode*) lets you perform tedious tasks, such as rotoscoping quickly and effectively. Since this mode is not vector-based, processing is not required. The time required to load and save graphics objects is also dramatically reduced.

As you paint frame-by-frame, the finished, or burned, frames are placed in a cache and the original graphics objects are deleted. Working in Raster mode deactivates the recording of graphics objects in the Graphics Objects View (GOV), flattens them, and stores the resulting images on individual frames directly to a cache. You can choose to have the frame you're currently working on automatically "burned" or you can choose to burn frames later, when you're satisfied with the results.

When burning frames, keep in mind that clip effects previously applied to a sequence will no longer be editable. If you want to apply clip effects to your sequence, it's best to use the raster mode to burn your frames first.



Raster mode only works for graphics objects that have a duration of one frame.



Effect in which Raster mode is used

Clip effects that will be uneditable after frames are burned



When working in raster mode, you cannot undo an operation once a frame has been burned. You can use the **Delete Burned** command from the Raster Paint toolbar to undo your work on that frame entirely and start over.

To use the raster mode

1. From the General 2 toolbar, click **Graphics Properties**.
2. On the Raster Mode property page, click **Start**.

A message box is displayed to warn you that the operation you're about to attempt cannot be reverted.

3. Click **OK** to proceed in the Raster mode.
4. Do one of the following:
 - To automatically burn or "destroy" frames as you advance frames, select the **Burn on Frame Change** option.
 - Deselect the **Burn on Frame Change** option if you want to burn frames on demand. You can do this by clicking **Burn Frame** in the Raster Paint toolbar when you're satisfied with your work.



5. To create a copy of the rastered strokes when advancing frames, select the **Copy Burned Strokes** option.
6. If you don't want to work in real time, select the **Non Real-time** option.
7. To deactivate the warning message that appears concerning undo/redo operations when you change frames, select the **Remove Warning When Burning** option.
8. To easily retrieve work done in the raster mode, enter a file name in the **Base Cache File Name** text box. It should not exceed ten alphanumeric characters. If you do not enter a file name, one will be entered by default based on the sequence name. For more information on working with caches, refer to *Raster Mode Caches* on page 154 of the Avid|DS Compositing & Effects Guide.
9. Use the transport controls to advance the clip to a frame where you want to begin using the raster mode.
10. Apply paint strokes to the first frame.



When you've completed the first frame, you can advance to the next one by using the right arrow key on the keyboard.

11. Advance to the next frame.

If you selected the **Burn on Frame Change** option, when advancing to a new frame, the graphics objects applied to the previous frame are burned and saved to a cache. A small white box appears under the timeline in the GOV to indicate that the frame has been burned.

In the GOV, white boxes indicate burned frames



To work even more quickly, you can use the Raster Paint toolbar. The toolbar can be accessed from the View menu, choose **Toolbars > Raster Paint**.

To delete burned, rastered strokes

While you're painting frame-by-frame, you may decide to redo a rastered frame. To do this, you must still be in the current graphics session in order to delete the rastered strokes.

1. Using the transport controls, advance the clip to the frame on which you want to delete the rastered strokes.
2. From the View menu, choose **Toolbars > Raster Paint**.



3. From the Raster Paint toolbar, click **Delete Burned**.

The strokes created before burning the frame are now deleted and the white box disappears for that frame in the GOV.

Using the GOV in Raster Mode

The GOV provides useful information when working in the Raster Paint mode. The Raster Paint log lets you save a list of the rastered frames in a text file. It provides you with information about the rastered frames, so that you can easily locate them in the cache. The GOV also provides tooltips of the rastered framed, so that you can locate a frame if you want to delete or redo it.

To create and save a Raster Paint log

1. In the GOV, right-click on a small white box.

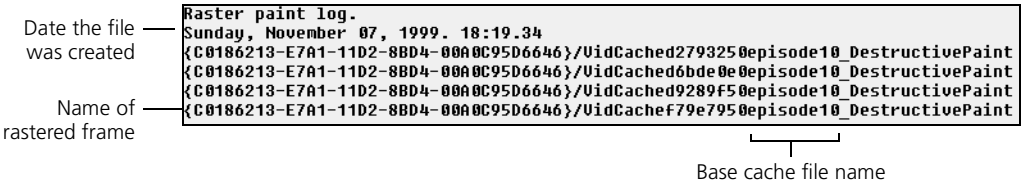


2. Click **Save Raster Paint Log**.

A dialog box appears, prompting you to save the log.

3. Choose the folder in which you want to save the Raster Paint Log information. You may want to save your work for different graphics sessions in separate folders.
4. Click **Save**.

A text file is created.



To see the file name of a rastered frame, place the pointer over the frame's white box and a tooltip appears indicating the file name.



Creating Mattes

A matte is a grayscale image that defines the transparency of an image when it is composited over another. An image can have a matte in its alpha channel (internal matte) or use a matte derived from another image (external matte).

When you use the graphics tools to create a matte, it is created in the alpha channel of the clip or layer that will be composited.

A garbage matte can be used on images in which portions of an image are difficult to key out. This occurs when colors in the foreground image are similar to the background colors that you want to key out. A garbage matte lets you block out areas that cannot be properly keyed.

Creating a Travelling Matte

A travelling matte is used for compositing a part of a foreground image onto the background image. You can then animate the geometry of the shape so that it matches the outline of the object in every frame of the sequence.



When the element you want to rotoscope is a fast moving object, such as a car, you should apply the Deinterlace effect inside the graphics container clip, perform the graphics or compositing tasks and then go to the parent timeline to apply the Interlace effect. For more information, refer to *Deinterlace Effect* on page 345 of the Avid|DS Compositing & Effects Guide.

To create a travelling matte

1. From the browser, drag the background clip to a video track on the timeline.
2. Click the compositing icon in the taskbar.

This automatically creates a graphics container.

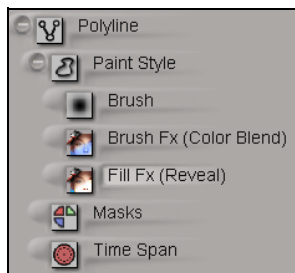
3. Right-click on the timeline effect track, and select **Insert Track** from the menu.
4. From the browser, drag the foreground clip to the new video track.
5. Drag the track icon for the new video track to the Layers view.

A layer is created in the Layers view.

6. Make sure the **Autokey** button is deactivated.
7. On the top layer, click the **Gfx** button.

The Graphics layout is displayed.

8. From the GFX Creation Tools toolbar, click **Polyline**.
9. In the graphics property tree, load the Fill Fx property icon with the **Color Blend** or **Reveal** effect.



10. In the graphics property tree, click the property icons, and do the following:

- **Paint Style:** Select the **Fill** option, and deselect the **Brush** option.
- **Fill Fx:** If you're using the Color Blend effect, set the **Alpha** value to 0.
- **Masks:** On the General property page, select the **Alpha** option, and deselect the **R**, **G**, and **B** options in the Paint on Channels box.
- **Time Span:** Set a stroke duration.

11. In the viewer, draw an outline of your subject.

12. From the General toolbar, click **Select** and then click **Edit Shape**.



13. Edit the object's shape.

14. Open the **Edit Shape** property editor, and click **Set Key**.

A keyframe is set at the current timecode.

15. Advance to the next frame, edit the object's shape, and set another keyframe. Repeat these steps until you're done.

16. When you're done, press **Esc** to exit Edit Shape tool.

17. From the General 2 toolbar, click **Process** to process the graphics session.

Use the transport controls to play the clip.



18. To view the matte, click the Layers icon on the view switcher.



Importing an Image

Importing an image in your graphics session lets you use images of any size without having to capture them. You can also import images that were created in other paint applications, as well as use the image's alpha. For example, you can import a logo created in Adobe Photoshop or Illustrator, and use it in your graphics session.

When you import an image in Avid|DS, a rectangular stroke is created in the viewer and filled with the image you imported. The original size of the imported image is retained. That is, the image is not scaled or cropped. You can treat the imported image as a graphics object, which means you can edit any of its properties, as well as animate and transform it.



You can import still images, but not video sequences.

To import an image

1. From the GFX Creation Tools toolbar, click **Import Image**.
2. From the Import Image dialog box, select an image to import.

The image, in its original size, is imported and appears in the lower-left corner of the viewer. The default time span is one frame. If the imported image is small, you can see the entire image in the viewer. If the imported image is large, part of the image will lie outside the viewer.

The imported image, a small logo, is actually a rectangular stroke that is filled with the image you imported. The stroke was scaled and moved to the upper-center of the viewer.



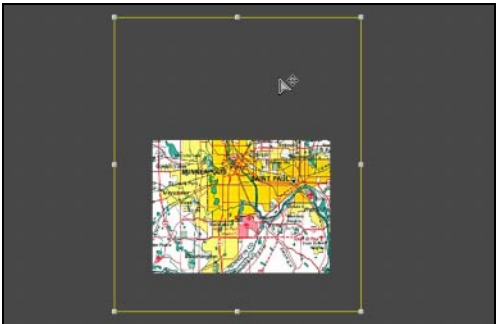
3. To use an image's alpha, select the stroke, open the Fill Fx (Cutout) property editor, and select the **Use Alpha** option.



If you can't see the entire stroke, zoom out of the viewer by pressing Shift+Z and dragging.



A zoomed out view of a large imported image. Because of its size, only the map portion of the image is displayed in the viewer. The rest of the image lies outside the viewer.



Importing Encapsulated PostScript (EPS) Files

If you have EPS files that you want to use in your current graphics session, you can import them directly into your graphics session. The color information in the EPS files is retained. Once imported, each shape in the EPS file is a separate stroke in Avid|DS.



You can import solid colors, but not gradients.

Avid|DS can import files created with Adobe Illustrator 8.0 or earlier versions. To work with Illustrator 9.0 files, save it as a version 8.0 file.

Avid|DS only supports Microsoft Windows EPS files. If you have Macintosh EPS files, open them with a Windows version of Adobe Illustrator and resave them.

You can also import EPS files as brushes. For more information, see *Creating Custom Brushes* on page 296.

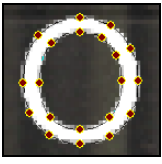
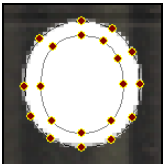
To import an EPS file

- 1. From the GFX Creation Tools toolbar, click **Import EPS**.
The Open dialog box is displayed.
- 2. Select an EPS file and click **Open**.

The EPS file is imported into your graphics session.

If your EPS file contained closed characters, such as a, b, d, o, p, 6, 8, 9, or 0, their shapes may not appear as expected. That's because each character consists of several strokes. Avid|DS imports each stroke separately and then fills it. For example, the letter "O" consists of two strokes, the inner and outer shapes; both are filled. To "knock out" the inner shape, select the inner and outer stroke of the character and click **Combine Strokes**.

After import, both inner and outer shapes are filled



Combined inner and outer shapes. Inner shape is "knocked out".



Processing Graphics

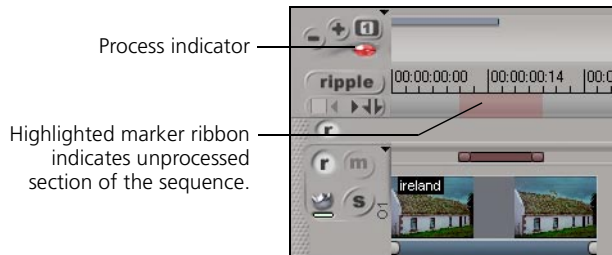
Any graphics that you created or any effects applied to clips must be processed before you can preview them. You can process all or part of the timeline, as well as choose different levels at which to process your clips. You can process graphics you have created in full resolution, and view them in real time. The results of the processing is stored in a new media file (cache), so that your source media remains unaltered. For more information on processing, refer to *Processing Effects* on page 127 of the Avid|DS Compositing & Effects Guide.



You can preview the resulting composite before processing all frames in the sequence. To view the sequence frame by frame, press Ctrl+Up Arrow.

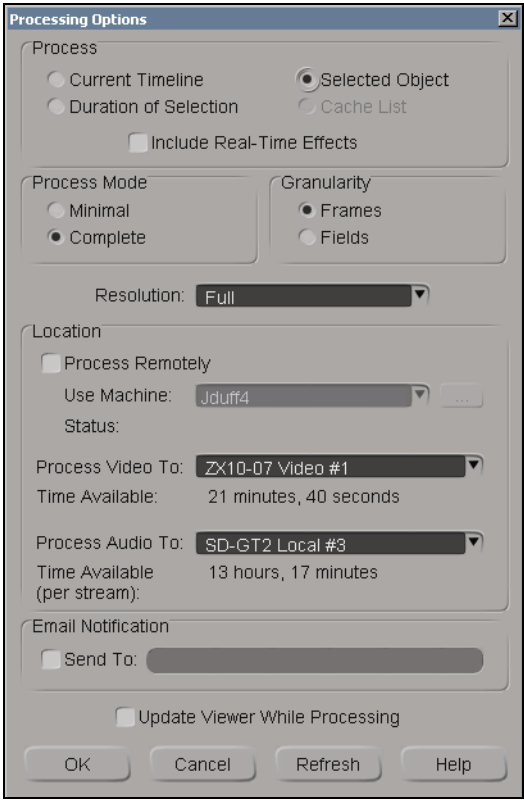
To process graphics

1. Do one of the following:
 - From the General 2 toolbar, click **Process**.
 - From the Processing toolbar, click **Process**.
 - In the timeline controls, click the Process indicator icon.



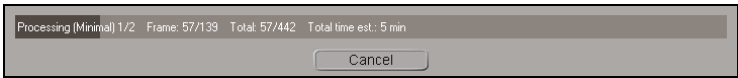


2. In the Processing Options dialog box, select the appropriate options.



3. Click OK to begin processing.

A progress indicator appears on the bottom of the desktop to show the status of the process.



4. Click **Cancel** to stop the process at any time.



Chapter 8 **3D DVE and Titling**



In This Chapter...

This chapter describes how to create and edit 3D DVEs, graphics, and titles. You'll also learn how to work with surfaces, materials, lights, and shadows, as well as import and export projects.

- Workflow: Creating 3D DVEs 353
- Workflow: Titling 354
- Working in the 3D World 355
- Setting Preferences 357
- Working with the Camera 365
- About Objects 372
- Manipulating Objects 374
- Working with 3D DVEs 386
- Working with Graphics 391
- Working with Text 400
- Working with Surfaces and Materials 424
- Working with Lights and Shadows 433
- Importing and Exporting Projects 443
- Setting the Output Options 446



Workflow: Creating 3D DVEs

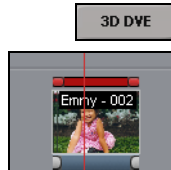


Not available in
Avid|DS HD Editor

You can create and manipulate 3D DVEs in the 3D DVE layout. The following illustration shows the typical workflow of a 3D DVE session.

1 Select a clip to use as the DVE

Apply 3D DVE
effect to clip on
timeline



A 3D layer is automatically created
in the 3D DVE Layers view.



Clip used as 3D DVE

2 Decide whether you want to work in Direct View mode.

Direct View

3 Manipulate the 3D DVE in the viewer



4 Add effects to the 3D DVE

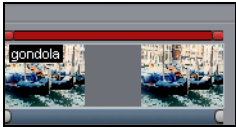




Workflow: Titling

You can create and manipulate 2D and 3D titles in the 3D DVE layout. The following illustration shows the typical workflow of a titling session.

- 1 **Decide whether you want to create a 2D or 3D title.**
Apply the 2D Titling or 3D Titling effect to your clip.

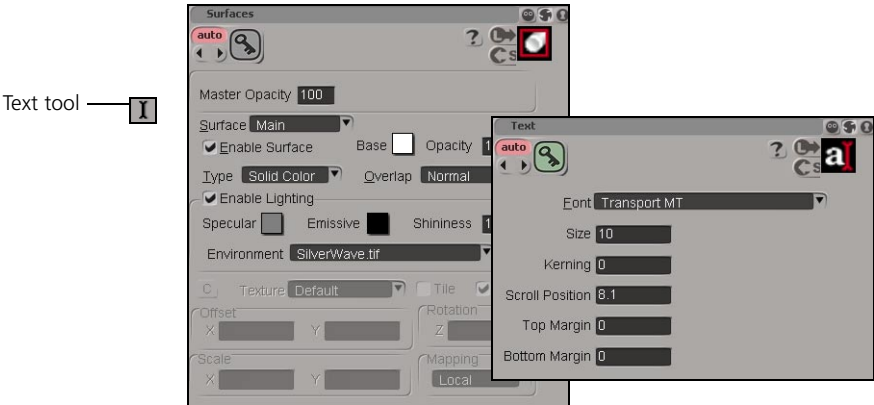


Clip is used as background for titles.
Depending on the effect you selected, either a 2D layer or 3D layer is automatically created in the 3D DVE Layers view.



- 2 **Direct View** **Decide whether you want to work in Direct View mode.**

- 3 **Select the Text tool and set its properties**



- 4 **Create a title in the viewer**



- 5 **Select the title and edit its properties**



The word “Venice” was kerned to match the length of the words above it.

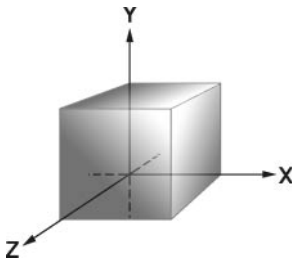


Working in the 3D World



Not available in
Avid|DS HD Editor

Three-Dimensional Space



Before you create 3D DVEs, graphics, or titles, you should be aware of some basic 3D concepts, such as three-dimensional space, materials, and lights.

It's essential to understand the notion of working within a virtual three-dimensional space using a two-dimensional user interface. To represent the geometry of an object, Avid|DS uses the classical Euclidean/Cartesian mathematical representation of space. It is based on three perpendicular axes X, Y, and Z, intersecting at one point called the *origin*.

XYZ Axes

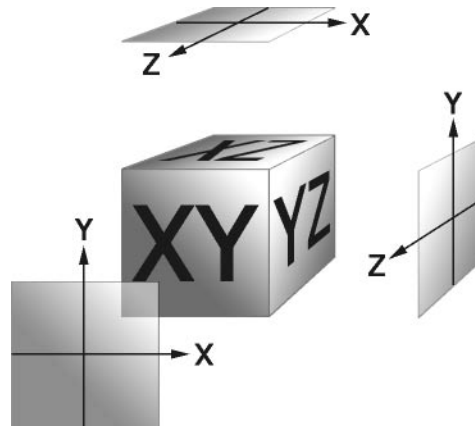
To remember the direction of the X, Y, Z axes, use the “right-hand” rule: hold up your right hand so that your palm is facing you, then extend your thumb to the right, hold your index finger up, and point your middle finger towards you. Your thumb is pointing in positive X, your index finger in positive Y, and your middle finger in positive Z. The point of origin is 0, 0, 0. The opposite directions represent negative X, Y, and Z.

XYZ Coordinates

With the Cartesian coordinate system, you can locate any point in space using three coordinates. For example, if $X = +6$, $Y = -6$, $Z = +6$, a point would be located to the right of, below, and in front of the origin.

XZ, XY, YZ Planes

Since you're working with a two-dimensional interface, spatial planes are used to locate points in three-dimensional space. The perpendicular axes extend as spatial planes: XZ, XY, and YZ. Imagine that the XZ, XY, and YZ planes are folded together like the top, front, and right side of a box. This helps you keep a sense of orientation when you're working.





Global and Local Coordinate Systems

The XYZ coordinate system can be global or local.

When you place an object in 3D space, it is inside a world, with the origin at (0, 0, 0) of the ground plane in the viewer. Accordingly, the XYZ coordinates locating the object in relation to the origin are called *global coordinates*.

A local coordinate system is thought of in terms of an object's own point of reference, which is its own center. This center also has three axes: X, Y, and Z.

The center of an object is only a reference—it is not necessarily in the middle of the object because it can be relocated (as well as rotated and scaled).

Materials

Once you've created an object, you can apply materials to define its surfaces' appearance. A surface is an area of an object. You can control the visibility and appearance of each surface by applying a set of properties called a *material*.

You can modify the appearance of the various surfaces of an object. For example, you can apply a brick texture to a rectangle to give the appearance of a brick wall, a gradient to a wavy shape that runs along the left edge of the view to enhance a scene, or a reflective texture to the edges of the characters in a word to simulate a chrome outline.

Lights

Another basic element you will work with is light. Light sources are points in three-dimensional space that emit light, causing objects (with materials that can be affected by light) to appear illuminated. There are three kinds of light sources: infinite, local, and spot.

You specify the location of light sources relative to objects in the scene by using light source objects, which exist above all other objects in the scene. For more information, see *Working with Lights and Shadows* on page 433.



Setting Preferences

Often, when setting up an animation or creating text, you don't really need to see all the other layers and effects in your sequence. When working with the 3D DVE effect, there are many ways to improve the responsiveness of Avid|DS. You can turn on the features you really need and turn off the rest, such as the following:

- Working in Direct View mode—see *Working in Direct View Mode* on page 359.
- Viewing the background—see *Using a Background* on page 357.
- Suspending output to the output monitor—see *Suspending Output to the Output Monitor* on page 360.
- Working in wireframe mode—see *Working in Wireframe Mode* on page 363.
- Viewing preferences and quality level—see *Setting the Viewer Quality Level* on page 364.

All of your choices depend on the complexity of the objects you plan on creating in the 3D DVE layout, as well as how responsive you want Avid|DS to be. Just keep in mind that in a typical scenario, Avid|DS processes one entire frame before displaying the output in the viewer and output monitor. As a result, this slows down the responsiveness of Avid|DS.

Using a Background

You'll have to decide whether you want to composite your graphics onto the background inside the 3D DVE or outside. We recommend that you do so within the 3D DVE so you can see the background while working in the Direct View mode. The background lets you easily place titles or graphics, so that they appear in the correct location relative to the background.

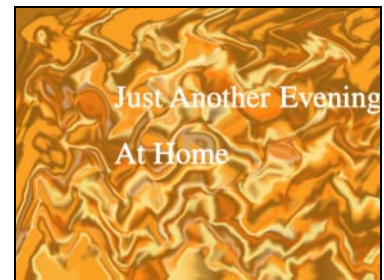
However, if your background is large, it is probably better to leave it outside the 3D DVE. For more information, see *Working in Direct View Mode* on page 359.

There are two ways to include a background in your 3D DVE session:

- Use a clip on the timeline or
- Select a background image from the 3D DVE/Options property editor.



Using a clip as the background



Using an image as the background



To use a clip on the timeline as the background



1. On the timeline, select a clip and position the play cursor over it.
2. From the Image Tools toolbar, click one of the following:

- **2D Titling** to create 2D titles.

The 3D DVE layout is displayed, the selected clip is used as the background, and a 2D layer is created in the 3D DVE Layers view.

- **3D Titling** to create 3D titles.

The 3D DVE layout is displayed, the selected clip is used as the background, and a 3D layer is created in the 3D DVE Layers view.

To use a background image

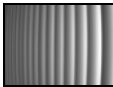


1. On the timeline, select a clip and position the play cursor over it, and click the 3D DVE layout icon on the taskbar.

The 3D DVE layout is displayed.



2. From the 3D DVE/Options property editor, select the **Preferences** property page.
3. Select the **Background** option and select an image from the list:



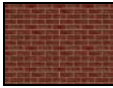
Blinds



Boilerplate



Brick



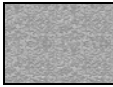
BrickRed



Brushed Metal



Clouds



Concrete



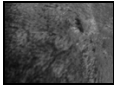
Default



Default Gradient



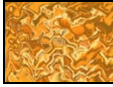
FloorMat



Fur



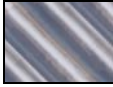
GiraffeFur



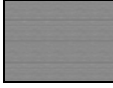
GoldWave



Granite



Metal



OakBoard



Peanuts



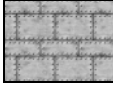
Pearl



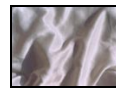
Pennies



People



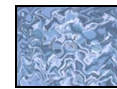
Rivets



Satin



Silver



SilverWave



Speaker



TreeBark



Wood

The selected image is centered behind all objects in the viewer and scaled down (if larger than the pixel dimensions of the scene) or padded with a black border (if smaller than the pixel dimensions of the scene).



You can also select an input (from the list) to use the clip on the timeline as the background.



Click the Help icon for detailed information on the Preferences properties.

To show or hide the background



1. From the 3D DVE/Options property editor, select the **Direct View** property page.
2. Select the **View Background** option. For quicker previews of your sequence, hide the background.



The View Background option is for viewing purposes only and does not affect the processed output.



Click the Help icon for detailed information on the Direct View properties.

Working in Direct View Mode

Just like all other effects in Avid|DS, the 3D DVE layout, by default, displays the results of one entire frame in the viewer. While this may be convenient for viewing the results of your sequence, including the output of the 3D DVE effect, it can be quite slow, reducing the responsiveness of Avid|DS. Some or all of the effects before you can see them in the viewer.

If you have a complex sequence, such as the following:

- A 3D DVE effect on the overlay track that contains a picture-in-picture effect with a spotlight,
- A large blur effect on top of the 3D DVE effect, and
- A background clip in the timeline,

It would be much faster not to view all of this while you're working on the 3D DVE portion of the sequence, especially the large blur, which takes time to process.

This is where the Direct View mode comes in handy; it lets you focus exclusively on your 3D DVE session, without being slowed down by the processing of other clips or effects in the frame. This improves the performance of Avid|DS, especially when working with text.



The Direct View mode is for viewing purposes only and does not affect the output.



Default mode show the results of your entire sequence in the viewer



Direct View mode shows only the results of your 3D DVE session

To work in Direct View mode

- From the Viewer toolbar, click **Direct Mode**.

The viewer displays only the contents of your 3D DVE session.

Suspending Output to the Output Monitor

By suspending (or not sending) the output of your scene to the output monitor, you can increase the interaction speed when working in the 3D DVE layout.



You can only suspend output to the output monitor when working in the Direct View mode.

To suspend output to the output monitor

- From the Viewer toolbar, click **Suspend Output**.

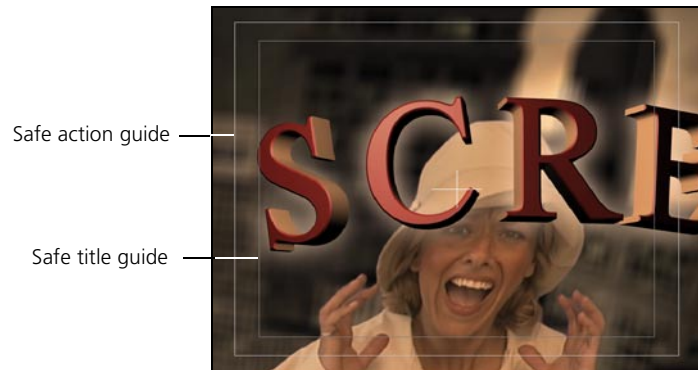
The output of your scene is not displayed on the output monitor.

Displaying Guides

You can display various guides or hide parts of objects in the viewer to position objects relative to each other and to the edges of the viewable area. Guides are not visible in the final production.

Showing the Safe Action/Title Areas

The safe action area is the central area of the viewer where action can occur without having noticeable distortion. The safe title area, also in the central area of the viewer, is where you can safely place graphics and titles without having any of its edges cut off. These areas delineate where action and titles should occur to be fully visible on a television set.



To show or hide the safe action/title areas

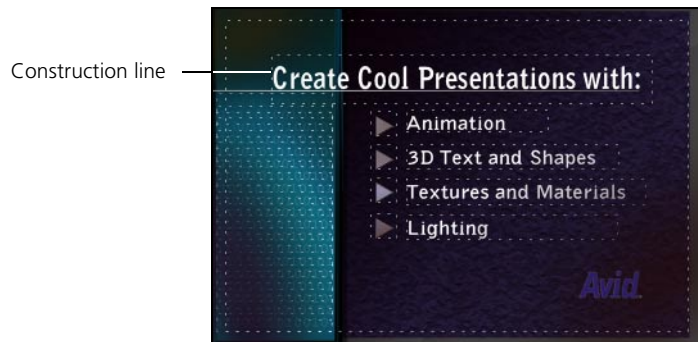
- Do one of the following:
 - Right-click on the viewer and choose **Safe Action/Title** from the menu.
 - From the Viewer toolbar, click the **Safe Action/Title** icon.



When the safe action/title guides are displayed. When you move objects near the safe action/title guides, they snap to it. You can, however, still move the objects outside the safe action/title areas.

Showing Construction Lines

Construction lines define the boundaries of objects, such as text and the scene itself. By showing construction lines, you can identify the location and size of these types of objects, as well as any that are empty. Construction lines also display the shadow plane for projected shadows. For more information, see *Changing a Shadow's Location* on page 439.



To show or hide construction lines

- From the Viewer toolbar, click the **Construction Lines** icon.
- Construction lines appear as dashes around the borders of objects.





Showing the Grid

The grid consists of evenly spaced points that you can use to align objects to each other or to the sides of a scene. The grid uses a standard 16×12 layout. When you show the grid while in the 3D DVE layout, by default, it's in Snap to Grid mode. For more information, see *Positioning Objects at Specific Locations* on page 377 and *Aligning Objects Relative to Each Other* on page 378.



The grid is not visible in the final production.

To show or hide the grid



- From the Viewer toolbar, click the Grid icon.

The grid appears as points at the intersections of the grid lines.

Showing Objects Viewable Within the Frame

The frame of a project is the dimensions of the scene, which represent the output resolution. If there are objects moving in or out of a frame over time, you may want to show or hide those parts of the objects that are “outside the frame”. Viewing only the visible portions of objects may make previewing the project less distracting. However, when you’re editing objects, you will usually want to see all the objects.



Objects outside of the viewable frame will be hidden only if you have not tumbled the scene.

Although objects may be hidden from view, you can still select them.



Clip to Frame: Selected



Clip to Frame: Deselected

To show or hide all objects within a frame



- From the Viewer toolbar, click the Clip to Frame icon.



Working in Wireframe Mode

Working in wireframe mode lets you easily see the outline of all the objects in your scene, making it easier to select and edit them. This can be useful when there are objects hidden behind other objects.

You can also precisely edit and manipulate objects without being distracted by any of the effects defined for it. The wireframe mode increases the speed of interaction because wireframe objects are not processed.

To work in wireframe mode



1. In the 3D DVE/Option property editor, select the Direct View property page.
2. Select the **View as Wireframe** option.

All objects in the viewer appear in wireframe.



For fast animation playback, suspend the output (to output monitor) and press Ctrl-play. The sequence will play back and animated objects appear in wireframe mode.

Rendering Objects as a Wireframe

You can draw select objects as a wireframe to help you focus on the placement of objects in a scene, and not on how the objects appear.

To render objects in wireframe



1. Using the Edit tool, select an object.
2. From the Effect property editor, select the **Render as Wireframe** option.



The Render as Wireframe option affects the final production.



Rendered normally



Rendered as a wireframe

The wireframe is drawn using the object's main material.



Click the Help icon for detailed information on the Effect properties.



Setting the Viewer Quality Level

You can change the processed on-screen quality of objects in the viewer by adjusting the quality level. Increasing the quality level improves the visual accuracy of objects, but at the expense of system responsiveness. Decreasing the quality level makes it faster for you to move and edit objects, but at the expense of visual accuracy and detail. The quality setting does not affect the processing quality.

To set the quality level



1. From the 3D DVE/Options property editor, select the **Direct View** property page.
2. Adjust any of the following properties that affect the quality of objects rendered in the viewer:
 - From the Antialiasing list, select one of the following:
 - **None** to apply no antialiasing. This setting produces jagged or aliased edges.
 - **Fast 2D** to draw flat objects.
 - **Texturing** controls the quality of textured surfaces in proportion to the time required to render the texture onto the surface.
 - **Lighting** controls the quality of lit surfaces.
 - **Tessellation** controls the smoothness or approximation of curved edges on characters and shapes.
 - **Shadowing** controls the quality of soft shadows.
 - **Motion Blur** applies a motion blur on fast moving objects.



Click the Help icon for detailed information on the Direct View properties.



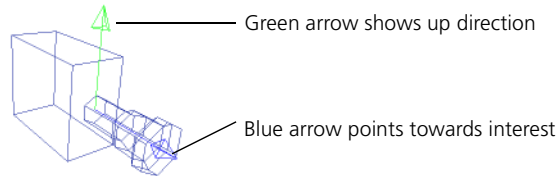
Working with the Camera

The camera in Avid|DS is similar to a real camera, letting you view objects in the scene from different angles and perspectives. You can create interesting effects, such as camera fly throughs, by animating the camera's parameters. The camera shows you what the scene will look like when you render it.

The main camera icon in the viewer has two arrows. The blue arrow indicates where the camera is “looking”, that is, the direction the lens is facing. This is called the *interest*. The camera is always constrained to the interest. The green arrow indicates the camera's up direction. You can change the camera's direction by rolling the camera.



You can only see the camera icon while you're viewing through the alternate camera. For more information, see *Viewing Through the Alternate Camera* below.



To select the camera

- Do one of the following:
 - In the 3D DVE Object View, click the bar that corresponds to the camera.
 - In the 3D DVE Layer view, click **Camera**.
 - Click the camera in the viewer.

Viewing Through the Alternate Camera

In addition to the main camera, there's also an alternate camera. In many ways, the main and alternate cameras are similar, except that the alternate camera is not an actual object. It's only a tool for viewing and navigating through your scene; it is not displayed in the viewer and does not have any properties for you to edit.

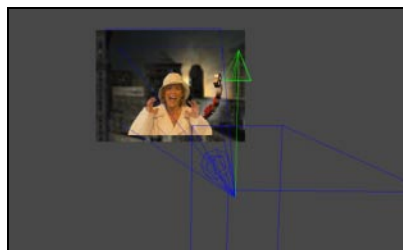
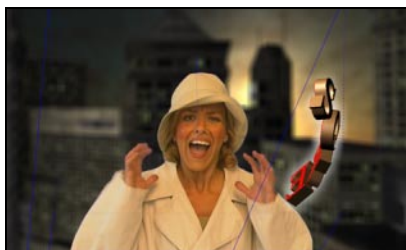
When viewing through the alternate camera, you can see the main camera, and the background, if any, is not visible. You cannot select or animate the alternate camera.



Viewing through the main camera, which is not visible as you are looking through it.



Viewing through the alternate camera. The main camera is visible.



Zoomed out view through the alternate camera.

Snapping the Camera

By snapping the main camera to the alternate camera or vice versa, you can get a different view of your scene.

To snap one camera to the other

- Click one of the following icons in the Viewer toolbar:



- Snap Alternate Camera to Main Camera.



- Snap Main Camera to Alternate Camera.

To toggle the current camera



- In the Viewer toolbar, click the **Toggle Camera** icon.

If you were using the main camera, the view is switched to the alternate camera and vice versa.

Viewing a Scene from Different Angles

Using the alternate camera, you can view the objects in your scene from different angles. This is useful when positioning or animating objects.

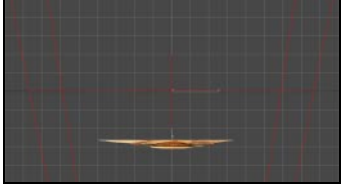
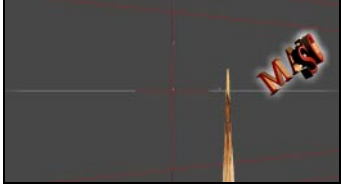
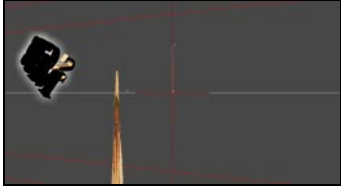


Viewing the scene through the alternate camera does not affect the final output of your scene.



To view the scene from different angles

- From the 3D DVE Viewer toolbar, click one of the following icons:

Icon	Example	Description
 View Top		Displays scene from above
 View Left		Displays scene from left
 View Front		Displays scene from the front
 View Right		Displays scene from the right

If you were using the main camera, the view is switched to the alternate camera and you can see your scene from different angles.



To tumble the scene



- From the Viewer toolbar, click the Tumble icon and drag on the viewer.



A tumbled scene

A light-colored orientation grid and axis appear in the viewer as you tumble the scene. The X, Y, and Z axes identify the orientation of the frame, with Y identifying the top of the frame and Z identifying the front of the frame.

Manipulating the Camera

It's easier to view your scene when you manipulate the camera by zooming, panning, dollying, or rolling it.

To zoom the camera



- Click the **Zoom** icon in the Viewer toolbar. In the viewer, drag down/left to zoom in or drag up/right to zoom out.

To pan the camera



- Click the **Pan** icon in the Viewer toolbar and drag in the viewer.

To dolly the camera



- Click the **Dolly** icon in the Viewer toolbar and drag in the viewer.

To roll the camera

- Do one of the following:



- Click the **Roll** icon in the Viewer toolbar. In the viewer, drag down/left to roll clockwise or drag up/right to roll counterclockwise.



- In the Camera property editor, set the **Roll** angle. Negative values make the camera roll left and positive values make the camera roll right.



Resetting the Camera

If you've zoomed in and out too much and the perspective on your camera is in need of a reset or refresh, you can always reset it.

To reset the camera

Do one of the following:



- In the Camera property editor, click **Reset**.

This resets all the properties of the main camera to the default values.



- In the Viewer toolbar, click the **Reset Current Camera** icon.

The properties of the current camera (main or alternate) are reset to the default values.

Setting the Camera Position

The camera's position defines where the camera exists in the scene. These coordinates are local and are not affected when a transformation is applied to the camera.

To set the camera position

Do one of the following:



- In the viewer, select the camera and drag it to a new location.
- In the Camera property editor, enter values in the **Position** box.

Defining the Camera Interest

The interest, what the camera is always looking at, is at the center of the interest plane. The interest plane is defined as the area visible through the camera. It is represented by a cross, which you can view through the alternate camera.

You can translate and animate the position of the interest as you would any other parameter. By animating the interest, you can keep a certain object in the scene in every frame.



Viewing the interest and interest plane through the alternate camera



Setting the Clipping Planes



To define the camera interest

- In the Camera property editor, enter values in the **Interest** box.

Click the Help icon for detailed information on the Camera properties.

Clipping planes are useful when you want to show or hide specific objects. You can use clipping planes to set the minimum and maximum viewable distances from the camera. Objects outside these planes are not visible. By default, the near plane is very close to the camera and the far plane is very far away, so most objects are usually visible.

To set clipping planes



- In the Camera property editor, set the following:
 - **Near Plane** to set the minimum viewable distance from camera. Objects in front of this plane will not be visible.
 - **Far Plane** to set the maximum viewable distance camera. Objects behind this plane will not be visible.



You can reduce processing time by choosing appropriate clipping planes. Smaller ranges of clipping planes take less time to process.



Click the Help icon for detailed information on the Camera properties.

Selecting a Projection Method

When you rotate an object around the X or Y axis or move the object away from the center of the scene, you can control the amount of perspective distortion applied to the object. The perspective distortion simulates the real-world appearance of a rotated or far-away object, where points on the object farther away look smaller than points closer to you.

Depending on the look you want to achieve, you can change the view from an orthographic to a perspective projection. When you select an orthographic projection, objects do not change size as they change distance from the camera. A perspective projection simulates depth and is useful for simulating a real camera.



Orthographic projection



Perspective projection



Setting the Field of View

To set the perspective



- From the Camera property editor, select one of the following options from the Projection box:
 - **Orthographic** perspective in which all camera rays are parallel and objects do not change size as they change distance from the camera.
 - **Perspective** perspective to simulate depth. This projection simulates a real camera. You can also adjust the Vertical Field of View value. Higher values produce exaggerated distortions, whereas lower values produce subtle distortions.



Click the Help icon for detailed information on the Camera properties.

The field of view is the angular measurement of how much the camera can see at any one time. By changing the field of view, you can distort the perspective to give a narrow, peephole effect or a wide, fish-eye effect.

To set the field of view



1. From the Camera property editor, set the **Angle** in the Field of View box. Small angles are equivalent to a telephoto lens and large angles are equivalent to a wide angle lens.
2. Select one of the following options:
 - **Horizontal** to apply the angle to the horizontal field of view.
 - **Vertical** to apply the angle to the vertical field of view



Click the Help icon for detailed information on the Camera properties.



About Objects

Objects are the building blocks of your 3D DVE session. An *object* is anything you can create or manipulate in the viewer while working in the 3D DVE layout. For example, text, two-dimensional graphics (rectangles and circles), and even the background itself are objects.

You can create and modify the following types of objects:

- **DVE objects** are objects whose appearances you can deform based on an effect or image you apply to them. For example, you can create spheres, page curls, and ripples—see *Working with Surfaces and Materials* on page 424.
- **Text objects** contain characters (letters, numbers, and other symbols) that you type. The characters in a text object can be static, move vertically (rolling text), or move horizontally (crawling text). You create text objects using the Text tool—see *Working with 3D DVEs* on page 386.
- **Graphics objects** are geometric shapes, such as rectangles and ellipses. You create graphics objects by using the Shape, Rectangle, and Ellipse tools—see *Working with Surfaces and Materials* on page 424.
- **Path objects** or *paths* are shapes onto which you can place or crawl text. You can convert shapes into paths or paths into shapes—see *Placing and Moving Text on a Path* on page 419.
- **Layers** allow you to create simple two-dimensional effects or more complex three-dimensional effects in which objects can intersect.

Some objects can contain subobjects, such as the characters you type in a text body. The 3D DVE session contains all the objects you create while working in the 3D DVE layout. You can modify subobjects separately.





About Drawing Tool Properties

The 3D DVE layout is similar to the Graphics layout. That is, before you create titles or DVEs, you must define how the titles or DVE will appear. Using the property editors, you can set the object's properties, such as the color or font.

Each time you select a tool, its properties are displayed in the property editors. You can set the default properties of the drawing tool before creating an object. When you do this, the new settings become the default properties that are applied to the objects you create. These properties remain in effect until you change the properties in any of the drawing tools. If you decide to create an object before setting its properties, you can select the object you created and then modify its properties. When you do this, only the properties of the selected object are modified.



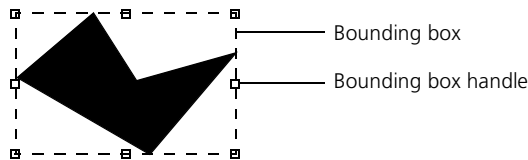
Manipulating Objects

You can select, deselect, arrange, modify, and identify objects. You can copy and move objects around in the scene, and align objects relative to the scene or each other. You can also remove objects you no longer need.

Selecting and Deselecting Objects

Before you can edit an object, you must first select it with the Edit tool. You can select multiple objects at a time to perform the same operation, such as changing the color on multiple objects at the same time.

When you select an object, its bounding box appears, displaying the bounds or extent of the selected object.



To select a single object



- Using the Edit tool, do one of the following:
 - In the viewer, click an object or drag a selection box around an object.
 - In the 3D DVE Object View or 3D DVE Layers view, click an object's name.

To select multiple objects

- Using the Edit tool, do one of the following:
 - In the viewer, press Shift and click the objects.
 - In the viewer, drag to make a rectangular selection box around the objects.
 - In the 3D DVE Object View or 3D DVE Layers view, press Shift and click the objects.

To select all visible objects in the current frame



- Using the Edit tool, click the Select All icon in the 3D DVE Layer toolbar.

To select characters or a grouped object using the Edit or Rotate tool

- Alt-click the character or grouped object.

To deselect all objects

- Using the Edit tool, do one of the following:
 - Click away from any object in the viewer.



- From the 3D DVE Layer toolbar, click the Deselect All icon.



Cutting, Copying, and Pasting Objects

You can cut or copy objects in the viewer, and paste them to the same frame or to another frame. Cut or copied objects are placed on the Clipboard and remain there until you perform another cut, copy, or paste operation. At the end of your 3D DVE session, all objects that were cut or copied from the viewer are permanently deleted.

To copy an object to a different location or page



1. Using the Edit tool, select an object.
2. From the Edit menu, choose **Copy** or press Ctrl+C.
A copy of the selected object is placed on the Clipboard.
3. Pan or zoom to the location in the scene or the time in the project in which you want to copy the objects.
4. Click in the page to activate it.
5. From the Edit menu, choose **Paste** or press Ctrl+V.
The selected objects are pasted in the new location or page. If the original object was locked, the copy of the object is also locked.

To move an object to a different location or page

1. Using the Edit tool, select an object.
2. From the Edit menu, choose **Cut**.
The selected object is placed on the Clipboard.
3. Pan or zoom to the location in the scene to move the object.
4. From the Edit menu, choose **Paste** or press Ctrl+V.
A copy of the Clipboard's contents is pasted.

To remove an object from the scene



1. Using the Edit tool, select an object.
2. Do one of the following:
 - Press Delete.
 - From the Edit menu, choose **Cut**.
When you use Cut, you can paste the object in another location.
 - Right-click on the object in the 3D DVE Layers view and choose **Delete** from the menu.



Moving Objects

You can move objects freely within the scene, constrained horizontally or constrained vertically. For rotated objects, you can move an object along the local or global axes. You can also prevent objects from being moved accidentally when clicking objects.

If the safe title guide is currently displayed, moving an object near this guide automatically snaps the sides and corners of an object's bounding box to the guide. Subobjects within objects, such as characters in a text body, do not snap to the safe title guide. For more information, see *Showing the Safe Action/Title Areas* on page 360.

To move an object freely

- Drag a selected object to a different location.

To move an object horizontally or vertically

- Hold down the Shift key and drag a selected object. The direction you first drag becomes the constrained axis of movement.

To move a selected object by one pixel

- Hold down the Ctrl key and press one of the arrow keys.

To move a selected object by one-quarter of a pixel

- Hold down the Ctrl+Alt keys and press one of the arrow keys.

To move a rotated object freely within its rotated, local plane

- Hold down the Ctrl+Alt keys and drag a selected object.

To move a rotated object horizontally or vertically along its local axes

- Hold down the Ctrl+Alt+Shift keys and drag a selected object. The direction you first drag becomes the constrained axis of movement.

Locking and Unlocking Objects

Locking objects prevents you from moving them accidentally when you're working with multiple objects. Once you've locked an object, you can still modify the object's properties using the property editors.

To lock an object



1. Using the Edit tool, select an object.
2. From the 3D DVE Layer toolbar, click the Lock icon.

To unlock an object



1. Using the Edit tool, select a locked object.
2. From the 3D DVE Layer toolbar, click the Unlock icon.



Reordering Objects

If you want an object to appear in front of or behind another object, such as moving a gradient oval behind some text, or want to draw an object before or after another object, you can reorder them in the viewer or 3D DVE Layers view.



Although objects in a 3D layer are positioned based on their positions along the Z axis, the stacking order of an object still affects perspective and overlap effects.

Also, you cannot reorder characters in a text object.

To reorder objects in the viewer



1. Using the Edit tool, select an object.
2. Click one of the following icons in the 3D DVE Layer toolbar:



- **Bring to Front** to move the object to the front of all other objects.



- **Raise** to move the object up one level.



- **Lower** to move the object back one level.



- **Send to Back** to move the object behind all other objects.



You cannot move an object between layers using these toolbar buttons. For more information, refer to *Copying and Moving Objects Between Layers* in the online help.

Positioning Objects at Specific Locations

You can move objects to specific locations within the scene. Each object has nine common locations (the four corners, four sides, and center) where you can quickly position other objects. If the safe title guide is displayed, you can quickly position objects within it instead of the scene.

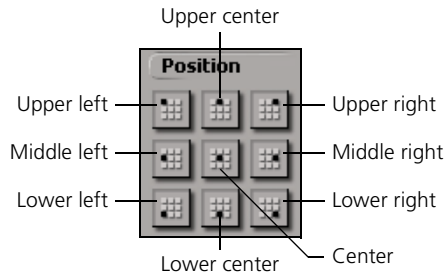
To position an object within its boundaries (layer or group)



1. Using the Edit tool, select an object.
2. From the Viewer toolbar, click the Scene View icon or one of the Layer View icons in the toolbar to make sure you're not viewing the scene or layer at an arbitrary angle.
3. Click an icon in the Position toolbar.



Use the Lower Left, Lower Center, or Lower Right buttons for lower-third titles.



Each selected object moves to the selected position within the safe title area. However, note the following behavior:

- If an object is extruded, the object's front face determines how to position the object.
- If an object is rotated, the object is positioned based on the front face of the object.
- If your effect uses perspective projection, objects may appear positioned incorrectly. This is a side effect of perspective projection. Switching to orthographic projection will show the correct positioning of objects—see *Selecting a Projection Method* on page 370.
- If an object's position on the Z axis is not 0, the object may not be positioned properly.

Aligning Objects Relative to Each Other

You can align the edges or centers of multiple objects relative to each other to ensure a consistent layout in a scene. You can align objects to their bounding box edges or centers. Objects will align to the safe title guide if it's displayed.

To align objects relative to another object



1. Using the Edit tool, select the objects to align.
2. Hold down the Shift key and select the object to which all other selected objects will be aligned. This is the reference object, as its bounding box handles are solid instead of hollow.

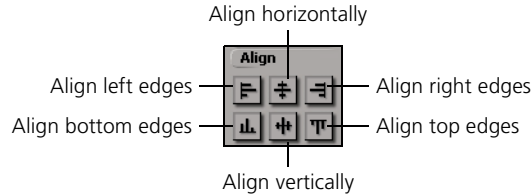


If you drag on the viewer or use the Select All icon to select the objects, the reference object is the frontmost object.

3. Click the Scene View icon or one of the Layer View icons in the toolbar to make sure that you're not viewing the scene or layer at an arbitrary angle.



- To select a different object alignment, click a different Align icon.



The selected objects align themselves relative to the reference object. Object alignment has the same limitations as object positioning. For more information, see *Positioning Objects at Specific Locations* on page 377.

Grouping and Ungrouping Objects

If you want to scale or rotate several objects as if they were part of a larger object, you can group the objects together.

To group objects together



- Using the Edit tool, select the objects.
- From the 3D DVE Layer toolbar, click the Group icon.

The grouped objects appear with a single bounding box.



Hold down the Alt key and click an object in a group to modify the object separately.

To ungroup grouped objects



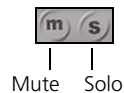
- Using the Edit tool, select a grouped object.
- From the 3D DVE Layer toolbar, click the Ungroup icon.



If you group an animated collection of objects, animate the group, and then ungroup the objects, some parts of the animation may be lost.

Showing and Hiding Objects

By showing or hiding objects, you can isolate the effect of certain objects or focus your work on specific parts of the scene.





To hide a single object

- In the 3D DVE Layers view, click the Mute button for the object.

To show a single object and hide all others

- In the 3D DVE Layers view, click the Solo button for the object. You can solo multiple objects.

To show all hidden objects



- From the 3D DVE Layer toolbar, click the Unhide All icon.

To show or hide objects



1. Using the Edit tool, select one or more objects.
2. From the Render property editor, do one of the following:
 - Select the **Show Object** option to show the object.
 - Deselect the **Show Object** option to hide the object.

Changing the Visibility of Objects

You can control the visibility of each object in a scene from fully transparent to opaque. By controlling visibility, you can blend or mix objects in a scene to produce subtle effects, such as having objects fade in and out over time.



An object with an opacity of zero still requires rendering.

To change the opacity of an object



1. Using the Edit tool, select an object.
2. From the Surfaces property editor, adjust the **Master Opacity** value.

Unlike the opacity settings for each material on an object, this master opacity control determines the appearance of the entire object, including its shadow (if one exists).

Modifying Objects

When you scale and rotate objects, they occur relative to the anchor point, a location on the selected object from which the operation is based.



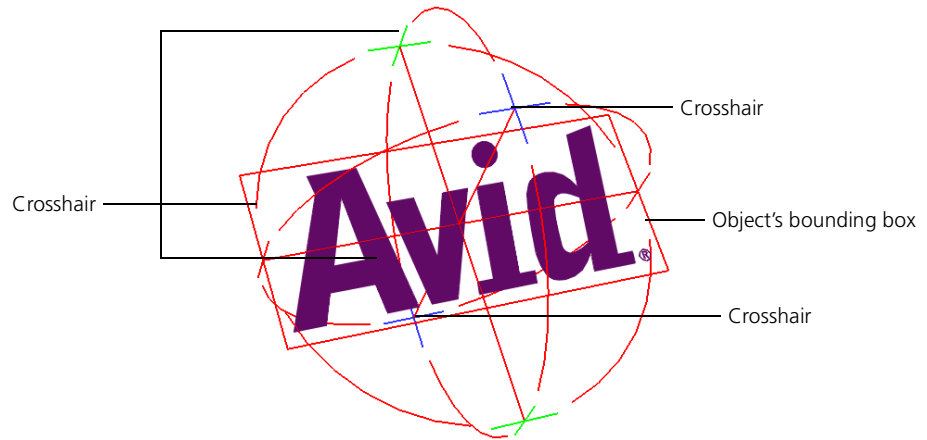
If you scale or rotate multiple objects, each object is modified independently. To modify a collection of objects as a single entity, you should group them first. For more information, see *Grouping and Ungrouping Objects* on page 379.

For graphics objects, you can also deform the object. For more information, see *Editing Shapes and Paths* on page 394.



Adjusting the Anchor Point

When you scale or rotate objects, the objects change based on a point in three-dimensional space called the *anchor point*. Scaling and rotation operations use the same anchor point.



To adjust the anchor point

- Do one of the following:



- Using the Rotate tool, drag the small *crosshairs* at the intersections of the axes on the rotation sphere to the intended location.

The anchor point moves along the plane of the crosshair.



- From the Transform property editor, adjust the Anchor Point values (X, Y, and Z).



You can adjust the Z value of the anchor point only if the object is extruded.

To reset the anchor point

- Do one of the following:



- Using the Rotate tool, select an object, right-click and choose **Reset Anchor Point** from the menu.

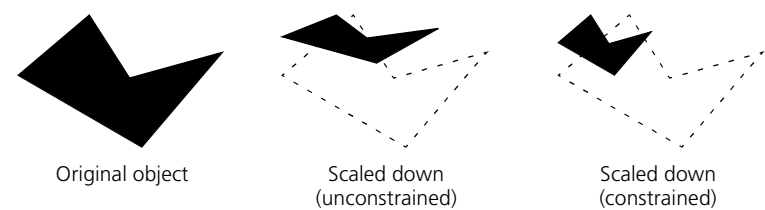


- In the Anchor Point box of the Transform property editor, enter 0 in the X, Y, and Z boxes.



Scaling Objects

Although you can draw an object at a specific size, you can still make the object larger or smaller by scaling it. You can scale an object either independent of or constrained to its original aspect ratio. Also, you can scale an object relative to the opposite bounding box handle or to its anchor point. For more information, see *Adjusting the Anchor Point* on page 381.



To scale an object



1. Using the Edit tool, select an object.
2. To scale the object, do one of the following:
 - Drag one of the bounding box handles.
The object scales relative to the bounding box handle on the opposite side or corner of the object's bounding box.
 - To constrain scaling to the object's aspect ratio, press Shift and drag one of the object's bounding box handles.
 - To constrain scaling relative to an object's anchor point, hold down the Shift+Ctrl keys and drag one of the object's bounding box handles—see *Adjusting the Anchor Point* on page 381.
 - To scale an object in all directions, press Ctrl and drag one of the object's bounding box corner handles.

Resizing Objects

Text boxes and groups are objects that have width, height, and depth dimensions. You can resize an object to any dimensions or fit it exactly around its contents' bounding box. Unlike scaling an object, which scales the contents, resizing an object does not affect the size of its contents.

To resize a text box



1. Using the Edit tool, select an object.
2. Hold down the Alt key and drag one of the object's bounding box handles.

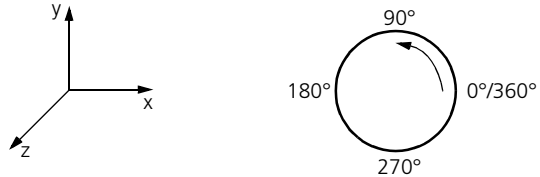


When resizing a text box, the bounding box changes size, but its contents do not.



Rotating Objects

Rotation occurs in three-dimensional space around the X, Y, and Z axes. Angles of rotation increase in the counterclockwise direction around an axis, whereas they decrease going clockwise. Rotation adjustments are applied to objects in the following order: X, Y, and then Z.



To rotate an object



1. Using the Edit tool, select an object.
2. From the Tools toolbar, click the Rotate icon.

A *rotation sphere* appears around the selected object.

3. Use the controls on the sphere to adjust the anchor point—see *Adjusting the Anchor Point* on page 381.



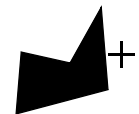
Default rotation
anchor point



Object rotated
45 degrees



Rotation anchor point
moved off center



Object rotated 45
degrees

4. Rotate the object by doing one of the following:
 - To rotate around a single axis, drag the circle on the rotation sphere corresponding to the axis.
 - To constrain rotations to 15-degree increments, hold down the Shift key and drag an axis circle.

To reset the rotation of a selected object



1. In the Rotation box of the Transform property editor, enter 0 in the X, Y, and Z boxes.



2. Using the Rotate tool, select an object, right-click and choose **Reset Rotation** from the menu.



Renaming Objects

Each object has a name and optional comment you can assign to it. The layers in the 3D DVE Layers view display these object names. Using unique names will help you differentiate similar objects in a scene, and using comments will remind you of information about an object, such as its purpose in the scene.

To change the name of an object

1. Select an object in the 3D DVE Layers view or use the Edit tool to select an object in the viewer.
2. Do one of the following:



- From the Info property editor, enter a new name in the **Name** text box.
- In the 3D DVE Layers view, right-click and choose **Rename** from the menu, and then enter a new name.

To add a comment to an object



1. Using the Edit tool, select an object.
2. From the Info property editor, enter a description in the **Comment** text box.



Click the Help icon for detailed information on the Info properties.

Setting the Time Span

The time span defines the duration of 3D DVE objects. By default, the time span is from the start of the 3D DVE session to the end. You can make an object appear on one frame only, from the current frame to the end of the session, from the beginning of the session to the end, or from the first frame to the current frame. You can also set custom time spans for specific objects.

In the Time Span property editor, the timecode refers to the 3D DVE session time. That is, 00:00:00:00 is the beginning of the 3D DVE session regardless of its position on the timeline.

To define the time span

1. Select an object from the viewer or 3D DVE Layers view.

The corresponding bar in the 3D DVE Object View (3D OV) turns yellow.



2. In the Time Span property editor, specify the duration by clicking one of the following:

- **This Frame Only** to make the time span one frame.
- **This Frame to End** to make the time span start at the current frame and end at the last frame of the 3D DVE session.
- **Start to End** to make the time span start at the first frame and end at the last frame of the 3D DVE session.
- **Start to this Frame** to make the time span start at the first frame and end at the current frame of the 3D DVE session.

3. To specify a custom time span, use the In, Out, and Duration timecode boxes. All values must be expressed in SMPTE timecode.



While you're editing the time span of a selected object, you can select the **Lock** option to lock the duration.



Click the Help icon for detailed information on the Time Span properties.





Working with 3D DVEs

A 3D DVE is an object whose appearance you can deform based on an effect or image you apply to it. Some examples of DVEs are spheres, page curls, and ripples. For some DVEs, you can simulate a displaced surface by applying a grayscale texture known as a *displacement map*.

What’s the difference between using a 3D DVE and a simple rectangle? You can extrude rectangles, but not the DVE and you can apply effects to a DVE, such as displacement maps.

You can modify DVE objects like other objects, with the following exceptions:

- Editing using the Shape tool
- Profile effects
- Extrusion
- Wireframe rendering
- Converting to a path
- Combining with other shapes or DVE objects

Creating DVEs

When you want to include a DVE in a scene, you need to create a DVE object. You can create multiple DVEs within a scene, as well as delete DVEs that you no longer need. DVE objects have properties common to all DVE types, as well as properties specific to the effect you’re using.

To create a DVE



1. From the Tools toolbar, click the Add DVE Node icon.

A rectangle appears within the current layer and covers the entire scene.

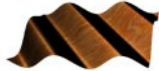
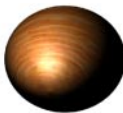


2. Using the Edit tool, select the DVE object.



3. To change the effect, open the DVE property editor and select an effect from the Effect list. Here are some examples:

Effect	Default	Examples
Border		 Size: 2.50 Softness: 0.00 Color: Black Size: 10.00 Softness: 50.00 Color: Brown
Default		

Effect	Default	Examples		
Page Curl				
		Radius: 0.10 Angle: 0.00 Curl time: 40.00	Radius: 0.25 Angle: 30.00 Curl time: 45.00	Radius: 0.02 Angle: -75.00 Curl time: 30.00
Ripple				
		Amplitude: 0.10 Angle: 0.00 Ripple time: 0.00 Frequency: 1.00	Amplitude: 0.10 Angle: 0.00 Ripple time: 0.45 Frequency: 1.00	Amplitude: 0.15 Angle: 30.00 Ripple time: 0.45 Frequency: 2.50
Sphere				
		Angle: 120.00 Distortion: 0.00	Angle: 360.00 Distortion: 0.00	Angle: 360.00 Distortion: -40.00
				
		Angle: 360.00 Distortion: 100.00	Angle: -180.00 Distortion: 100.00	Angle: -360.00 Distortion: -100.00

A list of effect-specific properties appears in the Options box next to the Effect list.



Click the Help icon for detailed information on the DVE properties.

To delete a DVE

1. Using the Edit tool, select a DVE object.
2. Press Delete.

Simulating a Textured Surface Using a Displacement Map

In addition to the deformation of an object produced by a DVE, you can also use a texture to define convex and concave areas on its surface. The luminance values of the color in the texture (the alpha channel is ignored) define the convex (raised) and concave (lowered) areas on the surface.



A displacement map cannot be used on the Border DVE.

To use a displacement map on a DVE

1. Select a DVE object.
2. From the Surfaces property editor, select the **Enable Lighting** option for the Main surface.
3. From the DVE property editor, adjust the following controls in the Displacement box:
 - **Texture** to select an image whose grayscale version defines the contour on the surface.
 - **Scale** to set the magnitude of the displacement.
 - **Offset** to set the grayscale level in the texture that represents no displacement of the surface.
 - **Softness** to adjust the smoothness of the surface. You can soften a displacement map to hide irregularities in grayscale levels in the texture.
4. To adjust the detail of the DVE's appearance, adjust the X and Y values in the Detail box. Lower values produce a less accurate appearance, but rendering is faster and vice versa. For displacement maps, increase the detail of the DVE object.



Click the Help icon for detailed information on the DVE properties.

To remove a displacement map from a DVE

1. Select a DVE object.
2. From the DVE property editor, select **Default** from the Texture list.

Applying Profile Effects

The outline of characters or shapes is known as its *profile*. You can set the profile to one of the predefined profile effects, such as Bevel, Ridge, or Tube, in one of three thicknesses.

To apply a profile effect to objects



1. Using the Edit tool, select the objects.
2. From the Effect property editor, select a profile from the **Profile** list.



An object that uses a profile effect will not have antialiased edges in the viewer. To view antialiased edges, render a preview on screen or output to disk.

For a glow effect, use a colored shadow. For more information, see *Using Shadows to Simulate Glows* on page 442.



Profile		Profile		Profile	
Bevel		Border		Box	
Chisel		Default		Emboss	
Frame		Ridge Inset		Ridge	
Round		Tube			



Click the Help icon for detailed information on the Effect properties.

Extruding an Object

By default, new objects are two dimensional. You can change the depth or thickness of an object by extruding it. The extruded surface can use its own material.

To extrude an object



1. Using the Edit tool, select an object.



2. From the Effect property editor, adjust the **Extrude Depth** value.



For objects that have a profile, adjusting the extrude depth does not affect the profile.



Click the Help icon for detailed information on the Effect properties.



Blurring Moving Objects

In real life, an object that moves quickly appears blurred. Imagine a camera taking a picture of the moving object. The object in the picture appears blurred because the object moved during the short time that the camera's shutter was open. If the shutter was open for a shorter time, the object would appear sharper.

To apply motion blur

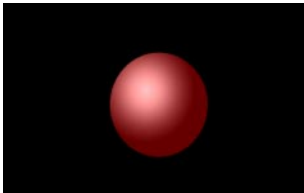


1. From the 3D DVE/Options property editor, select the **Output** property page.
2. Select the **Enable Motion Blur** option.
3. Adjust the **Exposure** value. The blurriness of a moving object depends on how long the camera's shutter is open. The longer the shutter is open, the blurrier the object appears, and vice versa. The exposure time, measured in seconds, represents the duration that the shutter is open.

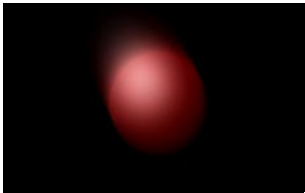


Motion blur is a very time-intensive effect, especially when you use a long exposure time.

4. If desired, change the quality of the blurred motion by adjusting the **Custom Quality** parameters.



Motion blur (deselected)



Motion blur (selected)

The motion blur effect applies to all objects in the 3D DVE session, over the duration of the session. Also, if the object changes materials, such as its color or visibility over its duration, these changes will appear faded or smoothed out as a result of the motion blur effect.



Although you can set a maximum quality for blurred objects, objects that move very fast will not simulate blurred motion as well as slower moving objects. You may need to experiment with exposure time and quality settings to get the desired results.

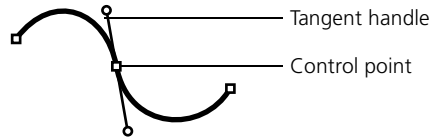


Click the Help icon for detailed information on the Output properties.



Working with Graphics

A graphics object is made up of control points and tangent handles that define a shape. The portion of a shape between control points is called a *segment*. You can modify the shape of an object at any time.



Creating Graphics

You can use the following tools to create shapes: Rectangle, Ellipse, and Shape. When you create new shapes, they become the frontmost objects in the scene.



You cannot create a shape if a shape is currently selected.

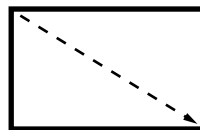
Creating Squares and Rectangles

The Rectangle tool lets you create square and rectangular shapes. For example, you can use this tool to create the basis for a textured backdrop or gradient fill onto which you add text objects.

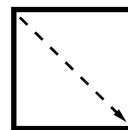
To create a rectangle or square shape



1. Click the Rectangle tool in the Tools toolbar.
2. Do one of the following:
 - To create a rectangular shape, drag diagonally from left to right.
 - To create a square shape, hold down the Shift key and drag diagonally from left to right.



Rectangle



Square



- To create a rectangular or square shape from the center, hold down the Ctrl key and drag (rectangle), or hold down the Ctrl+Shift keys and drag (square) from the intended center of the shape.



Rectangle



Square

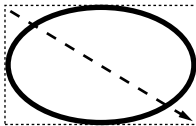
Creating Circles and Ovals

The Ellipse tool lets you create circular and elliptical (oval) shapes.

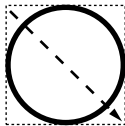
To create an ellipse or circle shape



1. Click the Ellipse tool in the Tools toolbar.
2. Do one of the following:
 - To create an ellipse, drag diagonally from left to right.
 - To create a circle shape, hold down the Shift key and drag diagonally from left to right.



Ellipse



Circle

- To create an ellipse or circle from the center, hold down the Ctrl key and drag (ellipse), or hold down the Ctrl+Shift keys and drag (circle) from the intended center of the bounding box.



Ellipse



Circle



Creating Polylines and Curved Shapes

The Shape tool lets you create polyline shapes, such as polygons and curves.

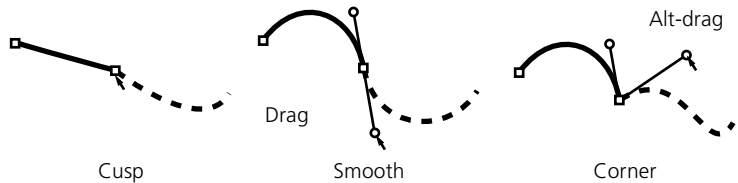
To create a freehand shape with the Shape tool



1. Click the Shape tool in the Tools toolbar.
2. Do one of the following:
 - To create a polyline shape, click at the location where you want to place the starting control point.
 - To start a curved shape, drag from the location of the starting point in the direction you want the curve to point.



3. Place subsequent control points, as follows:
 - To create a straight-line segment, click at the location for the next control point.
 - To create a curved-line segment with a smooth point, drag from the location of the next control point.
 - To create a curved-line segment with a corner (angular) point, drag from the location of the next control point. Then, hold down the Alt key and drag the tangent handle.



4. To create a closed shape, click the first control point you created.
5. To create an open shape, do one of the following:
 - Press Esc.
 - Click the right mouse button.
 - Click a different tool.

Closed shapes are filled with the default main material. Open shapes cannot be filled.

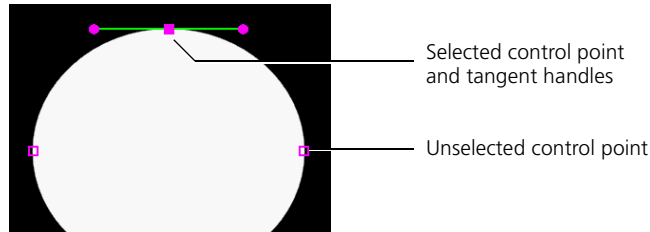


Editing Shapes and Paths

For shapes and paths, you can modify the actual Bézier points and curves that define the form of the shape.

Selecting and Deselecting Control Points

For many shape-editing operations, you must select a control point first. You can select multiple control points to adjust them at the same time, or deselect control points that you do not want to modify. You cannot select control points on multiple shapes at the same time.



To select a control point



- Using the Shape tool, click a control point.

To select multiple control points



1. Using the Shape tool, select a shape.
2. Do one of the following:
 - Hold down the Shift key and click the control points.
 - Drag to select the control points.

To select all control points on a shape

1. Select a shape.
2. Right-click on the shape and choose **Select All Points** from the menu.

To deselect all control points

- Do one of the following:
 - Click away from a shape.
 - Right-click on the shape and choose **Deselect All Points** from the menu.



Editing a Shape

The location of control points and curvature near control points determine the form of a shape. You can add, delete, and move control points, as well as adjust a control point's tangent handles to change a shape's form.



You can modify all selected control points if the pointer is not above a control point at the time you choose the command. Simply right-click on the shape and choose a command from the menu. Not all commands apply to multiple control points.

To add a control point

- Do one of the following:
 - Hold down the Alt key and click along a shape's outline.
 - Move the pointer above the area of a shape to add a control point, right-click and choose **Insert Point** from the menu.

To delete a control point

- Do one of the following:
 - Select a control point and press Delete.
 - Move the pointer above a control point, right-click and choose **Delete Points** from the menu.

To move a control point

- Drag the control point to a new location.

To move a control point on a rotated object

- Hold down the Shift key and drag the control point. The direction in which you begin dragging becomes the constrained axis of movement.

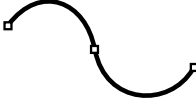
To move a control point horizontally or vertically

- Hold down the Ctrl+Shift keys and drag the control point. The direction in which you begin dragging becomes the constrained axis of movement.

To change the curvature of a shape near a control point

- Right-click on a shape and choose a command from the menu.
- Hold down the Ctrl or Alt key and drag a tangent handle. This affects the control point under the pointer. The following table describes the various operations you can perform on control points.



To make a	Do the following
Cusp point 	With the pointer above a control point, right-click and choose Make Cusp Points from the menu.
Smooth point 	Press Ctrl and drag a tangent handle away from a control point or, with the pointer above a control point, right-click and choose Make Smooth Points from the menu.
Corner point 	Press Alt and drag a tangent handle away from a control point.

To extend the length of a single tangent handle

- Hold down the Shift key and drag the tangent handle.

The length of the tangent handle is extended and its orientation does not change.

Opening and Closing Shapes

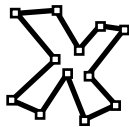
Another way to edit the form of shapes is to open, split, close, or connect them.



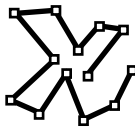
To thicken an open shape, use a Frame, Round, or Tube profile effect.

To open a closed shape or split an open shape in two

- Position the pointer above the control point at which you want to open or split the shape, right-click and choose **Break Point** from the menu.

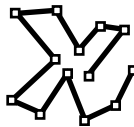


Before

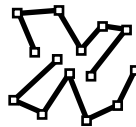


After

Opening a closed shape



Before



After

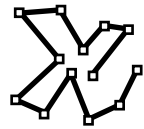
Splitting an open shape in two

The fill of a closed shape is lost when the shape is opened. Also, if you split an open path in two, the text on the path moves to one of the new paths.

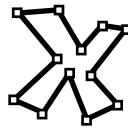


To close an open shape or connect two open shapes

- Drag an end point onto another end point on the same shape (to close a shape) or onto another shape (to connect the shapes).

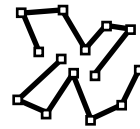


Before

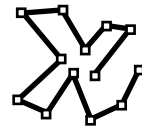


After

Closing an open shape



Before



After

Connecting two open shapes as one

Filling Shapes

You can control the appearance of the interior of closed shapes by specifying whether the shape is filled or not.



Only closed shapes can be filled.

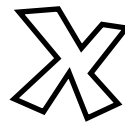
When you close an open shape that was not filled, the closed shape is not automatically filled.

To fill a shape

- Right-click on the edge of a shape, and select or deselect **Fill Curve** from the menu.



Filled



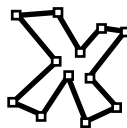
Not filled

Removing Segments

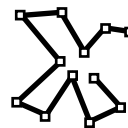
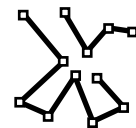
Another way to open a shape or split a shape in two is to remove a segment from the shape.

To remove a segment from a shape

- With the pointer above a segment, right-click and choose **Delete Segment** from the menu.



Before

After removing a
segmentAfter removing a
second segment



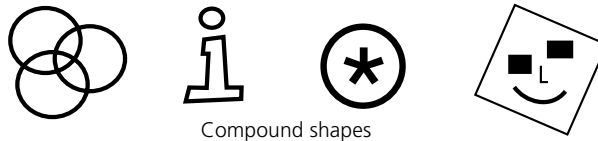
Working with Compound Shapes

If you remove a segment from a closed path, the text on the path adjusts to the new length of the path. If you remove a segment from an open path (splitting the path in two), the text on the path moves to one of the paths.



If a shape has only one segment, such as a line, removing the segment produces two single-point shapes.

You can combine multiple shapes into a single compound shape to create interesting effects. A compound shape is a single object composed of multiple, individually editable shapes. For example, if you want to create a custom version of a letter, such as a stylized letter A for a company logo, you can define the various pieces of the letter and determine how they're combined.

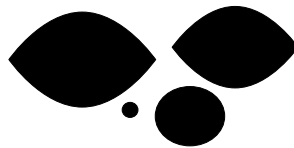


Compound shapes

Compound shapes are not the same as a group of shapes. All the shapes within a compound shape exist at the same Z position in three-dimensional space. Also, the entire compound shape uses the same surface materials. You cannot modify the material of each shape within the compound shape.

Creating and Separating Compound Shapes

You can combine shapes into a compound shape, make a copy of a shape that is part of a compound shape, and separate all the shapes within a compound shape.



Before combining shapes



After combining and repositioning shapes

To create a compound shape

1. Select the shapes. The properties of the last shape you select will be used for the combined shape.
2. From the Commands toolbar, click **Combine Shapes**.

By default, a shape within another shape inverts or “cuts out” the outer shape. If you select a path to combine with other shapes, the text on the path is removed.



To copy a shape that is part of a compound shape

- With the pointer above a shape, right-click and choose **Copy As Shape** from the menu.

The copied shape appears above the original shape.



Any transformations (translation, scaling, and rotation) or animation applied to the compound shape will not be applied to the copied shape.

To separate a compound shape into its individual shapes

1. Select a compound shape.
2. From the Commands toolbar, click **Separate Shapes**.

The properties of the separated shapes will be the same as those of the original compound shape. However, material properties, such as how a texture is applied to the object, may be altered.

Combining Shapes Within a Compound Shape

The way you drew the shapes within a compound shape can affect the appearance of the compound shape. When the shapes of a compound shape do not overlap each other, both shapes appear in the compound shape. However, when shapes of a compound shape overlap, the inner shape “cuts out” or subtracts from the outer shape. However, you can add the overlapping shape to the compound shape instead of subtracting from it.

To control how one shape affects another within a compound shape

- With the pointer above a shape, right-click and choose **Combine Mode** from the menu and one of the following:
 - **Subtract** to remove the area where the shapes overlap.
 - **Add** to fill in the area where the shapes overlap.

Reversing the Direction of a Shape

Control points on a shape are numbered sequentially, starting at the first control point on the shape. The route, through sequentially numbered control points, determines the shape’s direction. This direction controls how the shape is drawn when it’s part of a compound shape, how the profile of the shape is drawn, and how the text on a path is laid out. You can change the default direction for a shape or path.

To reverse the direction of a shape or path

- With the pointer above a shape or path, right-click and choose **Reverse Direction** from the menu.



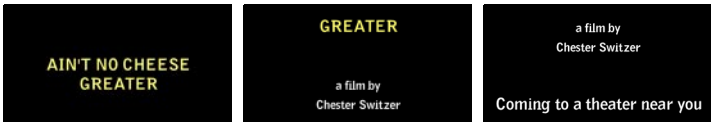
Working with Text

A *text object* contains characters and appears as a text body. There are four types of text objects: static, rolling, crawling, and path text.

Each type of text object can be stationary (static) or have motion over time. You can also control whether the text moves outside the dimensions of the text body. For more information, see *Controlling Rolling, Crawling, and Path Text* on page 416.

- **Static text** does not move (scroll) within its text body. The text can still move around if you manually move each character. Static text is the default text object.
- **Rolling text** moves vertically within a text object over its duration, starting and ending with no text visible, such as the list of credits that usually appear at the end of television movies and feature films.

You can create rolling text that moves up and down within a text body. If you enter more text than can fit on one line, the extra words and characters appear on a new line. The lines of text word wrap.



- **Crawling text** is a single line of text that moves horizontally, usually from right to left. A stock price ticker or weather warning messages along the bottom of a television screen are common types of crawling text that you see on television or websites.



- **Path text** (or text along a path) is a single line of text that fits to or moves along a straight or curved path, such as letters that follow the contour of a car or words that seem to float in the sky. You can create path text that moves along the path or is fixed on it.





Creating a Text Object

When you want to add text, you create a *text object*, a box into which you type the text or import an ASCII text file. The box can either expand to fit the text you type or remain a fixed size into which the text word-wraps to fill it. By default, text does not animate (roll or crawl). For more information, see *Creating Rolling or Crawling Text* on page 416.

To create a text object

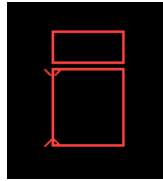


1. Using the Text tool, do one of the following:

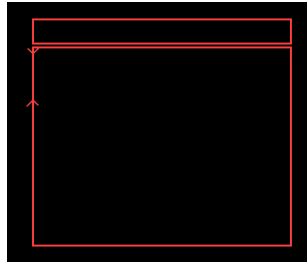
- Click on the viewer. If the text cursor is active in an existing text object, click away from the text object.



You cannot create a new text object while you're editing the text in an existing text object.



- Drag on the viewer to define a text body.



The *cursor* or *insertion point* (a vertical bar) appears in the upper-left corner of the text body.

2. Type in some text.

By default, text aligns along the left edge of the text body and uses the current text properties in the Text property editor. For more information, see *Aligning Text into Columns* on page 408.

The new text object becomes the frontmost object in the scene. Clicking outside the text body or clicking another tool finishes the creation of the text object and allows you to modify the text object or the characters within it.



Using Special or Unicode Characters



To enter text along a path

- 1. Create a path—see *Creating and Deleting a Path* on page 419.
- 2. Using the Text tool, click on the path and type in some text.

You can type a special (extended) character, such as a copyright symbol (©) or any Unicode character into a text body if the font supports the actual character. TrueType fonts work better than Type 1 fonts.

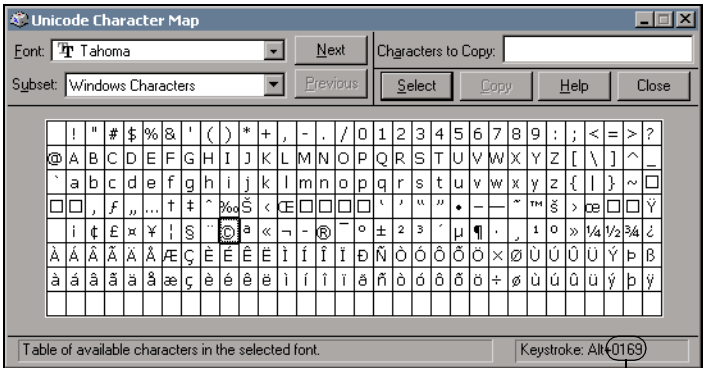
Determining a Character’s Unicode Value

Before you can enter special or Unicode characters, you must determine their value. For example, the registered trademark symbol (®) has a Unicode value of 00AE. You can look up the value in the Character Map utility in Windows.

To determine the Unicode value using the Character Map utility

- 1. On the Windows desktop, click **Start** and choose **Programs > Accessories > Character Map**.

The Unicode Character Map window is displayed.



Unicode value

- 2. From the Font list, select the font that you intend to use in Avid|DS.
- 3. From the Subset list, select **Windows Characters**.
- 4. Click the character you want to use.

The Unicode value appears in the lower-right corner of the Unicode Character Map window. Use this four-character value in Avid|DS.



Entering Special and Unicode Characters

Once you know the special or Unicode value of the character that you want to enter, you can enter it in a text body in Avid|DS. The hexadecimal Unicode value is used to identify special or Unicode characters; this value appears in the Info property editor.

To enter a Unicode value

1. Click in a text body.
2. Hold down the Alt key and type the value on the numeric keypad. For example, the registered trademark (®) symbol in the Times New Roman font uses the Alt+0174 key sequence.
3. Release the Alt key.

The special or Unicode character appears in the text body and its hexadecimal value appears in the Info property editor.

Importing Text

You can import text from an ASCII text file. For example, you can import a previously created text file containing the names in a credit roll.



Only the first 6,000 characters of a text file are imported. Also, if the text file contains binary characters, only the text up to the first binary character is imported.

To import text

1. Create a text body or place the cursor in an existing text body.
If a text body is not currently active, the imported text appears in a new text body that is half the width and height of the current text body.
2. From the Commands toolbar, click **Import Text**.
3. In the Import Text dialog box, select the ASCII text file to import.
The text in the selected text file appears in the current text body, using the current object properties.

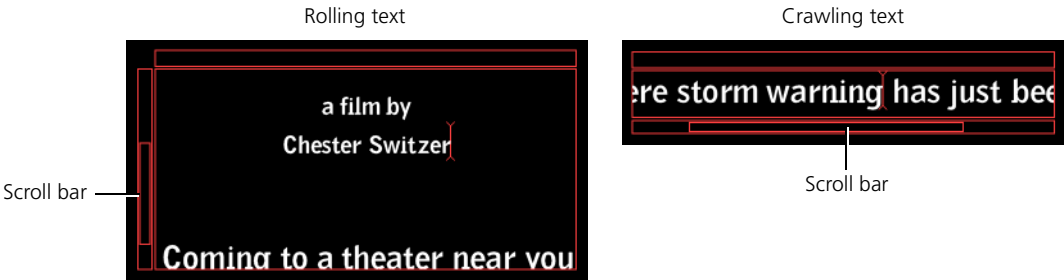
Text Overflow

When a text object contains more characters than can appear at one time, the text object appears differently when the cursor is active in the text object.

When the insertion point is in a text object, a scroll bar appears along the left edge (for rolling text) or bottom edge (for crawling text) of the text object. The scroll bar allows you to view and edit any part of the text in the text object. A scroll bar does not appear for path text.

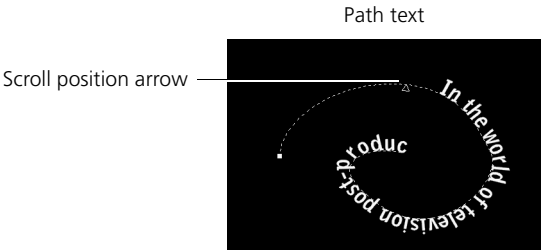
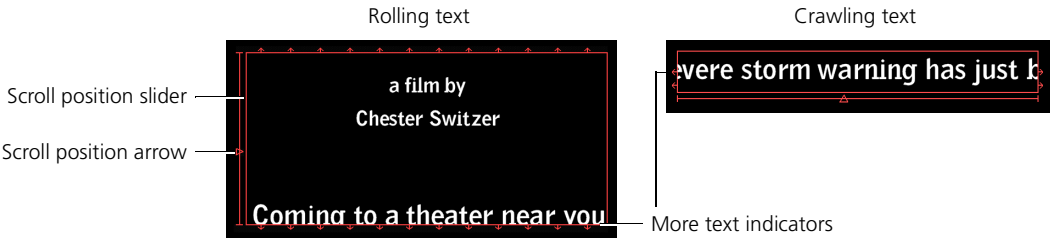


If you're currently editing text, press Esc to adjust the scroll bar.



When the cursor is not in a text object, a scroll bar appears along the left edge (for rolling text) or along the bottom edge (for crawling text and path text) of text objects. The scroll position arrow controls the section of text that is visible at the current point in time, letting you create rolling or crawling text. Also, for rolling and crawling text, small arrows appear along the sides of the text object as you drag the scroll position arrow.

The scroll bar appears when you're editing text, whereas the scroll position slider appears when you're animating the section of text visible over time.



To edit the scroll position property of a text body, select the text body with the Edit tool and adjust the Scroll Position control in the Text property editor.

For more information, see *Controlling Rolling, Crawling, and Path Text* on page 416.



Placing the Insertion Point

To specify the location where you want to type new text in a text object, place the insertion point (displayed as a vertical bar) at the desired location in the block of text. The following table describes the different ways that you can move the insertion point within the text.

To move to	Press this key
Previous character	Left Arrow
Next character	Right Arrow
Previous line	Up Arrow
Next line	Down Arrow

Resizing a Text Object

If you resize a text object, you can reformat the text by:

- Scaling the text along with the text object or
- Resizing the text object only, keeping the font size(s) of the text the same.

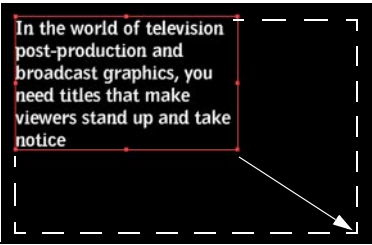


This is not available for text on a path.

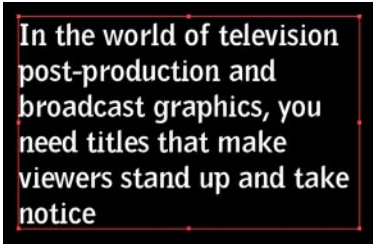
To scale the text as you resize the text object



1. Using the Edit tool, select a text object.
2. Drag one of the object's bounding box handles.



Before

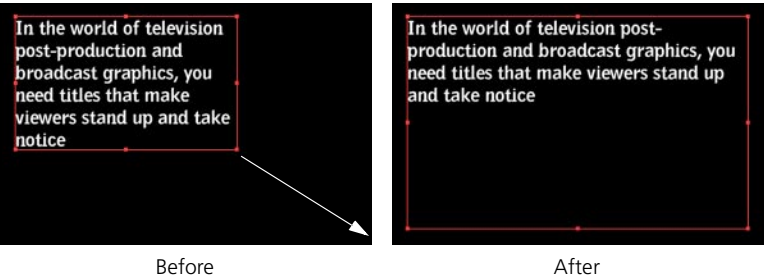


After

To resize the text object but not the text within it



1. Using the Edit tool, select a text object.
2. Hold down the Alt key and drag one of the object's bounding box handles.



The text within the text object reformats to the new dimensions. For rolling text, the text wraps to fit the text object. For crawling text, you see more or less of the text.

Selecting and Deselecting Text

Before you can modify a block of text (change its font, size, style, or other attribute), you must select the text. You can select text directly in the viewer or in the 3D DVE Layers view if the text is difficult to edit because it's rotated or not visible.

To select a block of text

- Do one of the following:
 - Drag across a block of text.
 - With the insertion point at one end of a text block, hold down the Shift key and click at the other end of the text block.



The selected text is highlighted in pink.

To select all the text in a text object



- With the cursor in a text object, click the Select All icon in the 3D DVE Layers toolbar.

To select individual letters



- Using the Edit tool, hold down the Alt key and click a letter at the same time. Now release the Alt key and you can still continue selecting individual letters.



To select multiple letters



- Using the Edit tool, hold down the Shift key and click the letters you want to select.

A red bounding box surrounds the selected letter(s), which you can now edit individually. They are, however, still part of the text object.



Multiple selected letters

To deselect selected text

- Do one of the following:
 - Click anywhere in a text object.
 - From the 3D DVE Layers toolbar, click the Deselect All icon.



Editing Text

You can use common cut, copy, or paste operations on text.

To cut, copy, or paste text

1. From the viewer, select some text.
2. From the Edit menu, choose:
 - Cut or press Ctrl+X to cut the text.
 - Copy or press Ctrl+C to copy the text.
 - Paste or press Ctrl+V to paste the text.

Formatting Text

You can format blocks and columns of text, such as changing the font, font size, as well as adjust column width and alignment.

Changing Fonts and Font Sizes

Traditionally, a font is a specific typeface (type family) at a specific font size (height), and with specific font styles (visual enhancements). In Avid|DS, a font is defined as a specific typeface. The size and styles are specified separately.



Sample fonts and font sizes



To change the font and font size of text



1. Using the Text tool, select a block of text.
2. From the Text property editor, select a font from the Font list.



To try different fonts, display the font list and press the up and down arrow keys on the keyboard.

3. Set the Size value.

You can also change the font size of the text in a text object by scaling the text object itself using the Edit tool—see *Scaling Objects* on page 382.



Click the Help icon for detailed information on the Text properties.

Changing the Direction of Text

As you type new characters into a text object, the text cursor moves from left to right by default. You can switch the direction if you're typing in a language that is read from right to left, such as Hebrew. You can switch the direction of a text object at any time.

To change the direction of text in a text object



- Using the Text tool, right-click in a text object, and choose **Direction** and one of the following:
 - **Left-to-Right** to add each new character to the right of the previous character. This is the default direction.
 - **Right-to-Left** to add each new character to the left of the previous character.



The text in a text object that uses the Right-to-Left direction does not automatically switch to right-aligned text.

Aligning Text into Columns

By default, a text object contains a single column of left-aligned text. You can create columns of text, change the width and alignment of text within a column, and remove columns. Columns are useful for tabular information or to save vertical space, such as when using a three-column layout for names in a credit roll. The text within each column should fit within the width of the column.



You cannot animate the number of columns, the width of columns, or the alignment of text within columns over the duration of a text object.

Text alignment does not work for crawling text, including text crawling along a path. However, you can align static text on a path.



Adding a Column

You can add a column to a text body to break a line of text into two separate sections, each of which can have its own text alignment. For example, you can use a two-column layout for ending credits, where the actresses's name is right-aligned in the first column and the character she portrays is left-aligned in the second column.



Before



After adding a column
and typing text into it

To add a column



1. Using the Text tool, place the insertion point in the paragraph that contains the column.



2. From the Paragraph property editor, select the row that corresponds to the column. Each column defined in the current paragraph of the text body appears as a row of the following values:



- **Left:** The left edge of the column.
- **Right:** The right edge of the column.



- **Alignment:** The alignment of the text within the column.

The Left and Right values are numbers between 0 (left edge of the text body) and 100 (right edge). The distance between the Left and Right values defines the width of a column.

3. Select the **Update All Selected Paragraphs** option to apply changes to selected paragraphs only.
4. Click **Add**. You can create up to ten columns in a paragraph.
The existing column's width is split in half.
5. Repeat steps 3 and 4 for each new column that you add.
6. To type in the next column, press Tab. Tab characters are interpreted as a jump to the next column in a paragraph.



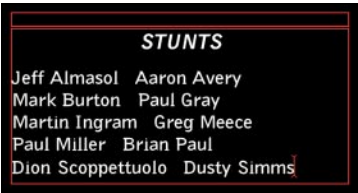
Click the Help icon for detailed information on the Paragraph properties.

Removing a Column

You can remove a column when you no longer need to separate the text alignment for sections of text.



Before (two columns)



After removing the right column and resizing one column to its full width

To remove a column



1. Using the Text tool, place the insertion point in a text body.
2. From the Paragraph property editor, select the entry that corresponds to the column you want to remove.



You cannot remove the last column of text. Each text object must contain at least one column.

3. Click **Remove**.
4. If you want the remaining columns to occupy the space left by the removed column, adjust their widths.



The remaining columns do not automatically widen to occupy the space left by the removed column. For more information, see *Changing a Column's Width* on page 411.



The text in the removed column moves to the previous column, separated from the previous column's contents by a space. If you remove the first column, the text moves to the next column.

If you change from two columns to one column, the text word-wraps. However, if you start with three or more columns, the text does not word-wrap.



Click the Help icon for detailed information on the Paragraph properties.

Changing a Column's Width

You can change the width of a column to adjust the positioning of text within the column. You can adjust the position of adjacent columns by creating a gap, called a *gutter*, between them. If you're using justified or equally spaced columns, gutters are important to help differentiate the contents in each column. By default, there is no gap between columns.

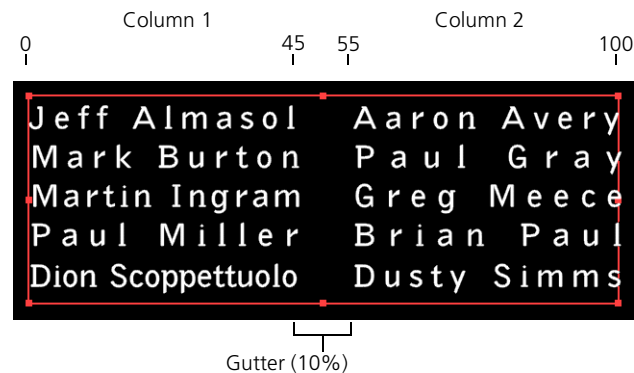
To change the width of a column



1. Using the Text tool, place the insertion point in the paragraph that contains the column.
2. From the Paragraph property editor, select the row that corresponds to the column whose width you want to change.
3. To change the left edge of a column, click the **Left** column value, and then change the value in the text body. Press Enter.



The width of a column is relative to the width of the column's text body, where 0 is the left edge of the text body and 100 is the right edge. Columns cannot overlap.





4. To change the right edge of a column, click the **Right** column value, and then change the value in the text body. Press Enter.

The text in the current column adjusts to the new column width, but long lines of text do not word wrap.

By changing the left and right sides of adjacent columns, you change the gutter between the columns.



Click the Help icon for detailed information on the Paragraph properties.

Setting All Columns to the Same Width

Balancing the columns is another way to adjust the positioning of text in multiple columns, so that they use the same width for all the columns on a line. You can also adjust columns after removing a column to make the widths of each column the same.

To set all the columns in a paragraph to the same width



1. Using the Text tool, place the insertion point in the paragraph that contains the column.



2. From the Paragraph property editor, click **Balance**.



Click the Help icon for detailed information on the Paragraph properties.



Changing a Column's Text Alignment

You can change the alignment or positioning of text within a column to make the text more readable or to produce a specific type of effect, such as text that is right-aligned and next to the left edge of a graphic in a scene.

Each column of text can be aligned to either the left or right sides of the column, centered within the column, or aligned to both sides of the column, with extra spacing added either between words or characters.

To change the text alignment in a column



1. Using the Text tool, place the insertion point in a text body.
2. Do one of the following:
 - From the Align toolbar, click a text alignment icon.
 - Right-click in the column of text, choose **Align** and one of the following from the menu: Left, Center, Right, Justify, or Equally Space.

The text in the selected column uses the selected alignment.

In the world of television post-production and broadcast graphics, you need titles that make viewers stand up and take notice

Left

In the world of television post-production and broadcast graphics, you need titles that make viewers stand up and take notice

Center

In the world of television post-production and broadcast graphics, you need titles that make viewers stand up and take notice

Right

In the world of television post-production and broadcast graphics, you need titles that make viewers stand up and take notice

Justify

In the world of television post-production and broadcast graphics, you need titles that make viewers stand up and take notice

Equally Space



Adjusting the Kerning

Kerning or character spacing is the horizontal space between characters in a text object. When you adjust character spacing, you're adjusting the space after each selected character, except the last selected character on a line within a justified or equally spaced column. By default, characters are automatically kerned, based on the information in the character's font.



You can create text that expands from the center by using an unclipped text body with Equally Spaced justification and then adjusting the kerning.

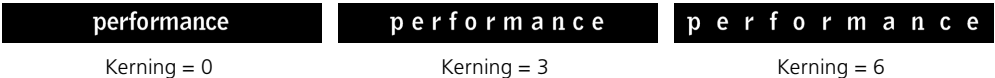
To adjust kerning



1. Using the Text tool, select a block of characters or place the cursor between two characters to adjust the kerning between them.



2. From the Text property editor, adjust the **Kerning** value.



Click the Help icon for detailed information on the Text properties.

Adjusting the Leading

Leading or line spacing is the vertical space between the lines of a word-wrapped paragraph. When you adjust the leading, you're adjusting the space after each selected line, except the last selected line in a paragraph.

To adjust leading



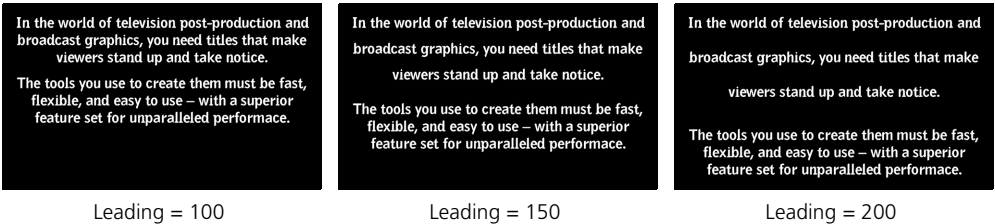
1. Using the Text tool, select or place the cursor in the lines of text you want to adjust.
2. From the Paragraph property editor, change the **Leading** value.



The leading changes in increments of 10 percent of the font size.



A common setting for leading is 120 percent of the font size (that is, the **Leading** value is set to 120).



Click the Help icon for detailed information on the Paragraph properties.



Adjusting the Paragraph Spacing

Paragraph spacing is the vertical space between the last line of one paragraph and the first line of the next paragraph. When you adjust paragraph spacing, you're adjusting the space after each selected paragraph.

In the world of television post-production and broadcast graphics, you need titles that make viewers stand up and take notice. The tools you use to create them must be fast, flexible, and easy to use – with a superior feature set for unparalleled performance.	In the world of television post-production and broadcast graphics, you need titles that make viewers stand up and take notice. The tools you use to create them must be fast, flexible, and easy to use – with a superior feature set for unparalleled performance.	In the world of television post-production and broadcast graphics, you need titles that make viewers stand up and take notice. The tools you use to create them must be fast, flexible, and easy to use – with a superior feature set for unparalleled performance.
Space after first paragraph = 50	Space after first paragraph = 100	Space after first paragraph = 200

To adjust paragraph spacing



1. Using the Text tool, either select or place the cursor in the paragraphs you want to adjust.



2. From the Paragraph property editor, change the **Space After** value.

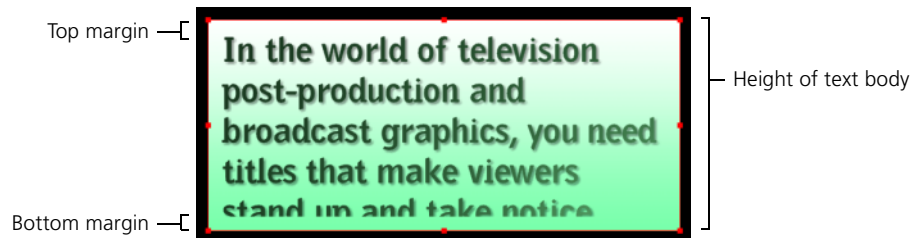
Paragraph spacing changes in increments of 10 percent of the font size.



Click the Help icon for detailed information on the Paragraph properties.

Adjusting the Text Margins

By default, the characters in a text body can appear anywhere within the text body's dimensions. However, if you're using a background material and want to offset the text from the sides of the text body and edge of the background material, increase the side's margin. You can specify a margin along the top and bottom of a text body and simulate a margin along the left and right sides by adjusting the text column settings.



To adjust the top and bottom margins of a text body



1. Using the Edit tool, select a text body.



2. From the Text property editor, adjust the **Top Margin** and **Bottom Margin** values. Adjusting the Top margin moves the text downward. Adjusting the Bottom margin (for rolling text only) crops the text from the bottom of the text body. The Bottom margin value has no effect on static and crawling text.



Click the Help icon for detailed information on the Text properties.



Controlling Rolling, Crawling, and Path Text



To simulate the left or right margin

- From the Paragraph property editor, do the following:
 - Adjust the **Left** value for the leftmost column in the text body.
 - Adjust the **Right** value for the rightmost column in the text body.

For more information, see *Changing a Column's Width* on page 411.



Click the Help icon for detailed information on the Paragraph properties.

For rolling, crawling, and path text, the text scrolls within the text object over time. The text in a text object is not visible at the start and end of a text object's duration. For example, you may see five lines of text roll by per second or 10 characters crawl by per second.

Creating Rolling or Crawling Text

Creating rolling, crawling, and path text is as simple as selecting an option from the Text pop-up menu. Path text is a variation of crawling text.

To make the text roll or crawl within the text object



1. Using the Text tool, right-click in the text body, and choose **Motion** and one of the following from the menu:
 - **Roll** to make the text roll.



The Roll option is not available for text on a path.

The text body's Scroll Position property is automatically set up for a rolling motion from the bottom to the top of the text body.

- **Crawl** to make the text crawl.

A crawling motion is created from right to left (for nonpath text) or from the start to the end of the path (for path text). You can change the speed and direction of the motion by adjusting the Scroll Position property or using the scroll position arrow. For more information, see *Controlling Crawling Speed and Direction* on page 417.

For nonpath text, a scroll position slider appears along the side of the text body. Along the slider is a scroll position arrow that controls the portion of the text visible at the current time.

If you change from Roll to Crawl, the text appears on a single line and word-wrapped lines or paragraphs are ignored but preserved. You may want to shorten the text body to fit the single line of text. If you change from Crawl to Roll, paragraphs are word-wrapped.



If you click the text object or click away from the text body and are at the start or end of the text body's duration, no text appears in the text boxes. This is because, by default, the text in rolling or crawling text bodies moves across the text body over its duration, starting and ending with the text just out of view.

Controlling Crawling Speed and Direction

For rolling and crawling text, you can adjust the speed and direction of the roll or crawl by using the Text property editor (the scroll position does not apply to static text) or the Text tool.

To adjust a text object's scroll speed and direction with the Edit tool



1. Using the Edit tool, select a text object.



2. From the Text property editor, adjust the **Scroll Position**.

Higher values move the text upward (for rolling text) or to the left (for crawling text). Lower values move the text downward or to the right.



Click the Help icon for detailed information on the Text properties.

To adjust a text object's scroll speed and direction with the Text tool



1. Using the Text tool, click in a text body.
2. Press Esc.

A scroll position slider and arrow appear for each text object.

3. Drag the scroll position arrow to specify the section of text visible in the text body at the current time.

The scroll position arrow's location in the slider represents the Scroll Position value in the Text property editor.



	Scroll position = 33	Scroll position = 50	Scroll position = 66
Rolling text			
Crawling text			
Path text			

Clipping Text

The characters in a rolling or crawling text body are, by default, visible only within the dimensions of the text body; characters (or portions of them) are clipped to these dimensions.

Turning off clipping allows characters to appear and move outside of the text body. Unclipped text is useful if you want characters to fly off the screen, or if the text has a shadow that you do not want clipped.



Text that moves along a path is always clipped between characters. The character either appears or does not appear; you will not see a partial character at the ends of a path.

Static text		
	Clipped	Unclipped
Rolling text		
	Clipped	Unclipped



Placing and Moving Text on a Path



To clip text to the dimensions of the text body

- Using the Text tool, right-click in the text body and choose **Clip to Text Box** from the menu.



Clipped rolling text boxes are not clipped on their left and right sides. Clipped crawling text boxes are not clipped on their top and bottom sides.

You can place text on and scroll text along straight or curved paths. A path is an object that uses a curved path as the baseline for text, which can crawl along the path. You create and edit paths using the shape drawing tools. Like other objects, you can move, scale, and rotate the path in three-dimensional space.

Creating and Deleting a Path

You can create a path from a shape, convert a path into a shape, and delete a path.



Closed paths are not filled. Also, paths are not drawn when you process the project.

To create a path

1. Draw a path using any of the shape drawing tools—see *Creating Graphics* on page 391.
2. From the Commands toolbar, click the Shape to Path icon.

The selected shape becomes a path. If you convert a compound shape, the first shape within the compound shape becomes the path.

A small square along the path indicates the start of the path and, for left-aligned text, the start of the first character.

To convert a path to a shape



1. Using the Edit tool, select a path.
2. From the Commands toolbar, click the Path to Shape icon.

To delete a path

1. Using the Edit tool, select a path.
2. Press Delete.

Any text that was on the path is deleted.



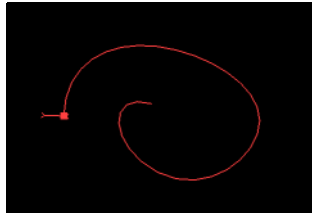
Adding Text to a Path

After you create a path, you can use the Text tool to add text to it.

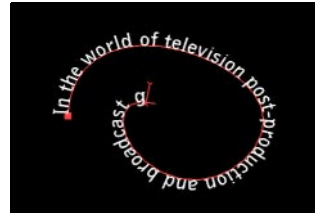
To add text to a path



1. Using the Text tool, click above a path.
The pointer changes to indicate that you can enter text on the path.
2. Type in your text.



Before typing text



After typing text

By default, text on a path is static and left aligned. That is, the text starts at the beginning of the path, but does not scroll along the path.

Removing Text from a Path

Like other text objects, you can remove sections of text from a path. You can also delete the path to remove both the path and the text on it.

To remove text from a path



- Using the Text tool, delete the text as you normally would for any text object.

The remaining text readjusts accordingly.



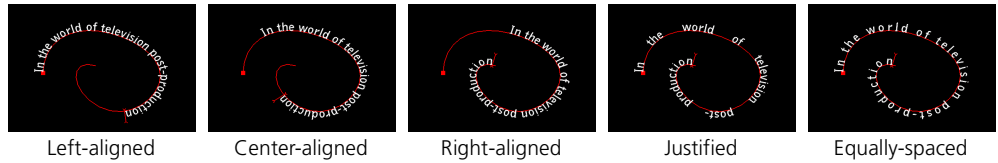
Deleting all the text on a path does not delete the path. The path is empty.

Positioning Text on a Path

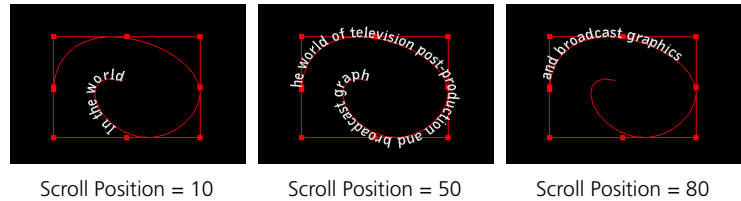
Like static and crawling text, you can adjust the position of text on a path. You can also reverse the direction of the text on the path and offset the text from the path.

To position text on a path

- If the text is static on the path, right-click on the path, and use the text alignment commands in the menu or buttons on the Align toolbar—see *Changing a Column's Text Alignment* on page 413.



- If the text scrolls along the path, adjust the Scroll Position value on the Text property editor—see *Controlling Crawling Speed and Direction* on page 417.



For rectangular paths, the start of the path is the upper-left corner. For elliptical paths, the start of the path is the top of the ellipse. For all other shapes, the start of the path is the first control point you created for the shape.

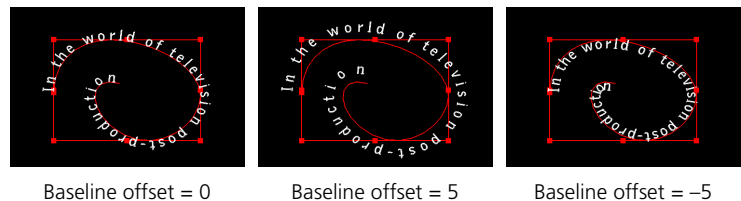
To reverse the motion of the text on a path

- Do one of the following:
 - From the Text property editor, adjust the **Scroll Position** value.
 - Right-click above the shape and choose **Reverse Direction** from the menu.

To offset the text from a path



1. Using the Edit tool, select a path. Make sure you do not select the text on the path.
2. From the Path property editor, adjust the **Baseline Offset** value. A value of zero means that the baseline of the text is exactly on the path. Values greater than zero shift the text above the path, whereas values less than zero push the text below the path.





Click the Help icon for detailed information on the Path properties.

Orienting Text on a Path

By default, characters point in the direction perpendicular to their location on a path. For example, if the text moves along a circular path, the characters point away from the center of the circle. If you prefer to keep the characters upright all the time, adjust the path's orientation.

To adjust the orientation of the text on a path

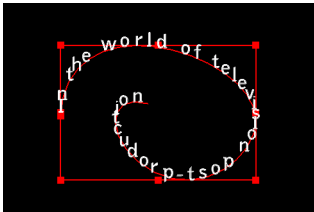


1. Using the Edit tool, select a path and make sure you do not select the text on the path.

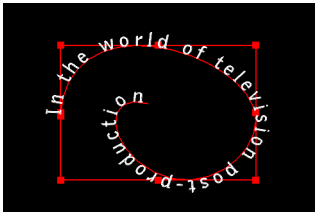


2. From the Path property editor, set the Orientation to one of the following:

- **Upright** to make the characters stay vertical (to the local Y axis) all the time.
- **Follow** to make the characters point perpendicular to their locations along the path. This is the default setting.



Orientation = Upright



Orientation = Follow

You can further control the orientation of text on a path by adjusting the individual character's Rotation properties. So, a path that uses Upright orientation, but whose characters have Rotation values other than zero, produces text that is not upright.



Click the Help icon for detailed information on the Path properties.

Controlling Object Properties Based on Path Position

By default, the properties of characters on a path are dependent on time like all other properties. For example, to change the height of a character over time, you modify its Font height function curve. However, you can also control the font height (or any property) of a character based on its position along its path. For example, you can easily create characters that gradually increase and then decrease in size as they scroll along their path.



To animate character properties based on their positions along a path



1. Using the Text tool, click on a path.
2. With the pointer above the path, right-click and choose **Property Mode** and one of the following from the menu:
 - **Time** to base the property values of each character on the current time in the 3D DVE session. This is the default mode.
 - **Position** to base the property values of each character on the character's position along the path. The text is left justified while in this mode.

In Time property mode, the property values of each character is based on the current time in the project.

Position property mode



Font height changes based on the character's position along the path

Time property mode



All characters use the same font height

3. Select the characters on the path that you want to modify. In most cases, you will want to select all the characters on the path.
4. Adjust one or more properties of the selected characters at different points in time.



If the text is crawling along the path and the path is in Position property mode, the text may not scroll completely off the path. To ensure that the text scrolls off the path, adjust the Scroll Position value at the end of the path's duration.



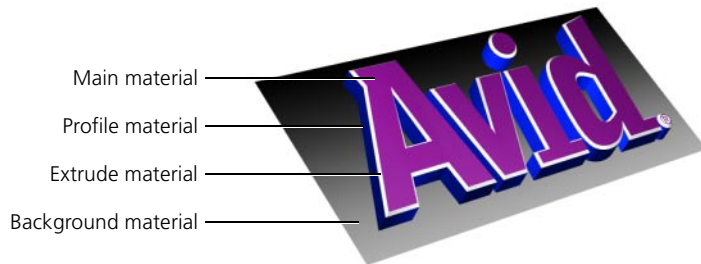
Working with Surfaces and Materials

A surface is an area of an object. You can control the visibility and appearance of each surface by applying a set of properties to it called a *material*.

You can modify the appearance of the various surfaces of an object. For example, you can apply a brick texture to a rectangle to give the appearance of a brick wall, a gradient to a wavy shape that runs along the left edge of the view to enhance a scene, or a reflective texture to the edges of the characters in a word to simulate a chrome outline.

You can apply a material to the following surfaces:

- **Main:** The front and back sides of an object.
- **Profile:** The surface created by the profile effect of an object—see *Applying Profile Effects* on page 388.
- **Extrude:** The surface created by the extruded sides of an object—see *Extruding an Object* on page 389.
- **Background:** The area behind all objects in text objects or the reverse side of DVE objects—*Using a Background* on page 357.



Each material can be one of the following types:

- **Solid color:** A single color.



Although you can import Avid Marquee® projects that use gradient materials, you cannot create or edit them.

- **Texture:** An image or an input.

In addition, a material can be lit by light sources. For more information, see *Working with Lights and Shadows* on page 433.

You do not need to create a material to change the appearance of an object. A material is simply a definition or a shortcut way of setting an object's material properties to specific values.



Applying Materials to Objects

You can apply a material to an object or one of its properties to change the object's appearance. You can apply different materials to the front, back, profile, and extruded materials of an object. All objects have front and back faces, but only extruded objects have an extruded face, and only objects with a profile effect have a profile face. You can specify a material for the background of text objects. For more information, see *Applying Profile Effects* on page 388.

By default, when the main surface of an object has a material on it, the material appears on the front and back surfaces of the object.



If an object does not have a selected profile material, but the object has a profile effect, the profile uses the main material. If an object does not have a selected extrude material but the object is extruded, the extruded surface uses the main material.

If you apply a texture to a text body, each character in the text body uses a copy of that texture. If, instead, you want the texture to appear across all the characters in the text body, you must change the texture mapping setting. For more information, see *Editing Materials* on page 426.

To apply a material to the surface of an object



1. Using the Edit tool, select an object.



2. From the Surfaces property editor, select a surface from the **Surface** list, and adjust the material properties.



Click the Help icon for detailed information on the Surfaces properties.

Using a Custom Material for an Object's Surface

By default, the profile and extrude surfaces of an object use the main surface's material. However, you can set each surface to use a different material.

To enable a surface to use a custom material



1. From the Surfaces property editor, select the **Enable Surface** option.

2. Adjust the material properties.



Click the Help icon for detailed information on the Surfaces properties.

Skiping the Drawing of the Back Faces

If you do not intend to show the back faces of an object (for example, you do not intend to rotate the object around the X or Y axis), you can skip the drawing of the back faces. As a result, you can decrease processing time and improve the appearance of transparent 3-dimensional objects that are rotated.

To skip drawing of the back faces of an object



1. Using the Edit tool, select an object.



2. From the Render property editor, select the **Cull Back Faces** option.

The back faces of the object become transparent.



Click the Help icon for detailed information on the Render properties.



Editing Materials

A material consists of properties (characteristics) that describe its appearance. For example, you can modify a material’s type, color, opacity, and whether it’s affected by light sources in the scene. You can modify the material properties of a surface of an object.

To edit a material used by an object

1. Using the Edit tool, select an object.
2. From Surfaces property editor, select a surface to edit from the **Surface** list.
3. Adjust the material properties.



Changing the Type of Material

Materials can be solid colors or textures. You can change a material’s type at any time.

To change a material’s type

- From the Surfaces property editor, choose a type from the **Type** list.



Changing a Material’s Base Color

For solid-color materials, the base color is the color of the material. If textures are tinted, the base color is the tint color of the material. For more information, see *Tinting a Texture* on page 432.

To change a material’s base color

- From the Surfaces property editor, use the **Base** color control.



Changing a Material’s Opacity

A material’s opacity controls how much of the material, and the object surface on which it’s applied, is visible. Also, if you’re saving a matte, the opacity level controls the object’s participation in the generation of the matte.

To change a material’s opacity

- From the Surfaces property editor, adjust the **Opacity** value.



Opacity = 10



Opacity = 40



Opacity = 70



Opacity = 100



To use an object’s opacity setting to create a matte

1. Using the Edit tool, select an object.
 2. From the Render property editor, select the **Generate Matte** option.
- Click the Help icon for detailed information on the Surfaces properties.



Allowing Material to be Affected by Light Sources

Materials can have two types of finishes:

- **Flat:** A matte finish, which is not affected by light sources. The material appears the same, regardless of the lighting of the scene or the position and orientation of the surface on which the material is applied.
- **Lit:** A glossy finish that is affected by light sources. The material changes appearance depending on the lighting of the scene and the position and orientation of the surface on which the material is applied.

Lit materials are useful for objects that have depth, such as objects that use beveled or extruded profiles. For more information, see *Applying Profile Effects* on page 388.

When a material is lit, you can adjust the specular highlight and emissive colors of the material, as well as its shininess. For more information, see *Working with Lights and Shadows* on page 433.

To allow a material to be affected by light sources



1. From the Surfaces property editor, select the **Enable Lighting** option.
2. For textures, select the **Tint** option. Textures use the specular and emissive color settings and shininess controls only when the Tint option is selected.



Click the Help icon for detailed information on the Surfaces properties.

Adjusting the Specular Highlight Color

When a light source shines on a lit material, the region of the surface that reflects the light directly to the observer (a specular highlight) appears brighter. You can control the size of the specular highlight by adjusting the shininess of the material. For more information, see *Adjusting the Shininess of a Material* on page 427.

To adjust the specular highlight color of a lit material

- From the Surfaces property editor, use the **Specular** color control.

Adjusting the Emissive Color

When a light source does not shine on a lit material, the material can emit or glow with a specific color, known as its *emissive color*. By adjusting the emissive color, an object can appear red when lit and green when not lit.

To adjust the emissive color of a material

- From the Surfaces property editor, click the **Emissive** color swatch and use the controls.

Adjusting the Shininess of a Material

When a light source shines on a lit material, you can control the material's shininess.



Controlling the Appearance of Overlapping Surfaces

To adjust the shininess of a lit material



- From the Surfaces property editor, adjust the **Shininess** value. Values closer to 0 simulate a very dull surface (specular highlight area is larger and the light is less focused), whereas values closer to 100 simulate a very shiny surface (specular highlight area is smaller and the light is more focused).



The Shininess value has no effect if the specular color of the material is black. For more information, see *Adjusting the Specular Highlight Color* on page 427.

Simulating a Reflective Surface Using an Environment Map

When a surface is lit, the specular color appears on the areas of the surface closer to a light source to simulate a highlight. You can also show a texture, called an *environment map*, in the specular highlight areas of the surface. An environment map is similar to a texture in Reflection mapping mode, except that an environment map lets you show a reflection of a texture on an existing texture.

To use an environment map for a material



- From the Surfaces property editor, select a texture from the **Texture** list.

To remove an environment map

- From the Surfaces property editor, click the **R** (reset) icon.

When two surfaces of the same object or different objects overlap, the material on one surface does not affect the material on the other surface. However, you can change the appearance of overlapping surfaces by using Boolean operations. For example, you can create two different colored shapes whose intersection or overlapping areas appear in a different color.

When you use Boolean operations, note the following:

- Shadows affect surfaces that use Boolean operations, which may not produce the effect you want.
- Boolean operations do not affect the alpha channel of a scene.
- If an object intersects another object at a higher position, the Boolean operation will not be apparent. Although objects in a 3D layer are positioned in three-dimensional space, their relative depths affect the order in which they are drawn in the scene.
- Boolean operations do not produce results that appear correct when you're viewing the current layer only or when you tumble the scene.

To control how a surface's material is affected by the materials of other surfaces



- From the Surfaces property editor, select an effect from the **Overlap** list.



When you use a Boolean operation on an object, the object does not appear antialiased in the viewer. Also, semitransparent surfaces appear opaque.

Boolean operation	Example	Description
Normal		The surface is not affected by other surfaces under it. This is the default setting.
Invert		The color of each pixel under the surface is reversed or inverted. Changes to the surface's opacity and type do not affect the result. Lighting the surface deactivates the effect. You can achieve the best results by using this effect on a solid surface.
And		The color of each pixel under the surface appears tinted. Changes to the surface's type affect the result. Lighting the surface deactivates the effect. A solid white surface does not produce any change to the underlying surfaces. You can achieve good results using opaque solid colors, but not as good as when combining gradients or textures with other gradients or textures or using semitransparent solid colors.
Exclusive Or		The color of each pixel under the surface is reversed or inverted in a way similar to the Invert overlap effect, except that the surface's appearance affects the result. Changes to the surface's type affect the result. Lighting the surface deactivates the effect. You can achieve good results using opaque solid colors. Results are not as good when you combine textures.
Not Or		The color of each pixel under the surface is reversed or inverted in some combinations and tinted in other combinations. Changes to the surface's type affect the result. Lighting the surface deactivates the effect. A solid white surface produces black. A solid black surface produces an effect similar to the Invert overlap effect. You can achieve good results using opaque solid colors. Results are not as good when you combine gradients or textures with other gradients or textures.



Click the Help icon for detailed information on the Surfaces properties.



Positioning and Tiling a Texture on a Surface

When you first apply a texture to a surface, the texture is centered on the surface. You can, however, position (offset) the texture.

To position a texture on a surface



- From the Surfaces property editor, adjust the X and Y values in the Offset box.

A texture is offset from its original mapping on a surface. Texture offsets are not based on the scene's dimensions.

To tile a texture on a surface



1. From the Surfaces property editor, select the **Tile** option.
2. From the 3D DVE/Options property editor, select the **Preferences** tab. Select the **Allow Tiling For DS Inputs** option.



If a material is tiled, the texture is repeated on all sides. Otherwise, the texture appears only once.

Scaling a Texture on a Surface

When you first apply a texture to a surface, the texture covers the entire surface. However, you can scale the texture up or down by using the controls in the Surfaces property editor.

To scale a texture on a surface



- From the Surfaces property editor, adjust the X and Y values in the Scale box.

A texture is scaled based on its original size, as mapped onto a surface. Texture scale factors are not based on the scene's dimensions.



If you reduce a texture on a surface, you can see another copy of the texture next to it if you use the Tile option.



Click the Help icon for detailed information on the Surfaces properties.

Cropping a Texture on a Surface

If you want to use only a region of a texture, you can crop the edges of the texture before it's mapped to the surface. Cropping is useful for removing black lines at the borders of textures captured from a video source. Cropping is equivalent to a combined action of offsetting and scaling a texture. You can do one or the other, but not both.



To crop a texture on a surface



1. From the Surfaces property editor, click the Texture Crop icon.

The Crop controls are displayed.

2. In the Texture Crop box, adjust the top, left, right, and bottom values.

The Crop values show the equivalent Offset and Scale values, and vice versa.

Rotating a Texture on a Surface

When you first apply a texture to a surface, the texture is oriented upright on the surface, based on the object's original orientation. However, you can rotate the texture around the Z axis by using the control in the Surfaces property editor.

To rotate a texture on a surface

- From the Surfaces property editor, adjust the Z value in the Rotation box.

A texture is rotated based on its original orientation (no rotation), as mapped onto a surface.



Click the Help icon for detailed information on the Surfaces properties.

Controlling How a Texture is Mapped onto a Surface

The mapping of a texture onto a surface controls how the texture is used. By changing the texture mapping, you can produce interesting effects.

To control how a texture is mapped onto a surface



1. From the Surfaces property editor, select one of the following from the Mapping list:

- **Local** to apply the texture to each object as if it were a decal.
- **Container** to apply the texture based on the dimensions of the object. For example, you can apply a texture to a shape, but make the texture relative to the scene's dimensions. This option also allows you to apply a texture to the contents of an object, such as the characters in a text body.
- **Reflection** to use the surface of the object as if it were a mirror reflecting the texture (reflection map). Reflection maps are mainly used as “ambient” textures.

2. When you change a texture into a reflection map, the texture is enlarged to produce less detail in the reflection. If you want more detail from the texture in the reflection, scale down the texture using the controls in the Scale box.



Click the Help icon for detailed information on the Surfaces properties.



Tinting a Texture

If you want to change the tone of a texture to enhance the texture or to create an interesting effect, use the tint controls in the Surfaces property editor.

When a material is tinted, the base color is used as the tint color. Solid-colored materials cannot be tinted.

To tint a texture



1. From the Surfaces property editor, select the **Tint** option.
2. Select the base color.



Use a brown Base color to simulate sepia-toned surfaces.



Click the Help icon for detailed information on the Surfaces properties.



Working with Lights and Shadows

Light sources are points in three-dimensional space that emit light, causing objects (with materials that can be affected by light) to appear illuminated. You specify the location of light sources relative to objects in the scene. Light sources exist above all other objects in the scene.

Different types of lights illuminate a scene in different ways.

- **Infinite:** Light source is very far away, so that the light rays are essentially parallel to each other. The sun is an example of an infinite light source; this type of light source is also known as a *directional* light.
- **Local:** The light rays extend from a single point evenly in all directions. A candle is an example of a local light source. This type of light source is also known as a *point* or *omni-directional* light.
- **Spot:** The light rays extend from a single point in a cone shape, casting light on a specific oval or circular area of a scene.

For local and spot lights, the intensity of the light decreases in proportion to the distance from its location.



Infinite



Local



Spot

Lights in Avid|DS, just as in real life, help illuminate a scene, and give objects a particular look. Improper placement or adjustment of lights can cause unwanted effects and distract from the content in the scene.

To use lights effectively, place as few lights in a scene as necessary to avoid a bleached or washed-out appearance. Also, use appropriate light settings for the material you use. For example, if you use a concrete-looking material, do not make the material shiny or have a bright specular color. Concrete is not usually shiny in real life.



Adding, Moving, and Deleting Light Sources

You add, move, and remove light sources. You can have up to eight light sources. Each light source is numbered in the viewer.

To add a light source to a scene

1. Click the Light tool in the Tools toolbar.

The current light sources appear in the viewer.

2. Do one of the following:

- Hold down the Alt key and click to add a new light source.
- Right-click above the location for a new light source, and choose **Add Light** from the menu.

A new light source appears at the pointer location. By default, the light source is a white local light.



A bright or focused spot light shining on a material may produce distinct triangular patterns on the surface of objects, known as *undertessellation*. To reduce this problem, change the light type, widen the size of the spot light, decrease the intensity of the light, or increase tessellation.

To move a light source

1. Using the Light tool, select a light source.

2. Do one of the following:

- Drag the light source to a different location.
- From the Transform property editor, adjust the **Position** values.

The lighting of the scene changes accordingly. However, shadows on objects do not change their offsets from their objects. You must modify the shadow offsets manually if you want to create more realistic shadow effects.

Click the Help icon for detailed information on the Transform properties.

To delete a light source

1. Using the Light tool, select a light source.

2. Do one of the following:

- Right-click and choose **Delete Lights** from the menu.
- Press Delete.



Editing Light Sources

Each light source has a specific visibility, type, and color. You can change these properties and animate them over time. You can change light source properties in the Info, Transform, and Light property editors. You can adjust a light source's function curve in the animation editor.

To edit a light source



1. Using the Light tool, select the light sources to edit by doing one of the following:
 - To select a single light source, click it.
 - To select multiple light sources, hold down the Shift key and click them.
 - To switch the selection of a light source, hold down the Ctrl key and click it.
2. From the Info, Transform, or Light property editor, adjust the light source properties. These property editors contain different sets of light source properties.

All selected light sources use the modified properties.



Click the Help icon for detailed information on the Info, Transform, or Light properties.

Turning Light Sources On or Off

You can turn light sources on or off to make them affect or not affect the objects in the scene. Turning off a light source is the equivalent of a non-existent light source.

To turn a light source on/off



1. Using the Light tool, select a light source.
2. Do one of the following:



- From the Light property editor, select/deselect the **Enable Lights** option.
- With the pointer above the light source, choose **Enable Lights** or **Disable Lights** from the Light menu.

Changing the Light Type

A light source's type affects how it illuminates the scene. A light source can be an infinite, local, or spot light. For more information, see *Working with Lights and Shadows* on page 433.

To change a light source's type

1. Using the Light tool, select a light source.
2. Do one of the following:



- From the Light property editor, select a light type from the **Type** list.
- Right-click above a light source and choose a light type from the menu.



Click the Help icon for detailed information on the Light properties.



Using Colored Lights

By default, light sources emit a white light. However, you can change the color of the light to give lit objects a colored tint.

To change the color emitted from a light source

1. Using the Light tool, select a light source.
2. From the Light property page, click the color swatch and select a color.

Click the Help icon for detailed information on the Light properties.



Changing the Intensity of a Light Source

The intensity of a light source controls how brightly it illuminates the scene.

To change the intensity of a light source

1. Using the Light tool, select a light source.
2. From the Light property editor, adjust the **Intensity** value.

A value of 0 produces no intensity and light is effectively disabled. A value of 100 is normal intensity. You can set the intensity to values above 100 for highly intense lights or below 0 for “negative light,” where light is absent.

Click the Help icon for detailed information on the Light properties.



Positioning a Light Source

Light sources, like other objects in the scene, can exist at different locations in the scene.

To position a light source in the scene

1. Using the Light tool, select a light source.
2. Do one of the following:
 - From the Light property editor, select **Spot** as the type and adjust the **Spot Target** values.
 - From the Transform property editor, adjust the **Position** values.

Click the Help icon for more information on the Light/Transform properties.



Adjusting Spot Light Properties

Spot lights have additional properties that you can control.

To position the target of a spot light

1. Using the Light tool, select the spot light source.
2. From the Light property editor, adjust the **Spot Target** values.

When you place the target of a spot light near or at the same position as the spot light itself, the light focuses on a specific area of the scene, which can cause lit materials to appear with triangular patterns on them. This problem is known as *undertessellation* and is caused by the object using





the lit material not being adequately generated (subdivided into polygons) to properly create a smooth illuminated surface—see *Displaying Guides* on page 360.



Click the Help icon for detailed information on the Light properties.

To adjust the size of the area lit by a spot light

1. Using the Light tool, select the spot light source.
2. From the Light property editor, adjust the **Spot Size** values.

Smaller values focus the spot light onto a small area, whereas larger values lighten a larger area.

To adjust the amount of falloff

1. Using the Light tool, select a light source.
2. From the Light property editor, adjust the **Spot Falloff** values.



Smaller values produce little falloff, resulting in a larger, intense light region. Larger values produce a large falloff with a softer light spread.



Click the Help icon for detailed information on the Light properties.

Identifying Light Sources

By default, new light sources are assigned a generic name of “Light.” Like other objects in the scene,⁷ you can change the name and attach a comment to light sources.

To change the name of a light source

1. Using the Light tool, select a light source.
2. From the Info property editor, change the description in the **Name** text box.



You can describe a light by its color, type, behavior, or other characteristics.

To add a comment to a light source

1. Using the Light tool, select a light source.
2. From the Info property editor, change the description in the **Comment** text box.



Click the Help icon for detailed information on the Info properties.



Adding Shadows to Objects

Each object in a scene can include a shadow. You can control the shadow's location relative to the object and the shadow's appearance.



The location of an object's shadow in a 3D layer is controlled by the object's stacking order in the 3D DVE Layers view, not by its position along the Z axis.

A shadow is the projection of an object's outline onto a flat surface called the *shadow plane*. Shadows can be a solid color or a texture (also known as a *shadow map*).

An object's shadow can be one of the following types:

- **Drop** shadows are on the shadow plane, which is parallel to and always behind the object. Drop shadows are not affected by light sources in the scene.
- **Local** shadows are located on the shadow plane, which is either hinged to a side of the object's bounding box or parallel to the object.
- **Projected** shadows are cast from one of the light sources in the scene onto the shadow plane. By default, the shadow plane is hinged to the bottom of the scene.

shadow

Drop

shadow

Local



Projected
(shadow plane and light shown)

Showing and Hiding Object Shadows

By default, objects do not cast shadows. When you use an object's shadow, you can simulate the effect of casting a shadow onto a simple plane. You do not have to light an object's surface for the object to cast a shadow.



Objects and text objects do not cast shadows. To cast shadows behind these objects, create a transparent shape the same size as the object, place it behind the object, and turn on the shape's shadow. If all you want is the shadow, turn off the Main material for the shape.



To show/hide a object's shadow



1. Using the Edit tool, select an object.

You can use shadows for more than one object at a time.



2. From the Shadow property editor, select/deselect the **Show Shadow** option.

If you selected the option, by default, the object's shadow appears gray (black shadow with a 50 percent opacity) and, for drop shadows, is positioned to the lower right of the object.

If the characters in a static text body are casting a shadow, you may want to unclip the text body to keep the shadow from being clipped—see *Clipping Text* on page 418.



Click the Help icon for detailed information on the Shadow properties.

Changing a Shadow's Location

You can easily adjust the location of an object's shadow. For drop shadows, you can adjust the offset of the shadow from the object. For local and projected shadows, you can adjust the location and orientation of the shadow plane.



Shadows and objects cannot intersect, even if they're in a 3D layer.

To change the offset of a drop shadow



1. Using the Edit tool, select the object that is casting a drop shadow.



2. From the Shadow property editor, adjust the **X Offset** and **Y Offset** values.

Negative offsets move the shadow toward the left and bottom sides of the object. Positive offsets move the shadow toward the right and top sides of the object.



To create a drop shadow larger than an object, make a larger copy of the object whose main material is hidden, add a shadow to the copy, and move the copy behind the original.

shadowy

X offset = -1
Y offset = 1

shadowy

X offset = 1
Y offset = 1

shadowy

X offset = -1
Y offset = -1

shadowy

X offset = 1
Y offset = -1



To change the location and orientation of local and projected shadows



1. Using the Edit tool, select the object that's casting the local or projected shadow.
2. For projected shadows, open the Shadow property editor.
3. Select a light source from the **Projected From** list.

Although all possible light sources are in the list, only those light sources actually available in the scene will produce a shadow. For example, if a scene contains three lights and you select a fourth light source, no shadow will appear. This behavior is equivalent to turning off a light source.



Light sources that are turned off still produce and affect projected shadows.

When the Light tool is active, the light sources in the scene are numbered. These numbers correspond to the light numbers in the **Projected From** list.

4. From the **Hinge** box, adjust the location and orientation of the shadow plane relative to the object by using the following controls:
 - **Side** to specify if the shadow plane is attached (hinged) to a side (left, right, bottom, top) of the object's bounding box or parallel to (back) the object.



Left-side hinge



Right-side hinge



Bottom-side hinge



Top-side hinge



Back-side hinge

- **Angle** to orient the shadow plane a certain number of degrees away from the object plane.



0 degrees



20 degrees



45 degrees



60 degrees



90 degrees

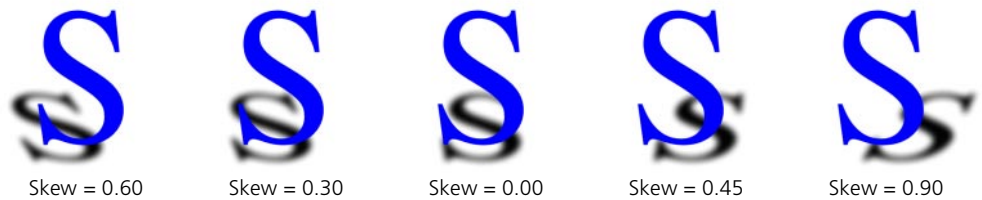
If you set the shadow side to Back, the angle rotates the shadow around the Z axis.



- **Offset** to position the shadow plane away from the object. For local shadows, the offset controls the distance of the shadow plane away from the hinge point. For projected shadows, the offset controls the movement of the shadow plane along global axes.



- **Skew** to slant the shadow plane along its local X axis. Only local shadows can be skewed.



Click the Help icon for detailed information on the Shadow properties.

Changing a Shadow's Appearance

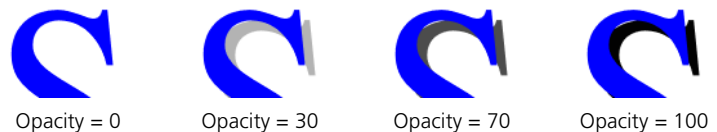
You can adjust the opacity, softness, color, and texture of an object's shadow.

To change the opacity of a shadow



1. Using the Edit tool, select the object that is casting a shadow.
2. From the Shadow property editor, adjust the **Opacity** value.

An opacity of 0 produces a completely transparent shadow, which is not very useful. An opacity of 100 produces a completely opaque shadow.



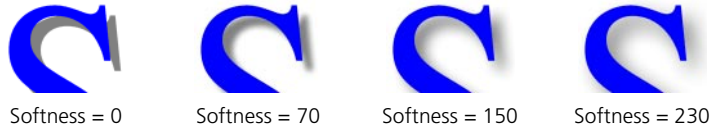
To change the softness of a shadow



1. Using the Edit tool, select the object that is casting a shadow.
2. From the Shadow property editor, adjust the **Softness** value.



A shadow can range from very sharp edges and corners (values closer to 0) to very soft edges and corners (values closer to 250). The softer a corner, the more rounded it appears.



Soft shadows of large objects take longer to render than they do for small objects. If you're working in the viewer, decrease the Shadowing quality setting to improve performance. For more information, see *Displaying Guides* on page 360.

To change the color of a shadow



1. Using the Edit tool, select the object that is casting a shadow.
2. From the Shadow property editor, click the color swatch and select a color.

The selected object's shadow color changes to the color you selected.

Using Shadows to Simulate Glows

Although Avid|DS does not have a glow profile effect, you can use a shadow to simulate a colored glow.

To simulate a colored glow



1. Using the Edit tool, select an object.
2. From the Shadow property editor, set the shadow properties to the following:

- **Show shadow:** selected
- **Type:** Drop
- **X offset:** 0
- **Y offset:** 0
- **Opacity:** 50 or higher

Shadow opacity depends on the shadow color you use.

- **Softness:** 50 or higher. The higher the softness, the longer the shadow takes to render. Use the highest level of softness required for a particular effect to reduce the rendering time.
- **Shadow color:** Glow color. Shadow-based glows do not work well for semitransparent objects because you can see the shadow behind the semitransparent areas.



Importing and Exporting Projects

If you have projects that were created using Avid Marquee, you can import them for use in Avid|DS. You can import projects that contain decks, edit objects within pages, and delete decks. You cannot, however, trim or remove pages within decks, or adjust the timing.



Projects containing decks and pages can only be imported from the standalone Marquee application.

To import a Marquee project



1. From the Commands toolbar, click the Import Project icon.
2. From the Load Project File dialog box, select a Marquee project, and click OK.

The project is loaded in Avid|DS.

To export a project



1. From the Commands toolbar, click the Export Project icon.
2. From the Save Project File dialog box, select a folder in which to save your project, and give it a name.
3. Click OK.

Working with Decks and Pages

A page object lets you create transitions between different objects or collections of objects. For example, you can use page objects to cycle through several sports box scores. You can also use pages to encapsulate or group objects for easier placement in the scene or to create hierarchical behaviors, such as an object rotating in a page that also rotates. A collection or sequence of pages is called a *deck*.

A deck object defines the position, size, and overall duration of the pages within it. Each page within the deck exists for a specific part of the overall duration. As you adjust a deck object, by default, its pages and their contents scale accordingly. If you press Alt and drag the deck object, the deck's contents stay the same size. You can create gaps between pages to let the objects in lower tracks show through.



You can import projects that contain decks, edit objects within pages, and delete decks. You cannot, however, trim or remove pages within decks, or adjust the timing.



Deleting Decks

You can delete decks of pages if you no longer need them.

To delete a deck



1. Using the Edit tool, select a deck object by clicking along its border.



Displaying the construction lines lets you see the borders of a deck. For more information, see *Showing Construction Lines* on page 361.

2. Press Delete.

Moving between Pages

When you want to create objects in a page or view a page in a deck, move to the page by changing the current time.

Objects within a page exist for the duration of the page. If you intend to animate object properties over the duration of their page, be sure to move to the start or end of the page's duration to set the starting and ending points for the animation.

To move between pages of a deck

- Do one of the following:
 - In the transport controls, enter a timecode in the Timecode Locator box and press Enter.
 - Move the play cursor on the timeline.

Adding Objects to a Page

When you want to add objects to a page, you can either create them within the page's dimensions directly, or copy or move them from another page. You can also move deck objects within other page objects.



An object is not considered to be in a page unless the upper-left corner of its bounding box lies within the dimensions of the page. If an object is not moving along with its page, you must move the object to the page.

When you copy or move objects between pages, their locations, sizes, and orientations are retained.

You can create hierarchical behaviors by placing a deck in a page of another deck (by cutting or copying the deck into the page of another deck). For example, as a deck rotates, a shape can rotate in a page of a deck.



To copy or move an object between pages



1. Using the Edit tool, select an object.
2. From the Edit menu, choose one of the following:
 - **Copy** to copy the object.
 - **Cut** to move the object.
3. Click in the page on which you want to place the object.
4. From the Edit menu, choose **Paste**.

Editing Objects Within a Page

You edit a page's objects as you would any other object in the viewer. You may need to move to the page's position in time or zoom in to make it easier to edit objects.

Resizing a Deck

When you want to change the size of a page, you can modify the dimensions of the page's deck. All pages in the deck use the same dimensions. You can either scale the deck and its contents, or resize the deck to keep the contents.

To scale a deck and its contents

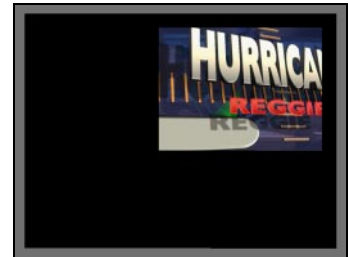


1. Using the Edit tool, select a deck.
2. Drag one of the deck's bounding box handles.

The deck and its pages change to the new dimensions.



Original deck



Scaled-down deck

To resize a deck, keeping the deck's contents the same size



1. Using the Edit tool, select a deck.
2. Hold down the Alt key and drag one of the deck's bounding box handles.

The deck changes to the new dimensions, but the contents stay centered in the deck.



Setting the Output Options

The rendering process usually involves a trade-off between rendering speed and image quality. This section provides some useful tips to consider when rendering. Here is a suggested workflow for you to consider:

1. While working in a 3D DVE session, work in the Direct View mode if you don't need to see all the others effects in your sequence. This eliminates the need to process all the effects in your sequence. Also, use low quality viewer settings and suspend output to the output monitor when creating a scene in the Direct View mode—see *Working in Direct View Mode* on page 359.



The Low quality setting for the viewer produces aliased results. However, Low quality for rendering produces antialiased results. To work more quickly, suspend output to the output monitor.

2. Once you're ready to preview your work, use low quality settings to preview animation or text.
3. Next, preview a high-quality, single frame by outputting.
4. And finally, when you're ready to do the final output, set the quality options to high.

To set the quality level



1. From the 3D DVE/Options property editor, select the **Direct View** property page.
2. Adjust any of the following properties that affect the quality of objects rendered in the viewer:
 - From the Antialiasing list, select one of the following:
 - **None** to apply no antialiasing. This setting produces jagged or aliased edges.
 - **Fast 2D** to draw flat objects.
 - **Texturing** controls the quality of textured surfaces in proportion to the time required to render the texture onto the surface.
 - **Lighting** controls the quality of lit surfaces.
 - **Tessellation** controls the smoothness or approximation of curved edges on characters and shapes.
 - **Shadowing** controls the quality of soft shadows.
 - **Motion Blur** applies a motion blur on fast moving objects.



Click the Help icon for detailed information on the Direct View properties.



Dampening Jittery Text

At certain speeds, small text that scrolls vertically can sometimes appear to jitter. This is noticeable along the top and bottom edges of the scrolling characters.

To dampen the effect of jittery text that scrolls vertically



1. From the 3D DVE/Options property editor, select the **Output** tab.
2. Select the **Suppress Vertical Jitter** option.

A one-pixel blur is applied to the text to soften the jitter.



If the text is not moving vertically or if no jitter exists, you should not use the jitter suppression option.



Click the Help icon for detailed information on the Output properties.





Chapter 9 **Mixing Audio**



In This Chapter...

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.

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Building an Audio Mix. 452

Fine-tuning the Mix. 457

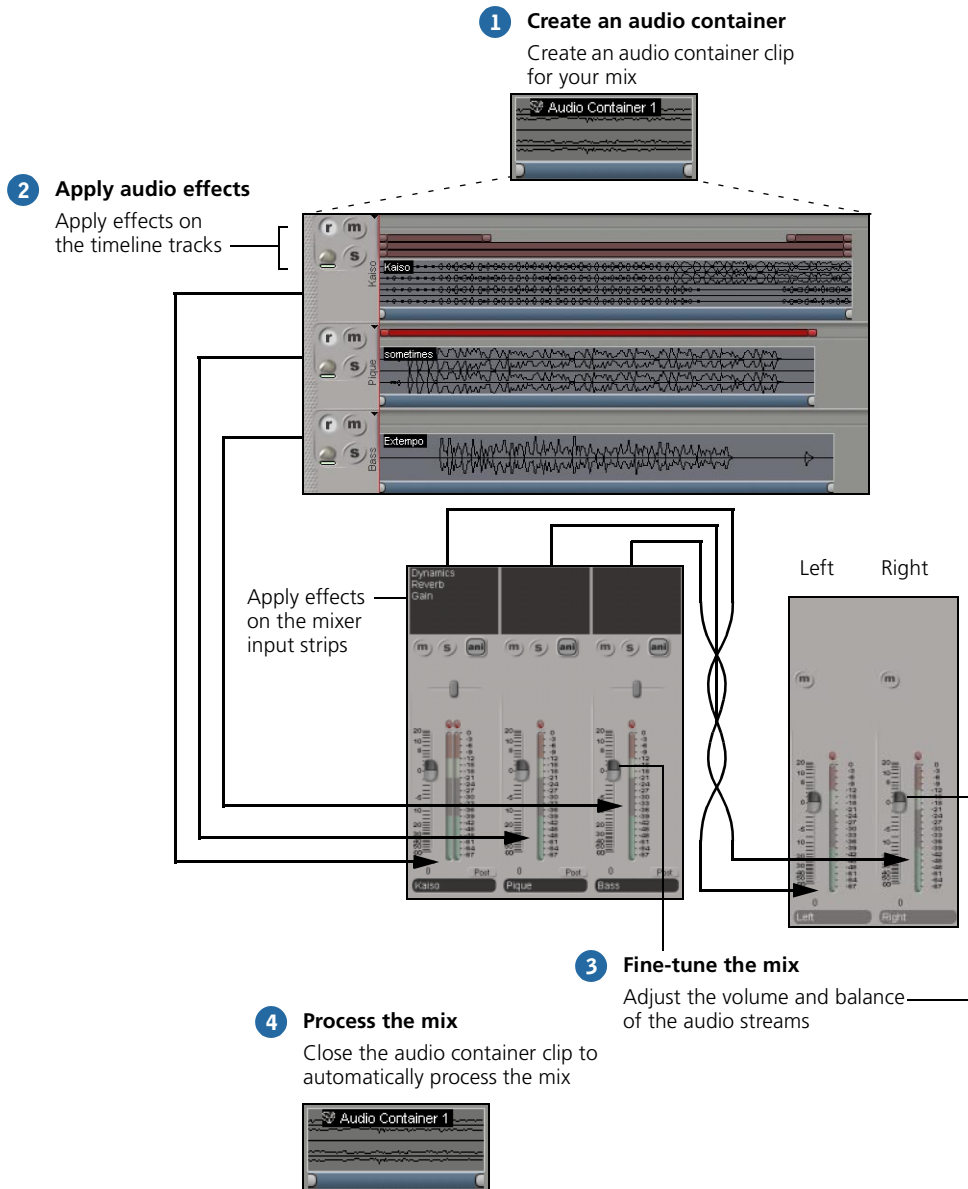
Animating the Audio Mix 460

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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.





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.

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 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 mix:** 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).



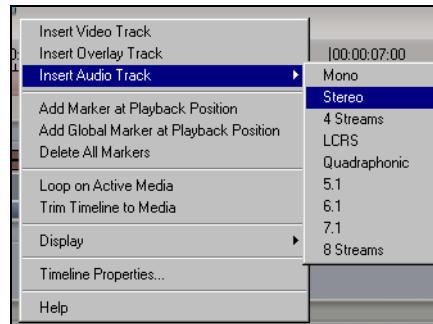
Creating Audio Tracks

Whether you're building a mix in an audio container clip or not, you still need to add tracks to the timeline. Audio clips and tracks in Avid|DS 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

To create an audio track

- Do one of the following:
 - Right-click in the overview area, and choose **Insert Audio Track** and a track format from the menu.



- Drag an audio clip from the browser to the marker ribbon.
Tracks created this way adopt the format of the audio clip.



To determine a clip's audio format

- Right-click on a clip on the timeline and choose **Properties** from the menu.

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 on a track and choose **Properties** from the menu.

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 on a track and choose **Properties** from the menu.

The Track property editor is displayed.

2. In the Format list box, select the format you want.

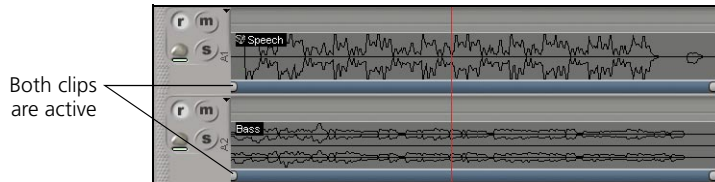


Audio clips appear yellow if their format does not match the audio track format, such as when a stereo clip is placed on a mono track.

Mixing Clips

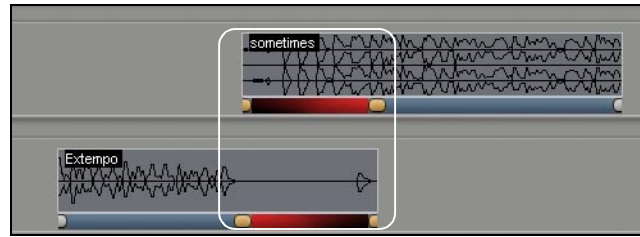
There are several ways of mixing audio on the timeline. You can:

- Place audio clips on different tracks on the timeline, but within the same region. Unlike video clips, audio clips do not lose their activeness when placed at the same timecodes as other audio clips. This allows you to play several clips simultaneously.



Mixing audio tracks

- 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, refer to *Crossfade Effects* on page 498 of the *Compositing & Effects Guide*.



Crossfade transition

Crossfade between two audio clips

- 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, allowing you to 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 allow you to 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, refer to *Changing the Mixer Configuration* in the online help.

To create an audio container clip

1. Place a clip on the track where the container clip will be created.
2. Right-click on the clip and choose **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.

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.

Audio container
clip icon

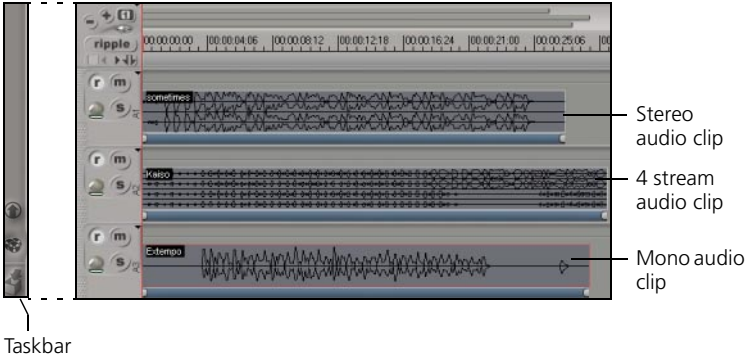




Also, notice that a new container clip icon is displayed in the taskbar. This icon indicates that you’re working in an audio container clip.



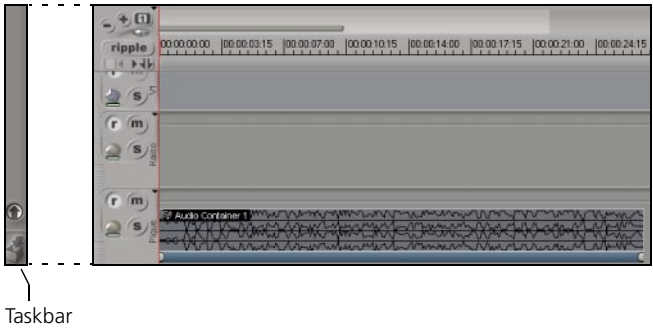
Inside an audio container clip, the ruler time scale is set to samples by default. You can change the time scale by right-clicking on the ruler and choosing a different time scale.



An open audio container clip



3. When you’ve finished editing the clips in this container clip, click the Top Timeline icon 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

When you close the container clip, Avid|DS 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 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.

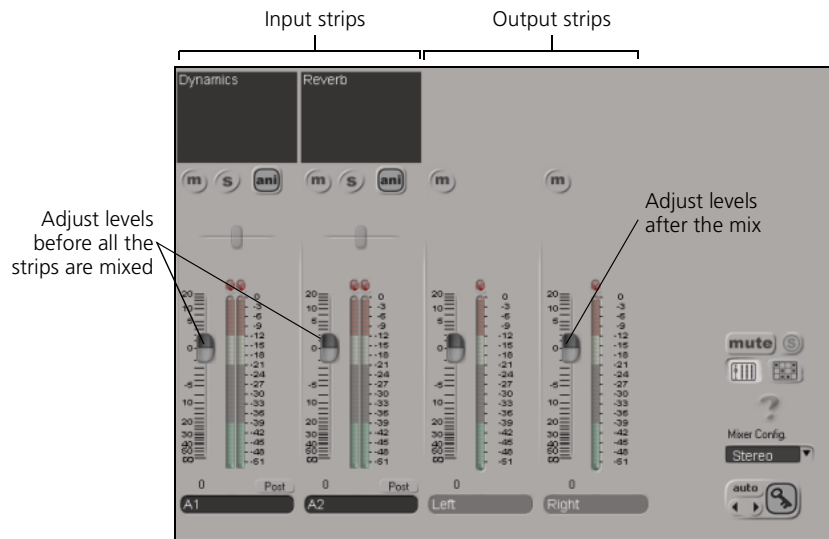


Fine-tuning the Mix

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, refer to *Mixer* in the online help.





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 457.

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 play cursor 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 button again to turn off the effect.
5. As the sequence is played back, drag the fader up or down.



Double-clicking on the fader button returns it to the 0 dB position.



Adjusting the Mixer Outputs

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—refer to *Adjusting the Audio Balance* in the online help.
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.

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 play cursor 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.

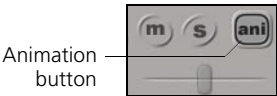
You can animate the fader, mute, and pan controls on the input strips before the signal is processed in the mixer. You can also choose the strips that you want to animate.

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.

Animating the Input Strip Controls

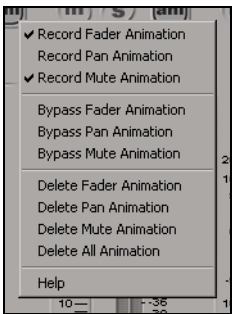


The animation button lets you record any adjustments you make to the pan, mute, and fader controls on the mixer strip in real time. The Solo button cannot be animated because it's a tool that lets you listen to the sounds of the different tracks.

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 on the Animation button and choose a command from the menu.



Pan can only be animated if the pan control is activated. Right-click on the pan control and choose **Enable Pan** from the menu.

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.

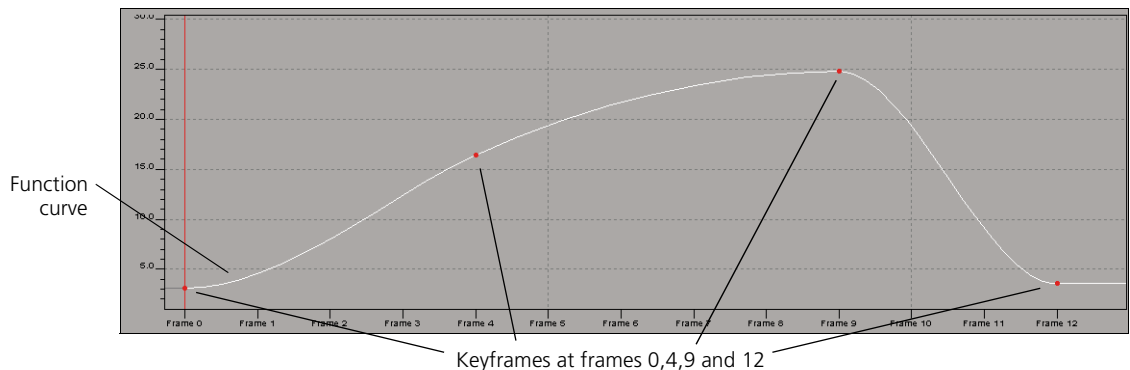
4. To stop playing the sequence, click Play again.
5. Click the animation button on the input strip to deactivate it.



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 icon to manually animate your controls. For more information, see *Setting Keyframes Manually* on page 474.



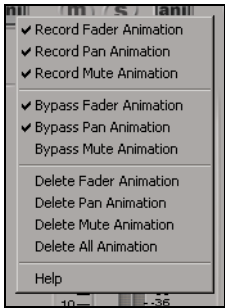
Bypassing the Animation

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 on the Animation button and choose a command to bypass from the menu.

A check mark beside the command indicates that it will be bypassed.



2. Select any other commands 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 on the Animation Key icon and choose **Animation Editor** from the menu.
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 keyframes values need to be adjusted.

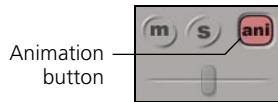
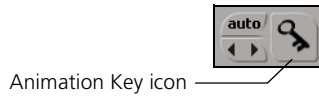
The corresponding function curve is displayed in the animation graph.

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 477.



Deleting Animation



You can delete all or part of the animation on the mixer input strips.

To delete all animation on the mixer

- Right-click on the Animation Key icon and choose **Remove Animation Curves** from the menu.

The function curves for the pan, gain, and mute of each input strip in the mixer are removed.

To delete animation on individual strip controls

- On an input strip, right-click on the Animation button and choose 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.



Converting the Sample Rate

Avid|DS supports conversion of sample rates for clips, as well as sequences and projects. You can change the sampling rate of clips to conform to the rest of the sequence. Similarly, you can change the sample rate of sequences to conform to the sampling rate supported by your audio hardware.

Converting Sequence Sample Rates

If you load a sequence/project with a sample rate that's not supported by your audio hardware, you will be prompted to convert the sequence/project to a supported sampling rate.

The following dialog box is displayed:



If you convert the sample rate of the sequence in this manner, Avid|DS does not convert the sample rates of the sequence's audio clips. You must convert the sample rates of the audio clips manually. For more information, see *Converting the Sample Rate Manually* on page 466.



Converting Clip Sample Rates

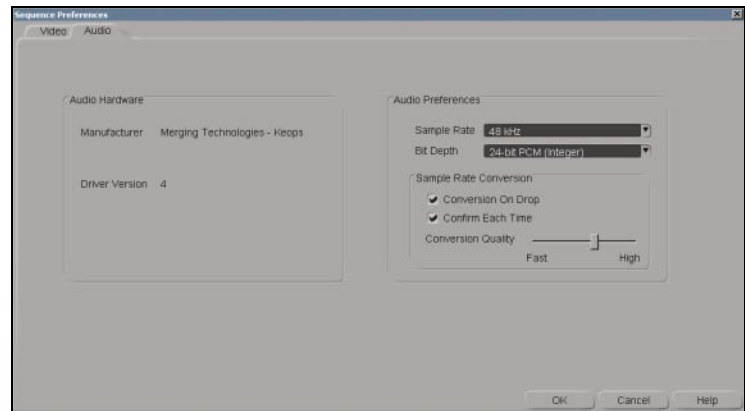
Audio clips can be used in sequences that have a different sample rate. When you place an audio clip on the timeline, its sample rate is converted according to the settings in the Sequence Preferences dialog box (Audio property page). You can convert the sample rate automatically or manually.

Converting the Sample Rate Automatically

Automatic conversion is the process by which Avid|DS converts an audio clip's sample rate to match the sample rate of the sequence in which it's used.

To automatically convert a clip's sample rate

1. From the File menu, choose **Sequence Preferences**.
2. In the Sequence Preferences dialog box, select the **Audio** property page.



3. In the Sample Rate Conversion box, select one of the following options:

- **Conversion on Drop** to automatically convert the sample rate of a clip that you place on an audio track.
- **Conversion on Drop and Confirm Each Time** to prompt you with a message before converting the sample rate of a clip that you place on an audio track.

When the clip is placed on an audio track, a dialog box is displayed, prompting you to start the conversion.

4. Use the **Conversion Quality** controls to specify a conversion quality. Click **Help** for detailed information on the Sequence Preferences dialog box.



Converting the 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. To hear the clip, you must manually convert it to the sample rate 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 on a clip on the timeline and choose **Convert to Current Sample Rate** from the menu.

To manually convert the sample rate of a track

- Right-click on an audio track and choose **Convert to Current Sample Rate** from the menu.

Converting Audio Container Clips

When you convert the sample rate of an audio container clip, only the cache itself is converted. The clips inside the container clip are unaffected. This lets you use a container clip in a sequence or project that has a different sample rate, without having to convert all of the clips inside the container clip.

To convert the sample rate of an audio container clip

- Right-click on an audio container clip and choose **Convert to Current Sample Rate** from the menu.

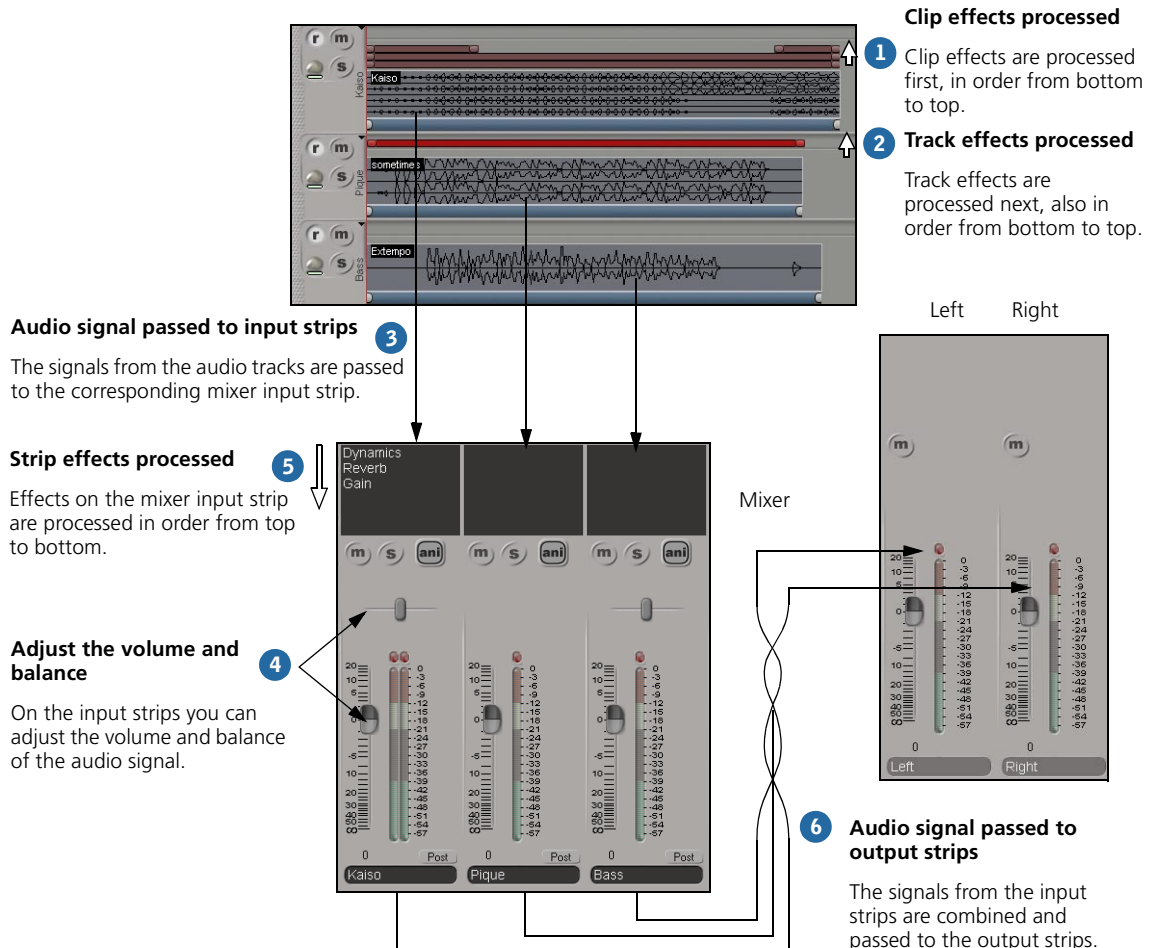
To convert the sample rate of audio clips inside a container clip

1. Open a container clip and manually convert the individual clips.
2. Close the container clip.

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.

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 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 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.

For more information, refer to *Processing Order on Audio Tracks/Mixer Input Strips* on page 162 of the Avid|DS Compositing & Effects Guide.



Chapter 10 **Animating Properties**



In This Chapter...

This chapter describes the different ways you can animate an object’s properties in Avid|DS. 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 Compositing & Effects Guide to learn how to animate transitions, video and audio effects, composited layers, or graphics.

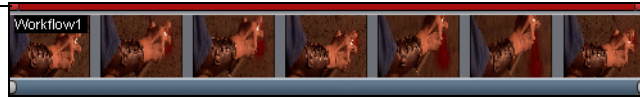
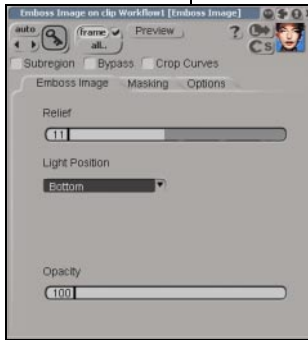
Workflow: Animating Properties	471
Creating Animation	472
Editing Animation	475
Processing Animation	494



Workflow: Animating Properties

1 Create animation

Display effect's
property editor



**Keyframing
Process**

Position play cursor
on a frame

Adjust parameters

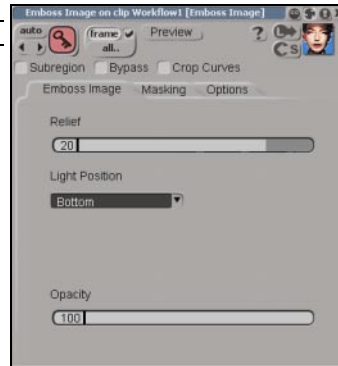
Set a keyframe
manually

or

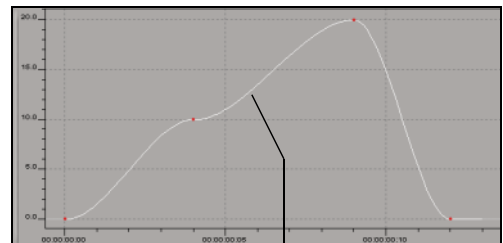
automatically
(Autokey mode)

2 Edit animation

Move between
keyframes, adjust
parameters, and
reset, add, and/or
remove keyframes



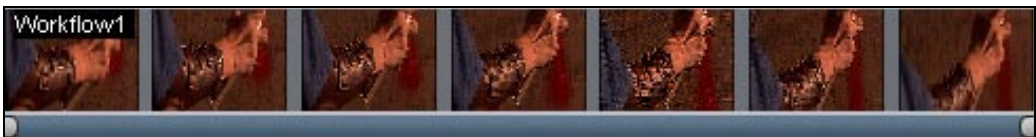
or



Display animation editor and
modify the function curve

3 Process animation

In the final production, the effect's properties change over time





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.

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.
- Use the Animation Key icon to set keyframes manually each time you adjust the object's properties.
- Use the animation editor to manipulate the function curves of selected object properties.
- Create a motion path to animate a DVE.
- Record audio animation in the mixer.

Setting Keyframes Automatically

When you activate the Autokey mode, keyframes are automatically created each time you change an object's properties. Automatic keyframing only sets keyframes for the properties that you change, 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, choose **User Preferences** to open the User Preferences dialog box. From the Animation property page, select the **Set Keys When Changing Values** option.
- Right-click on the Animation Key icon, in the property editor of the object that you want to animate, and choose **Autokey** from the menu or click **auto** in the property editor.

The Autokey mode is activated and the Animation Key icon will turn pink whenever a keyframe is set. Keyframes will automatically be set for all property editors and animatable properties until Autokey is deselected.



2. Use the transport controls to go 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. 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 494.
 - In the property editor, click **Preview**.
 - 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 icon. For more information, see *Setting Keyframes Manually* on page 474.



Setting Keyframes Manually

You can create animation by manually adjusting properties and setting keyframes at different points in time. This method is useful when you want to set keyframes using the controls in the property editors or views, or interactively in the viewer. Manual keyframing places keyframes on all of an effect's properties.

To set keyframes manually

1. Open the property editor in which you want to create animation.
2. Use the transport controls to go to the frame in which you want the animation to start.
3. Adjust the properties that you want to animate.
4. Do one of the following:



- On the status bar, click the Autokey button.



- In the property editor, click the Animation Key icon to set a keyframe.

A keyframe is set for all the animatable properties in the property editor.

5. If necessary, go to different points in the clip and continue adding keyframes.
6. Do one of the following to view the animation:
 - Process the effect and play the clip—see *Processing Animation* on page 494.
 - In the property editor, click **Preview**.
 - 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.



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

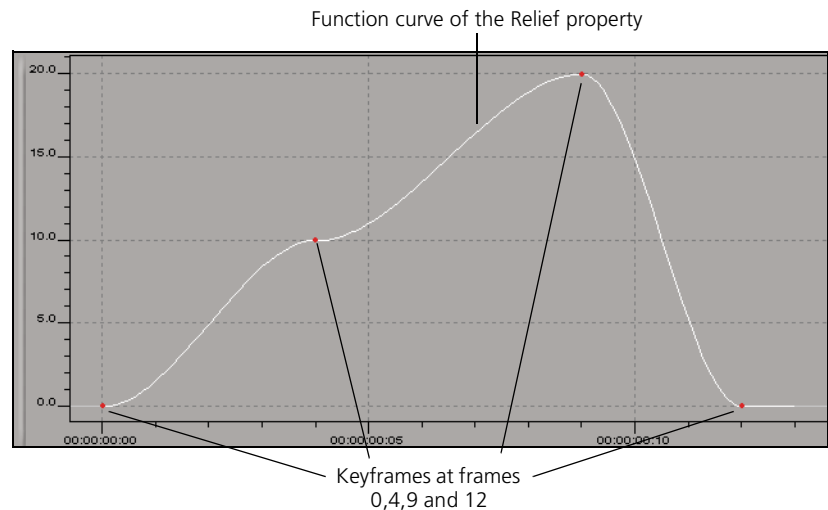


Frame 9



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.



Editing Keyframes Manually

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.

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 on the Animation Key icon and choose **First Key** from the menu.



The play cursor moves to the first keyframe in the animation.

3. If necessary, edit the settings and click the Animation Key icon 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 icon 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 icon) to go to a timecode where a keyframe has been set.

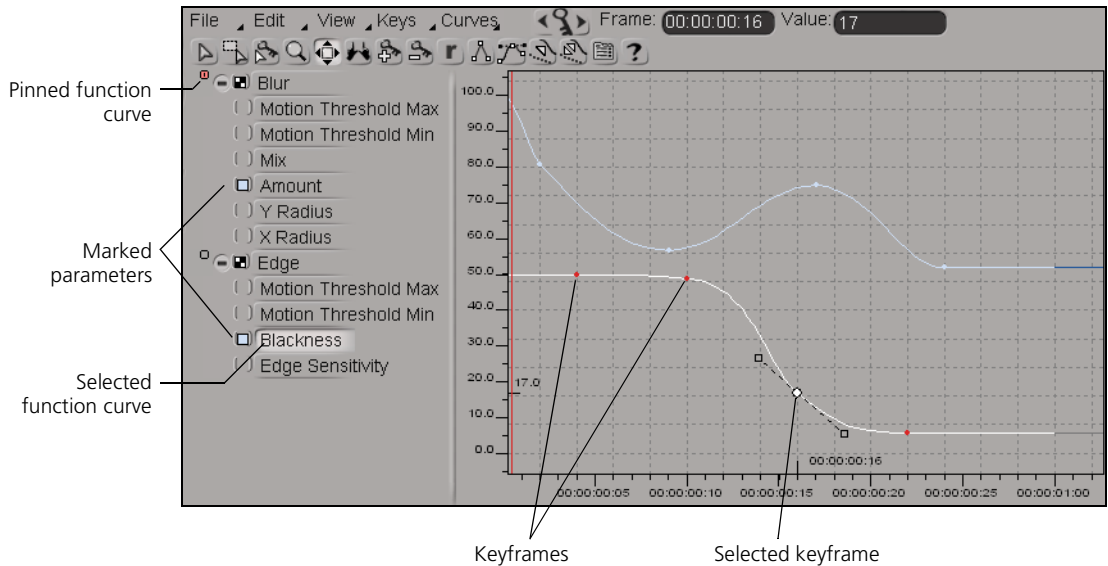
The Animation Key icon will be red to indicate that a keyframe is set on the current frame.

2. Right-click on the Animation Key icon and choose **Remove Key** from the menu.

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, choose **Undo** or press Ctrl+Z.

For more information, refer to *Animation Graph* in the online help.



Viewing Markers in the Animation Graph

In the animation graph, you can display any markers that you placed on the timeline to help you align keyframes at specific points in your sequence.

To display markers in the animation graph

- From the animation editor, click **View** and choose **Markers** from the menu.

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 icon 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.



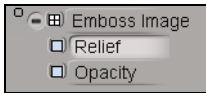
2. To move a keyframe, click the Select icon and do one of the following:

- 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 icon, and click on 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 on the Animation Key icon and choose **Remove Animation** from the menu.

You will be prompted to confirm before all the keyframes are deleted.



Pressing the Delete key only deletes selected keyframes.

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 markers 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 marker.



Though markers 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 marker 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 marker 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

- From the View menu, choose **Meta Curve Region** and choose one of the following:
 - **Display for selected curves only** to display the meta region for selected curves only.
 - **Display for all curves** to display the meta region for all curves.

The meta curve region is displayed below the animation graph.



To add a keyframe to all visible function curves

1. From the animation editor, click the Add Key icon.
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 icon.
2. Drag a marker in the meta curve region.

All keyframes represented by the marker are moved to the new timecode.



To delete a keyframe from all visible function curves

1. From the animation editor, click the Remove Key icon.
2. Click a marker in the meta curve region.

All keyframes represented by the marker are deleted.

Synchronizing Animation

You can synchronize keyframes in the animation editor by dragging their markers in the meta curve region. Moving one marker 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 marker appears in the meta curve region, representing the first keyframe.
2. Select a different function curve, and add a keyframe to it.
A marker appears in the meta curve region, representing the second keyframe.
3. In the meta curve region, click the second keyframe's marker and drag it on top of the first keyframe's marker.

The keyframes are now synchronized, and represented by a single marker in the meta curve region. Moving the marker moves both of the keyframes.



Modifying Regions

In Avid|DS, 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 icon, and select the region of the function curve that you want to copy.

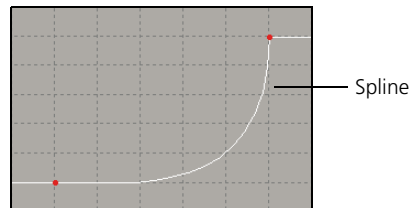
The selected region is highlighted, and edit controls appear along on all four sides.

2. Drag the edit controls to stretch or compress the region.

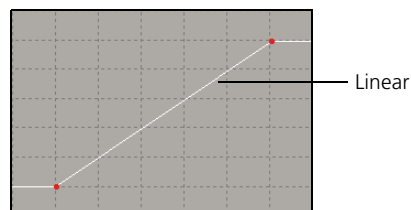
Changing the Slope of a Function Curve

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.

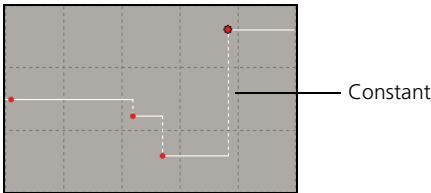


- If the actor steadily approaches the end of a tunnel, the color correction should increase linearly.



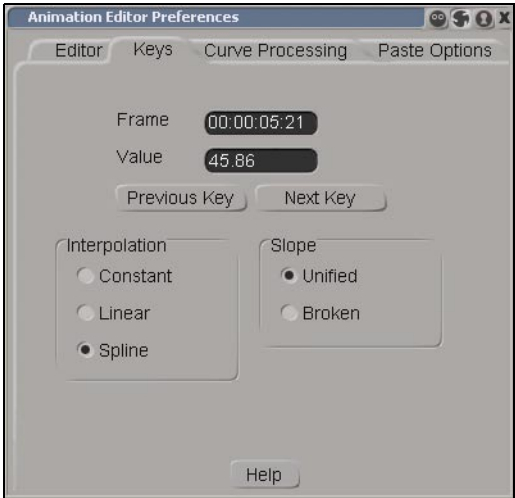


- If the actor is suddenly exposed to sunlight, the color correction should be constant, and then change in one step.



To set the type of function curve

1. From the animation editor, select a function curve.
2. Click the Animation Editor Preferences icon.



3. On the Keys property page, select one of the following options from the Interpolation box:
 - **Constant** to create a curve with constant values that change in steps.
 - **Linear** to create a curve where keyframes are joined by straight lines.
 - **Spline** to create a smooth curve whose slope you can modify at any point.The curve is updated to the new type.

Click **Help** for detailed information on the Animation Editor Preferences.

To set the tangent slope options

1. From the animation editor, select a function curve.
2. Click the Animation Editor Preferences icon.





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 icon.
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 icon.
The original curve is highlighted and you can edit it.



6. When you're satisfied with the edits, click the Snap icon.
The black snapshot curve is updated to match the white function curve.
Click **Help** for detailed information on the Animation Editor Preferences.



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 Y axis. Snapping keyframes to the grid lets you position them at precise timecodes.

Snapping a keyframe to the grid

- Click **Edit** and choose **Snap to Grid** from the menu.

Snapping a keyframe to its nearest frame

- Click **Edit** and choose **Snap to Frame** from the menu.

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 choose **Lock in X (Time)** to lock the key's location in time on the X axis.
 - Click **Keys** and choose **Lock in Y (Value)** to lock the key's value on the Y axis.

The keyframe is frozen in place on the graph editor 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.



Copying Animation

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.

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.

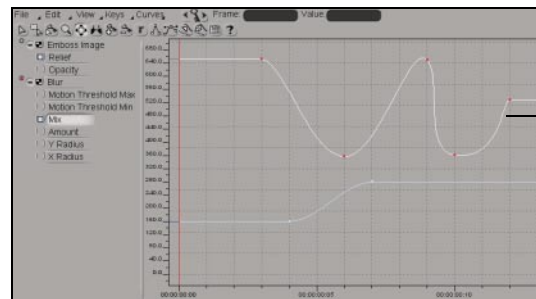
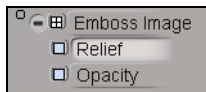
To copy an animation, you simply copy a property's function curve and paste it onto the function curve of another property. You can copy the entire curve or a region of a curve. When pasting the animation, you can do one of the following:

- 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.

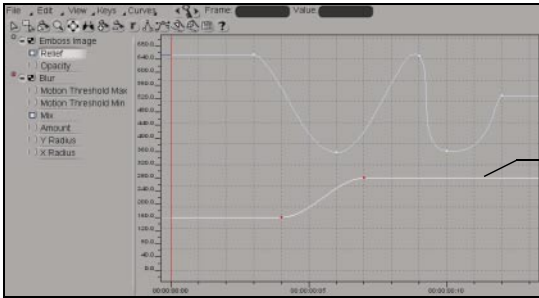
To copy an entire animation

1. In the animation tree, click a property.

In the animation graph, the property's function curve is highlighted.

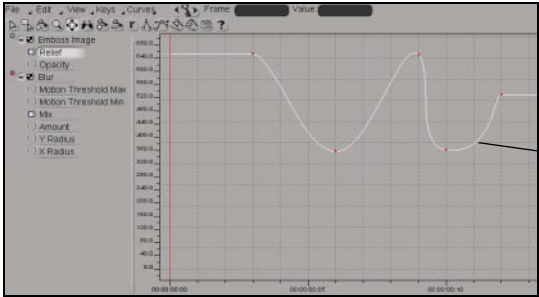


2. Press Ctrl+C.
The animation is copied.
3. In the animation tree, click a property to receive the animation.
In the animation graph, its function curve is highlighted.



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.



To copy a region of a function curve

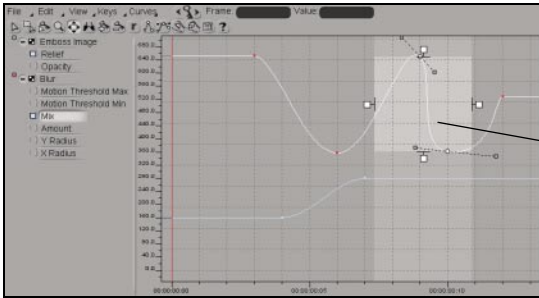
1. In the animation graph, do one of the following to specify the region that you want to copy:

- Select contiguous keyframes.

The region to be copied is between the first and last selected keyframes.



- Click the Select Region icon and select the region of the function curve that you want to copy.





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. Specify where to paste the animation by clicking the Select Region icon and doing one of the following:

- Clicking a timecode

When the animation is copied, it starts at the specified timecode.

- Selecting a region

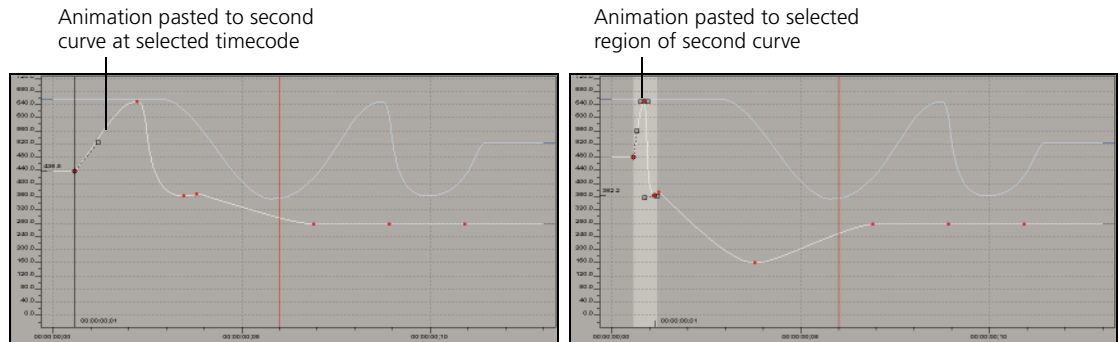
When the animation is copied, it fits into this region. If you copy an animation to a region of a different size, the animation is automatically scaled in time.



If you do not specify where to paste the animation, it's pasted at its original timecode on the selected curve.

5. 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

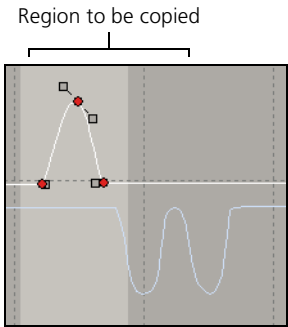
1. In the animation graph, do one of the following to specify the region that you want to copy:

- Select contiguous keyframes.

The region to be copied is between the first and last selected keyframes.



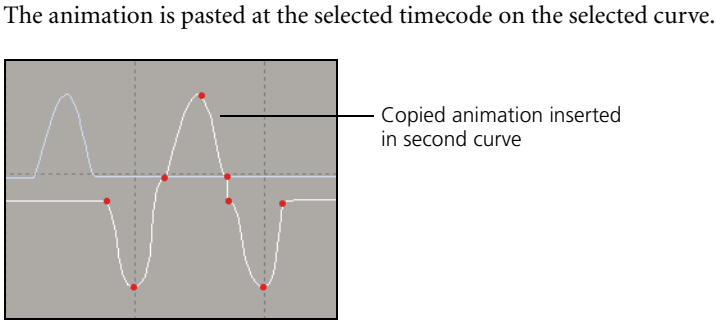
- Click the Select Region icon and select the region of the function curve that you want to copy.



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 icon.
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 icon, 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.





Repeating Animation

Cycling animation allows 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.

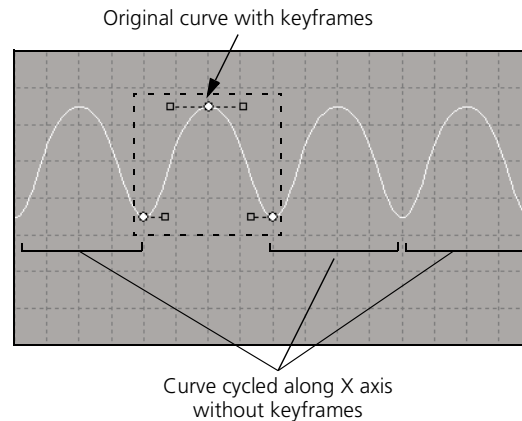
Creating a Basic Cycle

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 choose **Cycle** from the menu.

The pattern is repeated along the X axis of the animation.



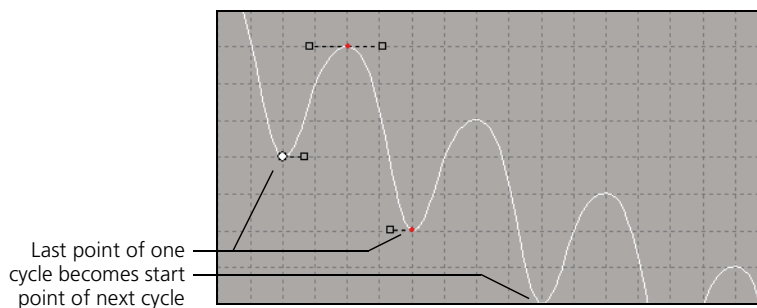


Creating a Relative Cycle

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 choose **Relative Cycle** from the menu.



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.



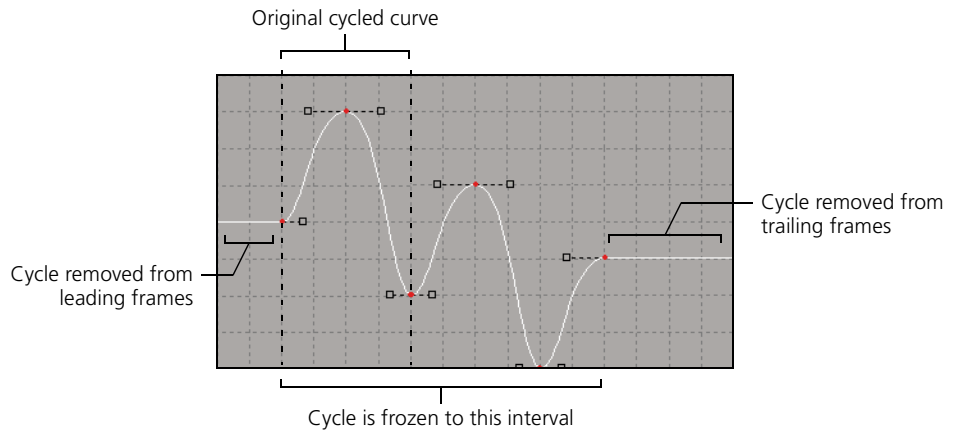
To freeze a cycle

1. In the animation graph, select the function curve whose shape you want to repeat.
2. Click **Curves** and choose **Freeze Cycle** from the menu.

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 choose **Constant Extrapolation** or **Gradient Extrapolation** from the menu.



Trimming Animation

When you want to trim animation, you should trim the animated effect by rescaling the function curves or cropping them.

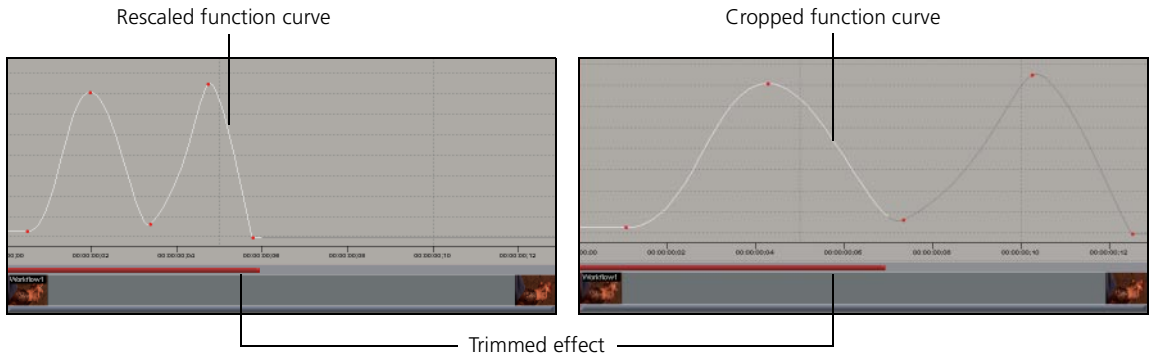
To specify how the animation is trimmed

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.

When you trim the effect on the timeline, the function curves are rescaled in the animation editor.

- Select the **Crop Curves** option.

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, refer to *Trimming Effects* on page 71 of the Avid|DS Compositing & Effects Guide.





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 on the Animation Key icon and choose **Remove Animation** from the menu.

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, click **View**, and choose **Animation Editor** from the menu.

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.

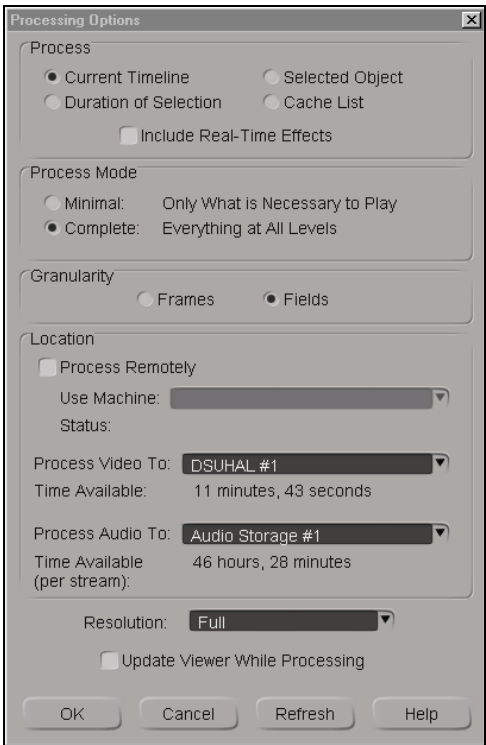


Processing Animation

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 Processing toolbar, click **Process**.
 - In the timeline controls, click the Process indicator icon.
2. In the Processing Options dialog box, select the appropriate options.



3. Click **OK** to begin processing.

A progress bar appears on the bottom of the desktop to show the status of the process.
 4. Click **Cancel** to stop the process at any time.
- Click **Help** for detailed information on the processing options or refer to *Processing Effects* on page 127 of the Avid|DS Compositing & Effects Guide.



Chapter 11 **Outputting Media**



In This Chapter...

This chapter describes how to output your edited material to tape or file.

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Workflow: Outputting Media

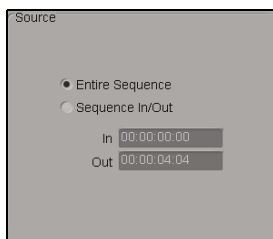
After you have constructed your sequence and processed any effects that you applied to it, you can output it to tape, file, EDL or OMF file (audio only). The following illustration shows you how Avid|DS outputs media.

1 Select the area to output

Select the entire sequence

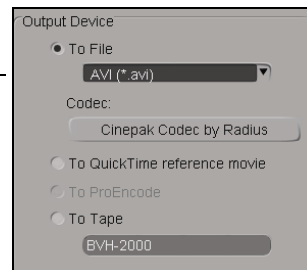
or

Select specific region



2 Select the output device

Select whether you're outputting to file or tape. If you're outputting to tape, you must select the external device on which the media will be recorded.



3 Output media

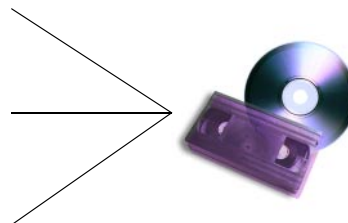
Output the sequence to tape

or

Export it as a media file

or

Export it as an EDL or OMF file (audio only)





Preparing for Output

Preparing for output requires you to specify the output quality and select the clips to be output. You should also verify that the external device is configured properly. For more information, see *Configuring the External Device* on page 74.

When outputting media, Avid|DS uses the video and audio quality settings that you specified in your sequence preferences. However, if you change them, you must recapture and reprocess your media before outputting your sequence. For more information, see *Changing the Sequence Preferences* on page 142.



You can also compress material before outputting to the .avi or .mov file formats. All compression codecs installed on your machine are available from within Avid|DS.

Selecting an Area to Output

With Avid|DS, you can output the entire sequence or just a selected region. You can also choose to output only video or audio tracks, or a combination of both.

Setting the Duration for Output

You do not have to output your entire sequence at once. You can select a specific region, or only the contents of a container clip.

To set the duration for output



1. From the Media Input/Output layout, select the **Output** panel.
2. In the Source box, select one of the following options:

- **Entire Sequence** to output the entire timeline.

If you're on the top timeline, the entire sequence is output. If you're within a container clip, only the clips on the container timeline are output.

- To output a selected time span, go to the Editing layout and mark in and out-points on the timeline. Return to the Media Input/Output layout and select the **Sequence In/Out** option.

The marked in and out timecodes of the sequence are displayed in the Sequence In/Out text boxes.

Click **Help** for detailed information on the Media Input/Output panels.



Selecting the Channels and Tracks for Output

In addition to specifying the length of the sequence to be output, you can also select specific tracks or audio channels to be recorded.

To select tracks for output



1. From the Media Input/Output layout, select the **Output** panel.

In the External Device box, Avid|DS detects the type of media in the sequence you selected and automatically sets the appropriate tracks.

2. Click **V** for video tracks and **A** for audio tracks.

Click **Help** for detailed information on the Media Input/Output panels.

Checking the Status of the External Device

Before outputting your material, you should check to make sure that the external device is reading the signal from your system.

To check the status of the external device

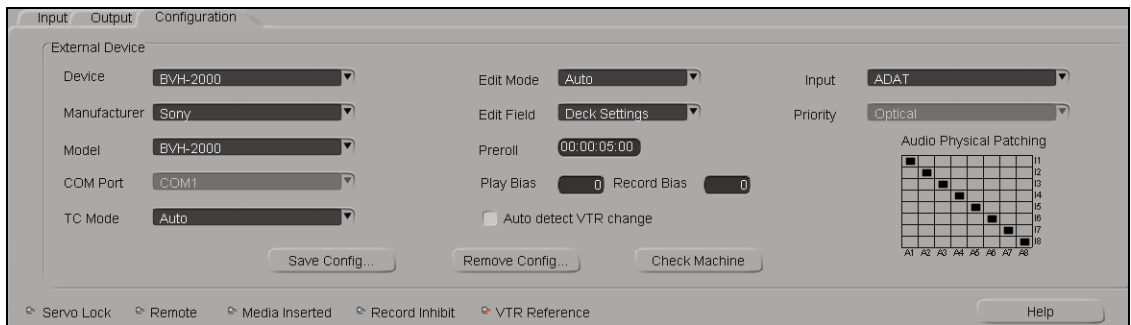
- From the Configuration panel of the Media Input/Output layout, click **Check Machine**.

If the link between the external device and your system is operating properly, nothing occurs. If there is a problem, a message box appears, stating the possible cause of the problem.



You can also verify that the external device is operating within normal parameters by checking the five items in the External Device Status area. A green or red light beside each item displays its status. Items that are grayed out are inactive. This area is available from all panels in the Media Input/Output layout.

Click **Help** for more information on each item in the External Device Status area.



External Device status area



Outputting Material

When you output a sequence from Avid|DS, you’re taking all the information contained in a sequence file, such as, timecode information, source media used, and generated caches, and copying it to an external device or file.

Before you output your sequence, make sure you process any unprocessed areas on the timeline. For more information, refer to *Processing* on page 129 of the Avid|DS Compositing & Effects Guide.

In Avid|DS, you can either output to tape or export to file. If you’re outputting to tape, your hardware should already be configured to output material to a tape device connected to your workstation. You must configure the device properly, so take the time to check that all the settings are correct. When exporting to file, you must select the disk where the file is to be stored.

 During output, a red indicator light will flash on the transport controls if any frames are skipped. The output stops and a message box appears, stating the possible cause of the problem.

If this problem continues to occur, you can try decreasing the throughput on the system by creating audio container clips for your audio material. For more information, see *Creating an Audio Container Clip* on page 261.

Outputting to Tape

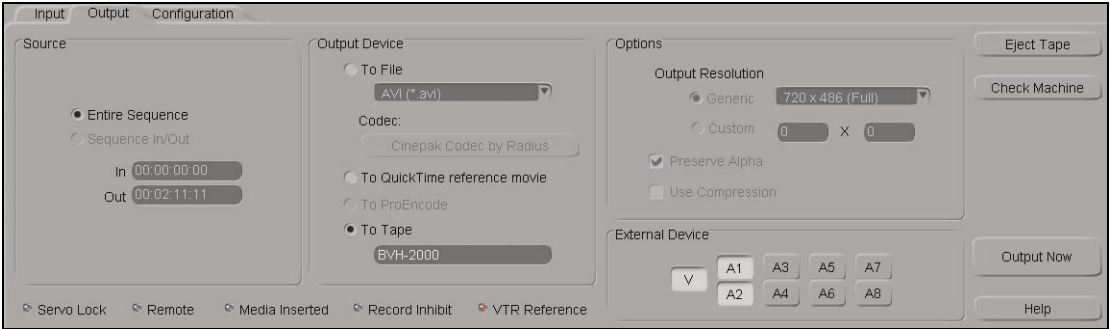
When you output video to tape, the image size always matches the resolution set in the Sequence Preferences dialog box.

 When you output your material, you can either insert edit (Auto Edit mode) the material into an existing tape program, or you can assemble edit your material onto a brand new tape.

When you output audio to tape, you will get the best performance with eight streams of audio on the top timeline. For example, you can output four stereo tracks at 48 KHz 16-bit with uncompressed video.



1. From the Media Input/Output layout, select the **Output** panel.





2. In the Output Device box, select the **To Tape** option.

The preset name of the external device configured to your workstation appears in the To Tape text box.



To change the external device or modify its configuration, select the Configuration panel, select a new device or make the necessary changes to the existing preset and resave it. For more information, see *Configuring the External Device* on page 74.

3. In the **External Device** box, click the video and audio tracks to output.
4. On the Input panel, make sure the **Capture Source** is set to **Tape**, and then use the transport controls to locate the position on the tape where you want the program to start recording.



If you're insert editing your material, make sure that your tape is properly striped with timecode before attempting to output your material.

5. On the Output panel, click **Output Now**.

The selected media in your sequence is output to tape.

Click **Help** for detailed information on the Media Input/Output panels.



Exporting to File

When you export to file, you can set various output options, depending on the type of file you’re creating. These options define the frame size, compression, and alpha component of the output.



You can’t export a file at a different frame rate than that of the current sequence. If you want to convert the frame rate of your file, you’ll have to use an external media conversion tool, such as the cleaner application.

When outputting to the .avi or .mov file formats, you can choose a compression codec (compressor/decompressor) directly from within Avid|DS. Every codec installed on your workstation is available during output.

You can also choose to output QuickTime reference movies. These movies are very small in size and output very quickly since they only contain composition information. You can use QuickTime reference movies in combination with Avid ProEncode™ to quickly create formats suitable for distribution via the web, DVD, or CD-ROM.

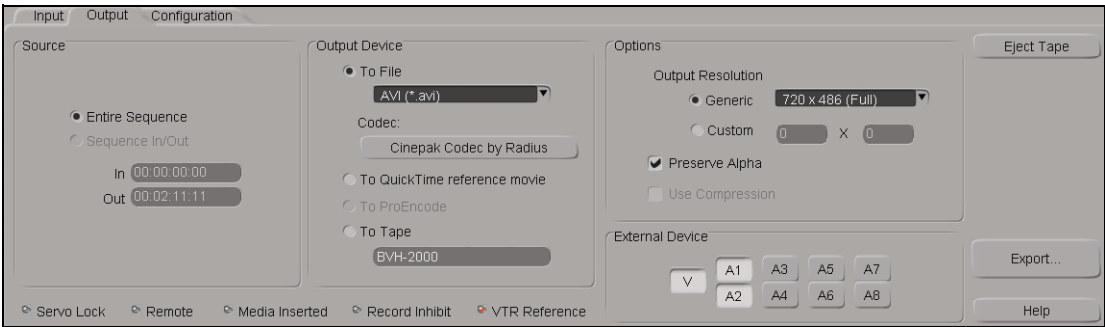
Output resolution is independent of the sequence frame size or working resolution. By default, output resolution is set to the sequence frame size, but you can select a different output frame size.



Audio is not exported when the selected export format is an image format. Similarly, video is not exported when the selected export format is an audio format.

To export to a file

1. From the Media Input/Output layout, select the **Output** panel.



2. In the Output Device box, select the **To File** option.
3. From the file type list, select a file type.



Avid|DS supports a wide range of video and audio file formats. When you export your media as a sequence or as single frames, choose from any of the following formats:

File format	File extension	Supports alpha	Supports compression
AIFF (uncompressed)	.aif, .aiff, .aifc	-	-
Alias	.als	No	No
AVI	.avi	Yes	Yes
Avid DS (Video Hal)	.gen,.omf	No	No
Bitmap (Windows)	.bmp	No	Yes
CINEON	.fido	No	Yes
JFIF (JPEG)	.jpg, .jpeg, .jfif	No	No
MAP	.map	No	No
Microsoft Windows Paintbrush	.pcx	No	No
PGM	.pgm	No	Yes
Photoshop	.psd	Yes	Yes
PICT	.pct, .pict	Yes	Yes
PPM	.ppm	No	Yes
QuickTime	.mov, .qt	Yes	Yes
SGL	.sgi, .rgb	Yes	Yes
Softimage	.pic	Yes	Yes
TIFF	.tif, .tiff	Yes	Yes
Targa	.tga	Yes	Yes
WAV	.wav	-	-
Wavefront	.rla	Yes	No
YUV	.yuv	No	Yes

If you choose .avi or .mov as the file type, a Video Compression dialog box is displayed. Choose a compression codec, modify the settings to meet the quality you require and click **OK**.

4. From the Options box, select one of the following options:

- **Generic** to pick a standard resolution from the list.
- **Custom** to create your own custom resolution. You can create a custom resolution by entering X and Y values in the appropriate text boxes.

Material is output at the selected frame size.



5. Select the **Preserve Alpha** option to retain alpha channel information 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, so check the list to make sure.

6. Some file formats, other than .avi and .mov, support compression. If you have space considerations, select the **Use Compression** option to reduce the size of the output material.
7. Click **Export**.
8. From the Export to File dialog box, select a folder in which to save your material, type in a name for the file, and click **Save**.

The material is processed, if necessary, and exported to file, and placed in the selected folder.

When you export a sequence to a still image format, such as .bmp or .tiff, each frame is saved as a separate file.

For example, if you export your sequence to a file named “MyPicture.bmp”, the output is saved as independent still image files. The files are numbered sequentially: for example, MyPicture.001.bmp, MyPicture.002.bmp, MyPicture.003.bmp, and so on.

To output a sequence to a specified series of image files, enter the following in the **File name** text box:

prefix.*[first..last;padding]*.*extension*

Property	Description
Prefix	The name of your file. The prefix can also include the name of your directory.
First	The first frame of the sequence you want to export. First is assumed to be a positive integer and smaller than Last.
Last	The last frame of the sequence you want to export. Last is assumed to be a positive integer and larger than First.
Padding	The number of digits contained in the Last number. For example, if your First number is 23 and your Last number is 1000, your padding should be 4 because 1000 has a total of four digits.
Extension	The file name extension.

For example, if you wanted to output a sequence to a series of image files with the names Alpha.0100.pic to Alpha.1000.pic, you would enter the following in the **File name** text box:

Alpha.*[100..1000;4]*.pic



Exporting QuickTime Reference Movies



You can take a snapshot of the viewer and export it to file. For more information, see *Creating an Image File from a Snapshot* on page 225.

Click **Help** for detailed information on the Media Input/Output panels.

A QuickTime reference movie is a QuickTime movie that contains only composition information. These files do not contain media. Instead, they point to the original media on your storage device. As a result, they are very quick to output and are very small in size. When you play back the QuickTime reference movie, the movie references the original media files on your storage device.

As long as the QuickTime reference movie can access the original media, you won't have any problem playing it back. You can move the QuickTime reference movie to another workstation but make sure that the media is located on a storage device that is shared between the two workstations. If you plan to move these type of files to a workstation that does not have access to the original media, then you should export it as a standard QuickTime file.

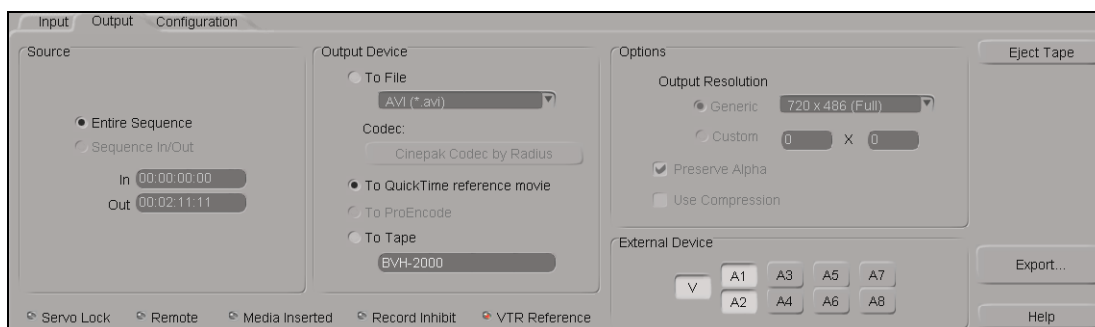


QuickTime reference movies do not support compressed media. You can, however, output at lower resolutions, such as half or quarter resolution. You can output these files in either 4:3 or 16:9 format.

You can also export QuickTime reference movies directly to ProEncode to translate your media into formats suitable for distribution via the web, DVD, or CD-ROM.

To export a QuickTime reference movie

1. From the Media Input/Output layout, select the **Output** panel.



2. In the Output Device box, select the **To QuickTime reference movie** option.
3. Click **Export**.
4. From the Export to QuickTime Reference Movie dialog box, select a folder in which to save the file, type in a name for the file, and click **Save**.



The QuickTime reference file, which contains only the composition information, is created, and placed in the selected folder. Since the QuickTime reference movie points to the original media, the output settings will be the same as the current sequence settings.



A QuickTime reference movie becomes invalid if the media to which it points is modified.

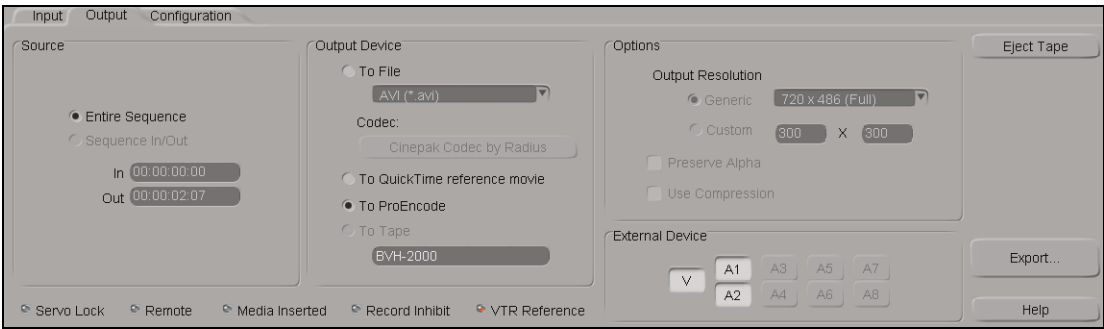
You must have the QuickTime codec and Avid media QT codec installed on your workstation in order to play back QuickTime reference movies.

Exporting QuickTime Reference Movies to ProEncode

If you plan to convert your media into formats suitable for distribution via the web, DVD, or CD-ROM, you can output QuickTime reference movies directly to ProEncode. ProEncode software automates the entire encoding process. It also allows you to distribute the encoding work to other workstations, which lets you continue working on other tasks.

To export a QuickTime reference movie to ProEncode

- 1. From the Media Input/Output layout, select the **Output** panel.



- 2. In the Output Device box, select the **To ProEncode** option.



If the ProEncode client is not installed on your workstation, the To ProEncode option is greyed out.

When you use the To ProEncode option, QuickTime reference movies are created automatically. Make sure that the source media for these files resides are on a shared storage area. The source media must also be accessible to the machine on which the ProEncode Provider software is running. For information on sharing storage areas, see *Configuring Media Storage* on page 70.



3. Click **Export**.
4. From the Export to File dialog box, select a folder in which to save the file, enter a name for the file, and click **Save**.

The QuickTime reference file is created in the selected folder and the ProEncode client is displayed.



When you output to ProEncode, you must save the QuickTime reference movie in a shared folder. If the folder is not already shared, Avid|DS shares the folder for you.

For information on using ProEncode, refer to the ProEncode User Guide and online help.



The QuickTime reference movies are not deleted when ProEncode is finished creating its output. You have to delete the QuickTime reference files manually.





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